June 2023

Environmental Peer Review Report

Planning Application - Saint-Gobain Mining (Ireland) Ltd. Open Cast Gypsum Mining at Knocknacran West

On Behalf of

Monaghan County Council

MALONE O'REGAN ENVIRONMENTAL

QUALITY
I.S. EN ISO 9001:2015
NSAI Certified

MALONE O'REGAN

Form ES - 04

MALONE O'REGAN ENVIRONMENTAL

Ground Floor – Unit 3
Bracken Business Park
Bracken Road, Sandyford
Dublin 18, D18 V32Y
Tel: +353- 1- 567 76 55
Email: enviro@mores.ie

Title: Environmental Peer Review Report, Planning Application - Saint- Gobain Mining (Ireland) Ltd. Open Cast Gypsum Mining at Knocknacran West, on behalf of Monaghan County Council

Job Number: E2093

Prepared By: Kenneth Goodwin **Signed:** _____

Checked By: Declan Egan **Signed:** _____

Approved By: Klara Kovacic **Signed:** _____

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	01/06/'23	Report	Final	KG	DE	KK

Environmental Peer Review Report

Planning Application - Saint- Gobain Mining (Ireland) Ltd. Open Cast Gypsum Mining at Knocknacran West

Monaghan County Council

Contents

EXECUTIVE SUMMARY

Malone O'Regan Environmental (MOR) undertook a peer review of the reports titled 'Knocknacran West Open-Cast Mine and Community Sports Complex' Environmental Impact Assessment Report (EIAR) and Screening for Appropriate Assessment & Natura Impact Statement (NIS) prepared for Saint-Gobain Mining (Ireland) Ltd. (SGMI) by SLR Consulting Ireland (SLR), dated March 2023. These documents accompanied a planning application, reference 22/60045 by the Local Authority. This review was completed on behalf of Monaghan County Council (Local Authority).

The review incorporated the submitted EIAR, NIS, Non-Technical Summary and associated appendices. The peer review also encompassed the planning application, relevant drawings and third-party submissions in so far as they informed on the environmental assessment completed.

The key findings of this peer review include the following:

- The submitted EIAR presents a clear understanding of the Proposed Development within Chapter 3.
- The scale of the proposed construction works, including the movement of ca. 200,000 tonnes of soil for berm development, is presented.
- The scale of the movement of ca. 2m tonnes in phase 1 operations of over burden is presented, and with figures and schematics informing on these works.
- The separation of regulatory responsibility during the construction and operational phases are clearly committed to and defined.
- In general chapters define the methodology undertaken, the receiving environment present and the key impacts arising from the Proposed Development. These are clearly laid out within the text and progression from impact to mitigation and residual impact are clear.
- Specific queries do require clarity in understanding the likely impact.

In summary, it would be reasonable to conclude that there is a significant amount of environmental data available for the facility based on the EIAR presented.

We would conclude that at this juncture additional information is required by the Applicant, to allow the Local Authority to conclusively adjudicate on this planning application.

1 INTRODUCTION

1.1 Context

1.1.1 On behalf of Monaghan County Council (the Local Authority), Malone O'Regan Environmental (MOR) conducted a peer review of the report titled 'Knocknacran West Open-Cast Mine and Community Sports Complex EIAR' dated March 2023.

1.1.2 This peer review included the following key documents: Non-Technical Summary, Volume 1 Main EIAR and the Natura Impact Statement.

1.1.3 The existing mine, which forms part of this application, is licensed by the Environmental Protection Agency (EPA), industrial emissions license number P0519-04. This licence incorporates the existing mine and the applicant's factory in Ballynaclose, County Meath.

1.1.4 It is stated in Chapter 1.6 Volume 1 Main Text that 'A licence review process will be undertaken to incorporate the proposed open-cast mine at Knocknacran West into the IE Licence.'

2 NIS

2.1 Overview

2.1.1 In-text citations are missing in parts of the NIS due to formatting errors.

2.1.2 The NIS refers to species such as bats and mustelids, see Section 4.2 and 7.3 for context. Justification is required on the relevance of the assessment of these species in the context of both the assessment screening process and identified Natura 2000 sites.

2.1.3 The NIS undertook a detailed assessment of potential pollutants to the nearby watercourses. However, downstream distance to SACs / SPA is ca.38.6km for Dundalk Bay SAC and SPA and ca.27.5km for Strabannan-Braganstown SPA. Table 5.2 outlines that mitigation for total suspended sediments (TSS) is required. No clear justification is presented on the requirement of these measures to protect Natura 2000 sites.

2.1.4 Dundalk Bay SPA has been screened in for further consideration in the NIS solely on the basis of its hydrological connection to the Site via the River Bursk and subsequently TSS impacts. However, bird species designated for this SPA including lapwing, mallard and designated wetland and waterbirds such as coot, grey heron and moorhen were recorded onsite during the bird surveys as outlined in the EIAR and Appendix A of the NIS. In addition, appropriate habitat for snipe and water rail was identified. No consideration is given to these designated species within the NIS or a reason for scoping them out of the assessment.

3 EIAR OVERVIEW

3.1.1 It is considered that the EIAR document is clear, concise, and generally unambiguous. The document as presented enables access to relevant sections of the assessment, and the consistent numbering of headers, makes it clear where relevant information will be found.

3.1.2 Terminology on the various aspects of the Proposed Development is defined and used throughout the EIAR.

3.2 Non-Technical Summary NTS

3.2.1 The Non-Technical Summary encompasses 48 pages. This is longer than typically offered with an EIAR.

3.2.2 The NTS utilises non-technical language to summarise the main EIAR, detailing the main key characteristics under each chapter.

3.2.3 This report will need to take cognisance of queries to the main text EIAR outlined below.

3.3 Introduction Chapter 1

3.3.1 Chapter 1.2 identifies the two distinct elements of the EIAR been the proposed Mine Development and the proposed Community Sports Complex. Furthermore, the proposed Mine Development is sub categorised into three component parts –

- The proposed Knocknacran West Open Cast Mine also referred to as the Knocknacran West Mine;
- The Knocknacran Open Cast Mine, also referred to as the Knocknacran Mine; and,
- The continuation of use of the Knocknacran Open Cast Mine processing plant, water management facilities and associated infrastructure, also known as the Knocknacran Processing Plant.

3.3.2 Chapter 1.4 presents a short history of the mining locally, identifying the operational years, and closing year, for the Ballynaclose open cast mine, Lisnaboe mine, Drumgill mine, Cormey mine, Drumgoosat mine and the Knocknacran Open cast Mine.

3.3.3 Further detail on the history of the Knocknacran Open Cast Mine is presented in Chapter 1.4.1, and for the Drummond Mine in Chapter 1.4.2, including relevant planning submissions. A figure showing the extent of the application Site and the Drummond Mine are given in Figure 1.2.

3.3.4 Chapter 1.5.3 presents the rationale for the proposed open cast mining. The works are presented as a permanent engineering solution to the remaining risk of subsidence which occurred locally.

3.3.5 Chapter 1.6 presents the transition from Local Authority to EPA licencing and the EPA license review process. The chapter notes “Emissions related to the Mine Development are expected to be regulated by the Local Authority during the construction phase (refer to Chapter 3.0) while activities during the operational phase (refer to Chapter 3.0) are expected to be regulated by the EPA due to the nature and scale of the activities proposed.”

3.3.6 Chapter 1.7 confirms the EIAR is submitted under Schedule 5, Part 1 item 19 and Part 2 item 2c of the Planning and Development Regulations 2001 (as amended).

3.3.7 Table 1.2 and Table 1.3 presents the consultant leads on each chapter along with their qualifications and accreditations. This meets the requirement of the 2014 EIA Directive (2014/52/EU).

3.3.8 The EIAR chapter 1 introduction presents a clear overview of the Proposed Development and the rationale for this application been submitted.

3.4 Scope Chapter 2

3.4.1 Chapter 2.3.1 presents the stakeholder engagement; however, it is noted this engagement, and the responses provided within the appendix, refer to those done for the 2022 planning submission, reference 22/34, which the chapter notes was withdrawn by the applicant, prior to a determination by the Competent Authority could

be made. It is presented that the proposed development within this application and within the 22/34 submission is unchanged, and the submission and consultation conducted are therefore valid and have been incorporated within this submitted EIAR.

3.4.2 Figure Chapter 2.3.2 presents the community engagement undertaken generally by the applicant and specifically in relation to the proposed development. This includes a dedicated community liaison officer, dedicated website and information events conducted in 2021.

3.4.3 Table 2.1 presents a checklist of relevant sections for the EIAR that shows compliance with the requirements of the 2014/52/EU Anne IV information to be included as part of an EIAR.

3.4.4 Chapter 2.4.5 presents the geographical extent and notes that specific specialist chapters will further define any relevant zone of influence associated with the Proposed Development, and the temporal extent, outlining the commencement plan and duration of works associated with the Proposed Development.

3.4.5 Table 2-2 clearly presents the commencement of the removal of overburden will require an EPA license. The table further presents, once the EPA license is activated, all works within the site, including the closure and rehabilitation, will be done under the license by the EPA.

3.4.6 The Chapter presents construction activities will be temporary to short-term, mining operations will be long term with a permanent effect occurring post restoration, while the Sports Complex will similarly be a permanent development.

3.5 Project Description Chapter 3

3.5.1 Section 3.1 presents annual production of gypsum from the existing operations at 250,000 to 500,000 tonnes per annum.

3.5.2 Chapter 3.2 presents the various elements of the Proposed Development, while Table 3.2 gives the project terminology.

3.5.3 This chapter presents that the construction phase will be regulated by the Local Authority, while the operational and restoration will be regulated by the EPA.

3.5.4 The transition from construction to operational is presented as "…*once the Cut-and-Cover Tunnel has been constructed and commissioned, allowing the movement of material through the tunnel from the Knocknacran West site to the existing Knocknacran site for restoration purposes*".

3.5.5 Chapter 3.3.2 presents the Applicants commitment "…*SGMI give a commitment that no overburden stripping for the purpose of accessing the gypsum deposit in Knocknacran West will be undertaken until an IE Licence to do so is granted by the EPA"*.

3.5.6 Figure 3.3 presents a timeline of the main aspects of the Proposed Development and the aspect to be regulated under Local Authority or EPA, with further details clearly outlined in Table 3.3.

3.5.7 Figure 3.7 presents a cross section of the Proposed Development detailing the construction phase works, including the removal of soils, ca 200,000tonnes, for screening berm construction, and the operational phase including removal of over and inter burden, and the extraction of the upper and lower gypsum seams.

3.5.8 Figure 3.8 gives an overview of the construction elements, including the areas of land requiring stripping and the boundary fencing. A schematic of the boundary treatment,

including details on boundary access tracks, existing hedgerow thickening, and new berms and planting.

3.5.9 In relation to the demolition of onsite building, a Resource Waste Management Plan has been prepared.

3.5.10 Chapter 3.5.1 presents the operational hours for the Knocknacran West Mine (8am-8pm Monday to Saturday); transport and processing in the Knocknacran Processing Plant (6am to 9pm Monday to Saturday); and extraction haulage and placement of over/inter burden material (8am to 8pm Monday to Saturday). Blasting of gypsum is presented as occurring every 2-4 weeks, with no blasting to occur on Sundays or Public Holidays.

3.5.11 Chapter 3.5.7 presents the Proposed Mine operational phasing from Phase 1 (Years 1 and 2); to Phase 6 (Years 21 to 30).

3.5.12 Chapter 3.6 presents the closure and restoration, with Figure 3.17 presenting the final restoration plan.

3.5.13 Chapter 3.7 details the mine site infrastructure, including in-pit crusher, conveyor, welfare. Figure 3.21 details the processing infrastructure located with the existing processing plant which will be utilised.

3.5.14 The description of the proposed development and the various development phases are clearly outlined and described to give an understanding of the project.

4 ALTERNATIVES CHAPTER 4

4.1 Overview

4.1.1 Alternatives cover 4 options: existing proposal, a) Develop greenfield site in Ireland, b) Relocation of extraction activities to another site abroad, c) Do-Nothing.

4.1.2 Alternative A is deemed "…without the development of the Knocknacran West Mine, the underground workings will remain in place and the risk of further subsidence over the workings will also remain within the Application Site. This could represent a Medium Adverse effect of selecting Alternative A over the current proposals."

4.1.3 Alternative A is also deemed to possess "High Adverse social effect when compared to the effects of mining in an established area" and "in terms of a conservative assessment, if an operation were to be established at a previously undisturbed greenfield site with more environmental sensitivity, the overall impact of this alternative could be considered Medium Adverse when compared to the 'Do-Nothing' scenario or alternative locations", along with "it is considered that Alternative A would result in High Adverse economic effects in comparison with the 'Do-Nothing' scenario and alternative locations".

4.1.4 Alternative B is presented as resulting in a loss of jobs locally to the site, resulting in Medium adverse effect local social effect, along with the remaining risk of subsidence on the Site presenting medium adverse social effect, compared to the proposed approach. Concerns on environmental relation for a non-EU site, are raised along with increased transportation distances increasing the carbon footprint, overall giving a medium adverse environmental effect. Economically the loss of the gypsum supply is deemed to have immediate impacts at the mine, however, it is the long-term impact on the gypsum factory is deemed reasonable to jeopardise its economic capability, and ultimately led to full closure, and a high adverse effect on the Irish construction industry.

4.1.5 The Do-Nothing scenario notes the benefits of the existing restoration; however, the 'Do-Nothing' scenario would not remove the risk of further subsidence at the Knocknacran West site. This is presented as a Medium Adverse social effect. Furthermore, as with Alternative B, the economic feasibility of the Saint-Gobain factory near Kingscourt continuing to operate based on gypsum importation is likely to be limited. This is presented as a Medium Adverse social effect in terms of local communities. The effects of Alternative C on environmental considerations are deemed to be Medium Adverse by the applicant, while the overall magnitude of the economic impact from a 'Do-Nothing' scenario is presented as a High Adverse when compared to the current proposals.

4.1.6 Chapter 4.2.4 assesses alternatives in relation to layout, design and process. This chapter covers the following: processing plant, materials handling options; diversion design; size of the extraction area.

4.1.7 Chapter 4.3 gives an overview of gypsum recycling, its status nationally and internationally and the need for raw gypsum to support multiple industries in the foreseeable future, thereby presenting the applicant's need for gypsum mining.

4.1.8 Chapter 4.4 presents the alternatives considered for the proposed community sports complex development, including a) development of a greenfield site elsewhere and b) 'Do-Nothing'. The assessment of alternatives is presented as low to highly adverse to either alternative option.

5 POPULATION & HUMAN HEALTH CHAPTER 5

5.1 Overview

5.1.1 This chapter of the EIAR describes the human environment and identifies and assesses impacts of the Proposed Developments on population and human health. The chapter states that the Proposed Developments can impact on humans either directly or indirectly, positively, or negatively. Direct effects may include health and safety, air, water, noise, landscape, and road traffic. Indirect effects refer to matters such as ecology, heritage, and archaeology.

5.1.2 This chapter assesses the effects of the mine development and the Community Sports Complex individually.

5.1.3 Section 5.2 of the chapter addresses the planning objectives and plan area in relation to the Monaghan County Development Plan (2019-2125) with several objectives of the plan referenced for the assessment.

5.1.4 Findings of environmental specialist assessments elsewhere in the EIAR are summarised in in section 5.5.5 of the Population and Human Health Chapter.

5.1.5 The assessment methodology uses a matrix approach, where magnitude and the nature of potential impact is determined versus sensitivity of receptor. The terms used are provided in Table 5.1- Environmental Value (sensitivity) and Description.

5.1.6 There is information on demolition of Magheracloone Mitchells Gaelic Football Club grounds due to subsidence in 2018, construction of temporary grounds, and the planning granted for a new facility to be completed in 2022 within the Proposed Development site, in the area devoid of underground mine workings.

5.2 Assessment

5.2.1 The assessment methodology uses a matrix approach. The authors have prepared several tables to characterise the impact assessment and terminology, for example, Table 5.1: Environmental Value (sensitivity) and Description, Table 5.2: Environmental Value (sensitivity) and Description for Assessment Groups, Table 5.3: Magnitude of Impact and Typical Descriptions and Table 5.4: Significance Matrix are used to assess the effects of the Proposed Development on Population and Human Health. Table 5.5 describes the significance categories and typical descriptions.

5.2.2 The assessment methodology for this chapter of the EIAR refers to the EPA's 2022 Guidelines on the Information to be Contained in Environmental Impact Assessments, which suggests the following sub-headings under which to arrange issues relating to populations and human health:

- Employment, Human Health considered with reference to other headings such as water and air,
- Amenity (e.g. effects on amenity uses of a site or of other areas in the vicinity – may be addressed under the factor of Landscape.

5.2.3 The authors reference the Institute of Environmental Management and Assessment (IEMA) guidance documents on the assessment of human health within the EIA as follows:

- Effective Scoping of Human Health in EIA (Nov. 2022)
- Determining Significance for Human Health in EIA (Nov. 2022).

5.2.4 They continue saying that the guidance makes clear that the topics of population and human health are separate technical topics. This chapter of the EIAR assessed the likely significant effects of the Proposed Development on the 'quality of life' under the following headings:

- Populations;
- Employment;
- Amenity and Community;
- Land Use;
- Human Health; and,
- Health and Safety.

5.2.5 This approach provides a comprehensive assessment to determine the impacts of the Proposed Development on populations and human health.

5.3 Baseline Assessment

5.3.1 Several sources were examined to determine the baseline population and human health conditions around the mine. These included data from the 2016 Census returns, CSO labour statistics, Monaghan County Development Plan (2019-2025), and the Border Regional Planning Guidelines (2010-2022), field surveys and site walkovers, desktop assessments, aerial and Ordnance Survey maps and DCCAE Eircode maps.

5.3.2 These are reliable sources of data, and the data is presented in a logical and transparent manner in the EIAR.

5.3.3 The applicant provides a GIS figure for the application site boundary, the townland boundary (Enagh Electoral Division), (Figure 5.3, Figure 5.4 and Figure 5.5

respectively), and various GIS figures illustrating the location of one-off housing and farmsteads within 500 m of the application site boundary and the location of houses within the site boundary.

5.3.4 Section 5.4.2 of the EIAR provides data on population age distribution, population density, households' employment, employment status for persons over 15 years of age, percentage persons in work by industry, local employment centres, amenity and community, land use, EPA licenced facilities with 5 km of the site is provided in the EIAR.

5.3.5 Data on human health for the surrounding area was sourced from the 2016 Census. Over 88% of the population in the area reported 'good' to 'very good' health.

5.3.6 The 2016 Census data is the most up-to-date data on human health that is available. The 2022 CSO data has not been fully reported yet.

5.3.7 Overall, the data provided in the EIAR is a comprehensive baseline assessment for populations in the area around the site.

5.3.8 Figure 5.6 in the EIAR – Location of Houses within the Site Boundary, shows the location of the houses, both occupied and unoccupied within the site boundary. One of the houses is occupied. The EIAR reports that the removal of the occupied dwelling will cause a loss of a key residential feature in the surrounding area and the report describes the impacts as 'Adverse impact of slight significance'. The text continues to state that the residents currently living in the occupied house have 'been in lengthy discussions with regards the Proposed Development and its implications for the property'. The residents will be relocated to an adjacent property. There are 150 residential houses and 18 non-residential units within 1 km of the site.

5.3.9 There are three EPA licenced sites, and five consented Section 4 discharges within 5 km of the site.

5.3.10 The assessment identifies that potential impacts from the site which may affect local populations includes nuisance from noise, dust, disruption to views and potential environmental emissions. The reader is referred to several chapters where these effects are further examined. These assessments illustrate that the impacts of the construction stage of the mine will be Negligible and Adverse.

5.3.11 Asbestos was confirmed in three structures to be demolished on the Knocknacran West site. A specialist waste management contractor will oversee the removal of the asbestos containing material from the site.

5.4 Impact Assessment

5.4.1 The approach to the assessment was a combination of reasoned argument and professional judgement of competent experts.

5.4.2 The assessment identifies that potential impacts from the site which may affect local populations includes nuisance from noise, dust, disruption to views and potential environmental emissions. The reader is referred to several chapters in the EIAR where these effects are further examined. Chapter 7 covers Soils and Geology, Chapter 8 covers water, Chapter 9 covers climate, Chapter 10 addresses air, Chapter 11 covers noise and landscape and visuals are addressed in Chapter 13. Chapter 9 looks at the greenhouse gas emissions that will be generated during the operation of the mine and the Community Sports facility.

5.4.3 Chapter 10 of the EIAR provides a comprehensive review of the impacts of the site on air quality. The chapter on Populations and Human Health found that with suitable mitigation measures, dust impacts from construction areas are predicted to be Not Significant.

5.4.4 The predicted effects on air quality during operations at the mine are Slight. The chapter concludes that the mitigated risk to human health will be Negligible and Not Significant both during the construction and operational phases of development. PM10 levels will be below the relevant air quality standard and PM2.5 will be below the relevant air quality standard for the nearest receptor.

5.4.5 SGMI has committed to sourcing all electricity from certified carbon neutral sources. They have pledged to create net-zero carbon emissions no later than 2025. Table 9.6 of the EIAR shows scoped emissions from the project. It is estimated that nearly 5.5 million litres of diesel will be used over the lifetime of extraction (approx. 30 years). The estimated volume of diesel used during extraction of gypsum at the mine is estimated at 30 million litres. Operational GHG emissions are estimated to be in the range 3,000-5,000 tonnes per annum $CO_{2e.}$

5.4.6 The predicted noise levels (daytime, evening, and night-time) are below the noise guidance limits at the nearest receptors.

5.4.7 The impacts of additional traffic on the R179 regional road are estimated to be imperceptible because the road will have sufficient link capacity for each of the future assessment years. The traffic assessment junction capacity for the R179/L4900/L8830 stagged crossroads shows that the junction will continue to operate within capacity and the impact on the local network is therefore imperceptible. Similarly, the junction capacity impact assessment for the R179/L4816/L49014 crossroads is imperceptible.

5.4.8 There are 22 private wells within 500 m of the site. The assessment found that these schemes and wells are hydrologically disconnected and isolated from the gypsum mining areas and the impact on drinking water will be Negligible.

5.4.9 Closure of the mine is reported as having a Negligible impact on Population and Human Health.

5.4.10 Chapter 17 (Major Accidents and Disasters) examines the impacts of a subsidence event occurring beneath the public road or beneath land overlying the mine workings. The residual effects are Not Significant. Chapter 17 does not assess the impact of climate change on the mine and on populations in the area of the mine.

5.4.11 Chapter 7 of the EIAR (Land, Soils and Geology) assesses the mine stability by mining at Knocknacran West or placement of the cut and cover tunnel as Negligible and the significance of the effect as Slight.

5.4.12 The Cumulative Impact assessment found that the Sport's Complex and the mine will be developed simultaneously. There are 4 extractive industries within 5 km of the site but there will be no significant cumulative impacts.

5.5 Conclusions

5.5.1 The impact assessment for Population and Human Health has not addressed the impacts of the Proposed Development on climate both the impacts of mining operations on climate change and the vulnerability of the project to climate change. However, this is addressed in Section 9 of the EIAR. Similarly, the impacts and vulnerability of climate change to people living close to the mine were not explored in this chapter of the EIAR. For example, the effects of predicted increases in rainfall events in Ireland, and the predicted prolonged drier summers have not been considered in this section of the EIAR.

5.5.2 There is very limited commentary on how the Proposed Development supports European and National legislation, Plans, Programmes and Policies. Reference to the National Planning Framework 2040, Ireland's Climate Action Plan, the North-

West Regional Plan 2024 would provide support for the Proposed Development and demonstrate how the development meets Irelands economic, social, and environmental goals.

6 BIODIVERSITY CHAPTER 6

6.1 Survey Effort and Methodologies

6.1.1 The Survey effort and methodologies for fauna used to inform this assessment are not sufficient or completed in-line with the referenced guidance or best practice. All relevant survey methodology must be described and referenced in order to ensure field surveys have been completed in line with best practice guidance. Where deviation from best practice is required, robust justification must be provided. Mitigation developed for the project needs to be evidence based and informed by appropriate survey work. Some protected species noted onsite were not surveyed or assessed as part of the EIAR.

6.1.2 Reliance on future surveys is not appropriate in order to inform the planning authority of potential impacts (See below). A comprehensive baseline assessment is required to assess potential impacts from the proposed development.

- Trees were not surveyed for emergence / re-entry – only visually assessed for bat roost potential. Reasoning given:
    - *It is considered that this level of survey is proportionate and allows a suitable mitigation strategy to be formed where necessary. In any case, given that the mining development is scheduled to take place over a number of phases (see Project Description, Chapter 3.0), and given the transitory nature of bat roosts (bats will regularly move into new roosting sites), it is considered that conducting detailed survey work at the relevant stage prior to the clearance of each phase would provide better, more up to date information on the status of roosting bats on the mining sites, and what the appropriate mitigation for this would be.*

6.1.3 The inclusion of species in the assessment that have not been identified in the baseline section of the EIAR needs to be clarified.

6.1.4 Desk Study mentions a review of NBDC and NPWS databases for records of notable species / habitats within 5km of the Site over the last 20 years. However, throughout the document there is not a clear indication of the species present onsite or within the vicinity of the Site based on this desk-top study. Bats are the only species with a 'desk study' title underneath their baseline section.

6.1.5 Details of vegetation clearance must be provided at planning stage to inform the impact assessment. Only tree protection is presented and – no map of trees to be removed. The EIAR state that:

- *'Trees for removal will be shown in the construction site clearance drawings and these are to be classified on site by the project Arboriculturist*.'

Details need to be provided to inform the planning authority with regards to habitat loss and potential impacts.

6.1.6 Statements relating to potential impacts associated with the development need to be qualified and justified with evidence-based data and research.

7 LAND, SOIL GEOLOGY CHAPTER 7

7.1 Overview

7.1.1 In general, the findings of the 2022 EIAR and the RFI have been incorporated into the 2023 EIAR chapter in a clear and concise manner. We are satisfied that the issues highlighted in earlier reviews have been addressed and that there is now a clear progression from baseline to predicted impacts.

7.1.2 There is a clear separation of construction and operational phases. A full presentation of former subsidence events is now included. The undertaking to perform permanent remediation of mine working under the road is also included. In conclusion, previous written submissions, together with the in-person discussions which took place on Thursday 23rd February 2023, have resulted in a chapter that is considered largely acceptable and in accordance with the stated expectations.

7.1.3 Reports submitted under RFI 29a (Design Report: Temporary Diversion Road and Cut and Cover Tunnel) and RFI 29b (Geotechnical Interpretative Report: Temporary Diversion Road and Tunnel) should be included and referenced, in the interests of completeness. If included in other chapters, reference still to be included within Chapter 7.

7.1.4 Within the appendices some duplication is present, unnecessarily bulking the document, examples include - Appendix C Long Term Mine Stability – Listed as Appendix 7.15 in contents sheet, also listed under Appendix 7.15 to p531; Appendix D Roof Beam Stability and Kinematics – Listed as Appendix 7.18 in contents sheet, also under Appendix 7.18 to p473; Appendix E Procedure for Mining in the Vicinity of Suspected Voids and Unstable Ground – underground mine workings – SGMI – August 2022 – listed as Appendix 7.17 in contents list, also listed under 7.17 to p465.

7.2 Chapter – Presentation

7.2.1 Numbering of section 7.6.5.1 should be 7.6.4.1. All of the sub sections are numbered incorrectly under section 7.6.4. Section 7.5.5.4 under section 7.6.4 should be 7.6.4.4.

7.2.2 Section 7.5.5.4 (as numbered) refers to Figure 7.20 below. The correct figure number is Figure 7.21 Roof Beam showing drop out of prismoidal blocks in Knocknacran Open-Cast Mine.

8 WATER CHAPTER 8

8.1 Overview

8.1.1 The Chapter is structured and coherent and follows a systematic approach. The baseline and factual information are provided in a clear manner and potential impacts at the various project phases are identified and discussed. Associated mitigation measures are identified.

8.1.2 The assessment considers the potential cumulative effects between the two construction phases and with other known developments but does not consider the potential cumulative effects of specific impacts within each construction phase (e.g., mine development).

8.1.3 The section does not describe the worst-case scenarios if the identified mitigation measures fail.

8.2 Hydrology Major Accidents & Disasters

8.2.1 Although Chapter 17 addresses releases of hydrocarbons to the environment, it does not address potential scenarios resulting in the accidental release of large volumes of mine water and/or heavily impacted water to surface water bodies. It would be beneficial to address these scenarios in this section and discuss the potential significance of associated releases.

8.2.2 Although to some extent addressed in Chapter 8, for completeness it is also recommended that scenarios similar to the incident of 2018 (significant increase in mine water volumes) are discussed in Chapter 17.

8.3 Hydrology Mitigation and Monitoring

8.3.1 It is noted that some monitoring in relation to Water is not captured in Table 19.15 of Section 19.1 (although some of these elements are mentioned in Section 19.3.4 and Chapter 8). For instance, there is no reference to surface water monitoring of the Corduff and Magheracloone Streams or the domestic wells proximal to the site.

8.3.2 For completeness and ease of reference it would be beneficial to capture all the proposed surface water and groundwater monitoring in Table 19.15. Monitoring of six domestic wells is detailed in Section 8.6.4.1.3, but these are not included on Figure 19.1.

8.3.3 For clarity, the chapter should detail the monitoring requirements during mine development and mine restoration/closure separately as these are different.

9 CLIMATE CHAPTER 9

9.1 Overview

9.1.1 Climate Change Chapter covers approximately 34 pages. First part of the chapter includes overview of climate change on global level; global, EU, Irish and local GHG emissions commitments, legislation and plans; Irish climate, risks of climate change to the project, and adaptation of the Project to Climate Change. It continues with an attempt to quantify Scope 1,2, & 3 emissions from the construction and operational phase, presents mitigation measures, presents significance of direct, indirect, cumulative and residual effects.

9.1.2 Although this chapter presents lots of information related to potential impacts on climate change and adaptation to climate change, there are significant gaps in methodology, study boundaries, quantification of emissions, and basis for the assessment of significance. Overall, there is lack of clarity.

9.1.3 One of the key issues with the Chapter is that assessment of the Proposed Development GHG emissions against Sectoral Emissions Ceilings and Carbon Budgets (published in 2022 under Climate Action and Low Carbon Development Amendment Act 2021), and Sectoral Adaptation Plans published in 2020 under Climate Action Plan is not completed.

9.2 Assessment

9.2.1 In section 9.3 the authors proceed to assess sensitivity, exposure and the overall vulnerability of the Development to climate related variables and hazards, using a risk assessment methodology proposed in European Commission's guidance, Climate Change and Major Projects, 2016. This guidance is employed for risk assessing the vulnerability of a project and associated infrastructure in terms of climate resilience. There are the following information gaps in this assessment: major project is not

defined and why the Proposed Development is not a major project, there is lack of clarity on the methodology, as once vulnerability is determined there is no likelihood analysis or risk assessment.

9.2.2 In section 9.3.2., the author states, "Table 9.3 presents a combination of the Site's 'Sensitivity' and 'Exposures' to establish the vulnerability of the Proposed Development to climate hazards. The table shows that the greatest risk 'Medium' is from temperature extremes." However, Table 9.3 shows vulnerability rating, 'not risk'. For the risk assessment to be completed, the likelihood of occurrence should have been presented, which was not. So, the basic methodology in the European Commission, Climate Change and Major Projects, 2016 is not followed.

9.2.3 The author proceeds to state, "Temperature extremes can lead to changes in permitted mine water discharge levels within certain exceptionally wet or dry periods. "There is no explanation of relationship between temperature extreme and water discharge levels, the likelihood of this occurring or the magnitude / significance of the consequence.

9.2.4 For adaptation of the Project to risk of temperature extremes, the reader is referred to Chapter 8. The specific sub section within Chapter 8 – Water, should be clearly presented in the text of this chapter dealing with climate change, to enable a clear understanding of the assessment.

9.2.5 Section 9.5 details the key phases of the development; construction phase, operational phase, and restoration phase.

9.2.6 The chapter then progresses into Climate Change Impacts of the Proposed Development in section 9.6. GHG emissions from the Proposed Development are categorised into Scope 1, 2 & 3 emissions. For this assessment the Applicant has included Scope 1 direct GHG emissions and Scope 2 indirect GHG emissions. The Applicant screens out Scope 3 GHG emissions.

9.2.7 Scope 1 GHG emissions include fuel combustion emissions from onsite plant and truck haulage during the construction, operational, and restoration phases of the mine and sports centre, emissions from the processing plant and truck movements stripping the overburden and interburden (Table 9-6).

9.2.8 Scope 2 emissions for this assessment are considered to have no "CO_2 impact" on climate as "SGMI have committed that all electricity will be sourced from certified CO_2 neutral sources in line with SGMI corporate policy". Nonetheless, in section 9.6.3. electricity is quantified.

9.2.9 The assessment then progresses to quantify the worst-case total fuel used and worst case total distance travelled by vehicles associated with each scope 1 phase (Table 9-6), which are presented in Tables 9-7 to 9-15. The assessment does not quantify GHG emissions from any of the scope 1 phases, although the data required to calculate is presented. This is a significant gap in the assessment.

9.2.10 In the operational phase, mine development diesel usage calculation (Table 9.12), a 30% reduction in diesel fuel consumption is included in this calculation from phase 4 mine development onwards. According to the authors, this is based on fleet replacements, during the operational life of the mine, which will have increased fuel efficiency or replacement with electric vehicles. There is no justification as to why 30% was chosen.

9.2.11 In section 9.6.7, Carbon footprint of the Proposed Development, Mitigation Measures are described. GHG emissions for the operational phase only, appear to be estimated based on the existing operations at the Site as 5,000 to 6,000 tpa CO_2e. It can only be assumed that the authors included all emissions from the scope 1 operational

phase, shown in Table 9.6 - Scoped Emissions, into this calculation as the methodology of how this tpa CO_2eq number for the operational phase was achieved is not presented.

9.2.12 GHG emissions (as tpa CO_2e.) from the construction and restoration phases of the proposed development are not calculated or presented in this section. Section 9.9.2 presents that "Carbon release from soils will occur during the stripping on the Knocknacran West Mine site. However, upon restoration and maturation of the planted areas of the site, and restoration of mining areas within the Application Site, there will be a permanent effect (>60 years) of carbon sequestration, resulting in a positive effect on the microclimate." MOR suggests that a full CO2e balance for the Proposed Development is supplied to justify this statement. This assessment should cover all stages of development; from construction and operation. The mass balance assessment should include the carbon losses from the sequestered carbon in the overburden, a carbon footprint for the construction phase of the mine and a carbon footprint for the operations at the mine. A metric for the total carbon footprint for each stage should be provided. Where the developer proposes to offset GHG emissions, details on the methods and calculations of the avoided emissions should be provided. The developer must, in their reply, outline why certain GHG scopes are not accounted for in the calculations. The reasons must be accurate, transparent and consistent with the ISO 14064 GHG standard.

9.2.13 The author further states that the greatest anticipated greenhouse gas emission projections from the proposed development are from the development of the mine and are therefore already considered and accounted for within the EPA's 2020-2040 Emissions Projections published in June 2021. The total GHG emissions from the construction and restoration phases are not presented. It can only be assumed that the author based this statement on the estimated scope 1 litres of diesel used for each phase as quantified in tables 9-7 to 9-15, with the operational phase using the most diesel.

9.2.14 Section 9.6. concludes with a comparison of estimated annual emissions from the proposed development to the EPA's Emissions Projections for the gypsum component of the mineral industry sector and the whole mineral industry sector as percentages. The section then states "*It is therefore considered that the potential for additional greenhouse gas emissions associated with the Proposed Development (compared to the existing development) are deemed to be imperceptible, which is not significant for the construction, operational and restoration/closure phases."* Although a comparison to national emission projections is made, scope 1 GHG emissions from each phase of the Proposed Development are not clearly presented and it is unclear how the author has calculated these percentages. See point 9.2.11 & 9.2.12.

9.2.15 Section 9.7 describes mitigation measures for the Proposed Development. Electricity for the construction and operation of the mine will be from 100% renewable energy and electricity used during the construction and operation of the community sports complex will be minimised insofar as possible and building design will utilise energy efficiency measures (e.g., LED lighting). The authors however, mitigation measures which will be put in place to limit vehicle and plant emissions from the mining activities, however no details are provided to support the 30% emissions reduction factor utilised in the operational and restoration) phase mine development transport diesel quantification calculations (Table 9-12 & 9-14).

9.2.16 Section 9.4.7.1 details the parent company's (Saint-Gobain) commitment to net-zero carbon emissions by 2050. Saint-Gobain's GHG emissions, targets and reduction programmes are presented in Appendix 9.2.

9.2.17 Section 9.8 details monitoring required for each phase of the Proposed Development. It refers to AER required under IE Licence as a monitoring mechanism during operational phases, however, IE Licence does not regulate GHG emissions or require reporting of such.

9.2.18 Section 9.9 describes residual effects and states that the residual effects from the community sports complex on microclimate and climate change will be imperceptible after mitigation measures are applied, and the residual effect of the mine development on microclimate and climate change will be imperceptible and not significant after mitigation measures are applied. The section further states "*Carbon release from soils will occur during the stripping on the Knocknacran West Mine site. However, upon restoration and maturation of the planted areas of the site, and restoration of mining areas within the Application Site, there will be a permanent effect (>60 years) of carbon sequestration, resulting in a positive effect on the microclimate.*" This conclusion states that the mine restoration will result in positive effect on microclimate. Use of term microclimate should be clarified, typically it refers to shading and wind tunnelling effects, which have not been discussed at all in the chapter. It should be clarified if conclusion refers to GHG emissions and related climate impacts, or microclimate.

9.2.19 Carbon release during soil stripping and CO2 sequestered during restoration is mentioned in residual effects. However, this potential effect is not discussed in any of the previous sections (as a potential impact or effect of such potential impact). It is not assessed in qualitative or quantitative manner.

9.2.20 Section 9.10 details cumulative effects of climate change on the other criteria assessed as part of this EIAR.

10 AIR QUALITY CHAPTER

10.1 Overview

10.1.1 The Air Quality Chapter in the Environmental Impact Assessment (EIA) spans approximately 59 pages. The key methodologies employed are risk assessment methodologies to assess potential impacts of various types of dust.

10.1.2 Detailed baseline environment is presented. The methodology used is detailed in Section 10.3 Assessment Methodology and Significance. The study area is detailed in Section 10.3.1, with details regarding the appropriate use of buffers for both the Construction and Mineral Dust Risk assessments. The chapter identifies potential effects, mitigation measures and residual effects. However, detailed risk assessments for the Construction Phase and Operational Phase are presented in Appendix 10-1 and Appendix 10-2, respectively.

10.2 Methodology

10.2.1 This section details the IAQM Guidance on Risk Assessments of dust carried out for both construction and operational phases.

10.2.2 Table 10.1 displays the Air Quality Standards (AQS) for relevant pollutants - nitrogen oxides and particulates, but also for SO_2, which is then not mentioned further in the chapter.

10.2.3 There is no information if a site visit was completed to aid conclusions.

10.3 Baseline

10.3.1 Baseline section provides details of historic dust deposition (Bergerhoff) monitoring at the Site, suspended PM_{10} monitoring, NO_2 diffusion tube monitoring as well as

background air quality data published by the EPA. Some dust deposition results are elevated, exceeding 350mg/m^2/day, however, PM_{10} and NO_2 monitoring shows no elevated results.

10.3.2 Record of dust-related complaints stemming from the existing operations, along with the reasons behind these complaints is not provided. This information is important for contextualising the current dust conditions at the existing mine and level of nuisance that could be expected from future operations.

10.3.3 For PM_{10}, the assessor makes no viable justification for using 10-minute concentrations to represent background data or why 1-hour averages were utilised. Considering that the AQS for PM_{10} is measured in 24-hour concentrations, presenting 24-hr means would offer a clearer indication of the baseline conditions. The presented data structure makes it difficult to draw a definitive conclusion. Figures and calculations also refer to an incorrect AQS for PM_{10} of 25µg/m^3, unclear whether this is supposed to be an annual AQS (of 40µg/m^3) or 24-hr AQS of 50µg/m^3.

10.3.4 Although, the guidance document used to calculate background NO_2 concentrations is listed, specific methodology is not explained.

10.3.5 The assessor reaches a conclusion regarding the impact of idling cars on potential elevated concentrations of PM_{10}. Idling cars may be a potential contributor; however, the proportion of such contribution is unknown.

10.3.6 There is a total of 6No. monitoring stations used by the EPA in Zone D, yet only one Zone D and 2 Zone C stations are used for baseline. As the Site is clearly rural, a range of Zone D monitoring stations should be used, as it can be expected that monitoring within small towns Navan and Dundalk overestimates background.

10.3.7 In Table 10.17, data presented is a snapshot of last 24-hr readings. Published and verified EPA data should be used from the most recent EPA's Annual Air Quality Reports.

10.3.8 There is no conclusion on which background concentrations are selected for either NO_2 or PM_{10} for the assessment in the remainder of the chapter.

10.3.9 Overall, regardless of errors and some clarifications required, baseline conditions for the Site in terms of air quality are relatively well established.

10.4 Assessment

10.4.1 Sections 10.5 Key Characteristics of the Proposed Development provides a 3-page description of the Proposed Development in general terms.

10.4.2 Section 10.6 lists potential sources of emissions to air during construction and operational phases of the Proposed Development. Any effects of traffic emissions are screened out based on predicted number of HGVs. Odours are also screened out.

10.4.3 Neither section 10.5 not 10.6 provide any detail on the Knocknacran Processing Plant on any potential point sources or fugitive emissions from the Plant, although section 10.5.4. clearly states that the Plant is considered in the assessment.

10.4.4 Exhausts from construction vehicles are then screened out in Appendix 10-1, more than 50 pages later in Construction Dust Assessment. It is unclear whether this screening out refers to dust emissions only or covers nitrogen oxides as well. Use of onsite plant and machinery and potential impact of exhaust during operational and restoration phases is neither screened out nor assessed.

10.4.5 In the construction phase of the mine development with detailed assessment in Appendix 10.1, traffic is assessed for all parts of Proposed Development together, as the construction of all elements of the Proposed Development will take place at the

same time. However, for various construction activities, dust magnitude for demolition/earthworks/construction/track-out was assessed for each part (community sports complex, road diversion, cut and cover tunnel, site entrance) separately. As these activities are taking place at the same time, the dust magnitude for each individual activity should be determined for all parts of development together. Consequently, the findings of the assessment fail to accurately depict the potential dust impact on sensitive receptors during construction activities.

10.4.6 It appears that the two arguably most significant dust sources are not assessed at all: overburden stripping and phased restoration, both of which will involve a lot of soil (up to 2 m tonnes of overburden) which will not be vegetated. Figure 3.3 in Chapter 3 of EIAR seems to indicate that top soil and seeding will only take place ca. month 34 into the project.

10.4.7 Mitigation measure regarding construction of berms in section 10.7.2.1 could result in increased dust emissions in short term, unless such berms are vegetated as soon as possible, e.g. grass -seeded. The same applies to 10.7.4.1. Also, the Appendix 10.1 states that all measures should be included in CEMP, however, that is not reflected in the main text of the EIAR. Although, comprehensive mitigation measures are proposed, given the lack of assessment pointed out in 10.4.6. above, it is difficult to ascertain whether these measures are sufficient.

10.4.8 Section 10.9.2. on residual effects concludes that effects will be not significant. It appears that this refers to post-restoration phase of the development. However, there are also various statements regarding effects during construction and operation phases "*slight to imperceptible*", then "*unlikely*", then "*During long spells of dry weather, dust and fine particulate emissions can potentially be elevated*", then "*no detrimental effect*". It is unclear which of the significance terms is applicable. It is unclear if these elevated emissions occur even with mitigation implemented, or if additional mitigation is required. The residual effects section must provide a clear assessment whether these effects are intermittent or continuous, cover construction, operation and adverse phases, adverse or positive, significant or not significant. Appendix 10.2 then provides a clearer assessment of significance for operational phase and indicates that this elevated particulates during dry spells would be mitigated by implementation of mitigation measures.

10.4.9 It is stated under 10.10 regarding cumulative effects "Construction of the Community Sports Complex is due to occur at the same time as the majority of the mine construction activities, however, given that the residual effects of both the mining and non-construction related activities have been determined as Not significant, it is not anticipated that any significant combined effects will arise where an overlap in activities occurs as per the mining schedule." However, this statement contradicts the purpose of the cumulative assessment. To accurately evaluate the range of effects from construction -related dust, a separate construction dust risk assessment should be conducted combining all construction activities for sprots complex and the mine to determine a conservative estimation of the potential dust impacts from the combined activities.

10.5 Appendix 10.1 – Construction Dust Assessment

10.5.1 See point 10.4.5 above, activities were assessed separately rather than as one construction project, despite the fact that these are taking place simultaneously.

10.5.2 Assessment follows the listed Guidance document and concludes with no significant effect, for the Project alone or cumulatively.

10.6 Appendix 10.2 – Mineral Dust Assessment

10.6.1 The pathway effectiveness, assessment is lacking sufficient detail. There is no information on the number of hours for relevant wind speed or direction, or the relevant degrees in which a receptor fails therefore it is very difficult to discern if the assessment of pathway effectiveness is adequate. Further detail on justification of the assessment is required.

10.6.2 In Section 10.4 stripping of subsoil, overburden and interburden is listed, however, this is then not classified as a source and attributed magnitude. However, Chapter 3 of the EIAR mentions that 2 million tonnes of overburden will be removed over ca. 2 years. This will leave a large area of soil exposed. The magnitude of this source was not described at all – no. of hectares with stripped vegetation is not specified, and the length of time that soil is exposed is not specified, nor is the amount of overburden being transported detailed, and its destination (presumably adjacent restoration site).

10.6.3 In Section 10.4 phased restoration of the adjacent existing Knocknacran site is also listed as a dust generating source. Same as above, this is then not classified as a source and attributed magnitude. The magnitude of this source was not described at all – no. of hectares with no vegetation, and the length of time that soil is exposed is not specified.

10.6.4 Although the Sports Complex is identified as a sensitive receptor, within the Proposed Development, it is not specifically addressed. Given the extensive restoration works taking place over number of years adjacent to the Sports Complex, it should be assessed specifically.

10.6.5 Table 7 also incorrectly classifies the maximum residual source of emissions as small, when it was previously classified as medium.

.

11 NOISE CHAPTER 11

11.1 Overview

11.1.1 The noise assessment presented in Chapter 11, presents a comprehensive baseline survey covering the surrounding receptors for day, evening and night time periods and assesses these receptors against the EPA's NG4 guidance document for Low Noise, assigning the lower noise criteria, as presented in NG4 to such properties that are deemed to qualify.

11.1.2 In Section 11.3.6, the night-time limit is presented with $L_{Ar,T}$ parameter. In the existing license, and within the EPA NG4 guidance, night-time limits should not contain impulsive or tonal characteristics (which are penalised during day and evening periods, and represented by the use of the $L_{AR,T}$ parameter), the proposed night-time limit as presented should be clarified on the reasoning for acoustic rating use, i.e. is it assessed that tonal or impulsive characteristics will be present at NSRs during night time hours to allow for this rating level to be used. It is assumed this is a typo.

11.1.3 In section 11.3.8 the EIAR states that no blasting will take place on Sundays and public holidays. The existing license further specified no blasting outside the hours 09:00 to 18:00 except in the case on an emergency. It is queried whether there is an intent to amend future licenses to allow for blasting outside the existing licensed hours of 9am to 6pm, and if so, this needs to be fully assessed as a change from historic works. If not, commitments within the EIAR to the hours of blasting should be committed to, as per the license.

11.1.4 The assessment of future impact is based on the modelling of the future site-specific noise within the noise modelling programme CadnA. The results from the modelling are presented and compared to the limits. All NSRs are presented as compliant with the future limits (standard or Low noise as relevant), in relation to the site-specific noise attributable to the Proposed Development.

11.1.5 However, there is no impact assessment presented in relation to the likely predicted change. Although BS4142 is referenced within the methodology of the chapter, an assessment such as BS4142, specifically looking at the likely change in the acoustic environment at sensitive receptors, and rating that change against the ambient background, is not presented.

11.1.6 Appendices do not include headers/titles or descriptions to inform on what data is been presented in all tables, making it arduous to attempt to verify information presented within the EIAR tables. As an example, on page 11-38 of the EIAR chapter 1, reference is made to night time hours values, associated with early morning movement of ore from the site, however no detail on the calculation method, or the sound values is given, and it is not easy to identify where within the appendix this calculation has occurred.

11.1.7 Figure 19.2 in Chapter 19 illustrating proposed noise monitoring locations shows six locations while the Chapter 11 refers to a total of seven locations. Clarity is needed on the number and location of proposed monitoring and chapter 19 should be updated.

11.1.8 In Table 11.15 construction noise was assessed utilising the threshold based “ABC” method. The method is detailed within BS 5228-1:2009+A1:2014, which specifies a construction noise limit based on the existing ambient noise level and for different periods of the day. The predicted construction noise levels were assessed against noise limits derived from advice within Annex E of BS 5228. This is a commonly used and acceptable methodology.

11.1.9 Table 11.17 details an impact magnitude criterion. The author does not state where these impact magnitude scales are derived. Clarification on the source of the magnitude scale is requested for clarity.

11.1.10 The first table presented in Appendix 2 needs an explanation as there are results in Third-octaves band however it is missing any description related to it.

11.2 Noise Mitigation

11.2.1 Section 11.7.2 states ‘*A point of contact will be established between the mine and local residents, to ensure good community engagement.’* The existing IE licence (P0519-04) details the requirement to implement environmental objectives and targets (2.2.2.8) and a public awareness and communications programme (2.2.2.14). These are not referred to within this Chapter. If this system of good community engagement is currently in place, this should be outlined and presented within this chapter as it relates to noise control.

11.3 Cumulative Impacts

11.3.1 Section 11.8 states ‘This mine uses the processing plant at Knocknacran to process material and is part of the existing baseline noise environment and cumulative effects are therefore not anticipated.’ However, the baseline monitoring has not been incorporated into the operational impact. Refer to point 11.1.5 above on BS4142.

12 VIBRATION CHAPTER 12

12.1 Overview

12.1.1 The chapter clarifies that the existing mine will not undertake blasting once the Proposed Development is operational 'blasting in Knocknacran Open-Cast Mine would no longer be used once Knocknacran West Open-Cast Mine is operational, as the former open-cast will be in restoration and no blasting will take place here'.

12.1.2 The existing IE Licence (P0519-04) states conditions and limits with regards to blasting. However, should vibration occur during non-blasting works, the EIAR should address limits, monitoring, and mitigation. Any screening of other works should be clearly presented.

12.1.3 Section 12.3.6 summarised the conditions of the IE Licence (P0519-04). It is not clear why all the conditions in Section 5 of the licence are not mentioned.

12.1.4 Table 12.2 details an impact magnitude criterion. The author does not state where these impact magnitude scales are derived. Clarification on the source of the magnitude scale is required.

12.1.5 It is considered that this Chapter is not clear, concise, and unambiguous. The Chapter includes quotations and descriptions of human reaction to vibrations, however the purpose of this is unclear, and whether this is alluding to human health and associated anxiety is not developed within this Chapter.

12.2 Blasting Procedure

12.2.1 As part of the existing IE Licence a Schedule of Environmental Objectives and Targets are required, within which blasting vibration and air over pressure along with good neighbourhood measures were outlined in relation to blast events.

12.3 Impact Assessment

12.3.1 Historic blast events and associated monitoring data of the Knocknacran Mine was reviewed within the Chapter. This is 'considered as a good representation of future predicted blast events at the Knocknacran West Mine as the site setting (e.g. geology, ground conditions) remains the same and blasts will be designed in line with historical blasts'. It should be clarified if any consideration been given for the existing tunnelling underneath the site, and how this might impact the blast vibration.

12.4 Mitigation

12.4.1 The existing IE Licence states a Public Awareness and Communications Programme (Condition 2.2.2.14) shall be implemented. No reference to this is present within this Chapter. See also point 11.2.1 above.

12.5 Cumulative Effects

12.5.1 Section 12.10 states 'Blasting at the Drummond underground mine will not take place at the same time as blasting from the proposed Knocknacran West open-cast mine'. However, a screening on potential non-mine vibration is not evident. Which should be included to confirm whether potential cumulative effects may arise.

13 LANDSCAPE CHAPTER 13

13.1 Overview

13.1.1 Table 13.6 summarises the baseline assessment of the locality and existing environment in terms or visual sensitivity.

13.1.2 Chapter 13.5 presents the key characteristics for the community sports complex construction phase; mine development construction phase; community sports complex operational phase, mine development operational phase; and mine development restoration phase. It is noted no restoration phase is present for the community sprots complex.

13.1.3 The direct effects arising from the community sports complex landscape impact during construction are presented as Medium, the quality of effect will be Negative and the duration Short-term. However, following phase 2 construction the long-term effect is presented as the quality of the effect is Positive and the duration, Permanent.

13.1.4 The construction phase of the mine development is presented as High the quality of effect will be Negative and the duration Short-term. The restoration phase of the existing Knocknacran Processing plant and mine is presented as Low-negligible, the quality of effect only marginally negative (i.e. Neutral – Negative) and the duration of effects is Short-term. Th long term operation of the Knocknacran West Mine is presented as High, of a Negative quality and of a Long-term duration, with the eventual restoration of this site as Medium, but of a Positive quality and a Permanent duration.

13.1.5 The LVIA specifically presents 15 viewpoints which are taken presented as a future view via photomontage and assessed in line with the construction phases of the various elements of the Proposed Development and the long-term operation of the proposed mine. The assessment finds overall '*This is a distinctively low range of likely visual effect for most proposed developments; even more so for a development that partially entails an open-cast mine of this scale*.".

13.1.6 Section 13.7.2.1, embedded mitigation presents a schematic, and text detailing that existing boundary hedgerows will be maintained, and bolstered, to present a 3m wide boundary hedgerow. A fence and 4m access track will be maintained Site side of this hedgerow, prior to the development of onsite screening berms and planting. The existing woodland located to the north will be left in situ.

13.1.7 The residual effects of the proposed developments are presented as Not Significant, with cumulative effects are similarly presented.

13.1.8 Chapter 13.11 presents the do-nothing scenario in relation to LVIA and presents the alternative LVIA in the event that the proposed development is not pursued.

14 TRAFFIC CHAPTER 14

14.1 Overview

14.1.1 The assessment included site visit in 2022; traffic counts in 2022 and 2023; vehicle speed surveys in 2019 and 2023; trip generation and trip assignment for the Proposed Development; link capacity assessment to derive AADT; existing traffic assessment; future year assessments; a review of the N2 Ardee to Castleblaney preferred route on the Proposed Development.

14.1.2 Section14.3.2 clearly presents the scope of the traffic assessment in relation to construction and operation phases and the phasing of such.

14.1.3 Section 14.3.3 presents the geographical scope, based on development traffic volumes been above 10% of road capacities, the baseline therefore covers junctions on the R179, L49014, L4816, the mine access and the Community Sports Complex access.

14.1.4 Section14.3.4.2 present the extent of the operational phase of the proposed mine, incorporating up to 500,000 tonnes of gypsum extracted per annum (highest volume for HGVs on roads) equating to ca. 67 loads per day, assuming 50 working weeks per annum, 20 tonne and 28tonne mix of HGVs six days working week, with haulage off site from 6am to 9pm Monday to Saturday.

14.1.5 Non-HGV traffic, linked to employees and campaign staff, required during overburden/inter-burden stripping, is presented as accounting for 170 peak hour trips, 85 inbound on the am peak hour and 85 outbound during the pm peak hour. An additional 10 visits are assumed daily to cover miscellaneous trips all assumed worst case during peak hour traffic movements.

14.1.6 Traffic growth are supplied in Table 14.2 for each decade period between 2026-2050.

14.1.7 Section 14.5.4notes the operational phase traffic and identifies haulage of over an inter burden as occurring within the internal haulage roads only, and therefore excluded from an impact assessment on the road network.

14.1.8 The potential effects on the community sports complex during the construction phase in relation to the link capacity assessment on local and regional roads and the junction capacity are deemed imperceptible. Similarly, the effect on road safety is deemed imperceptible.

14.1.9 The potential effects of the construction phase of the mine development under headings of link capacity, junction capacity, road infrastructure, road safety. The assessment has found that the Proposed Development construction will be imperceptible effect, with a Road Safety Audit appended in support of the road safety aspects.

14.1.10 Section 14.6.3 presents the effect of the operation of the Community Sports Complex under headings of link capacity, junction capacity, road infrastructure, road safety. The assessment has found that the Proposed Development will be imperceptible.

14.1.11 Section14.6.4 presents the effect of the operation of the Mine Development under headings of link capacity, junction capacity, road infrastructure, road safety. The assessment has found that the Proposed Development will be imperceptible. However, some of the headings presented within this section present 'mine development construction phase' though, the text does appear to relate to the assessment on mine operation.

14.1.12 As restoration is not proposed for the Community Sports Complex, no assessment is presented.

14.1.13 Potential effects from the restoration/closure phase of the Mine Development presents that traffic volumes will reduce over time once restoration in the final phase kick-in. This results in an imperceptible effect.

14.1.14 Section 14.7 presents the mitigation and management. During construction phase for the Sports Complex is presented with Construction Traffic Management Plan. For the Construction phase of h mine development, the construction traffic management plan presents, along with works on the L4816 modifications to present a new site entrance, new signage and road markings, and cutting back vegetation and tree canopy.

14.1.15 No mitigation or management is presented for the operational phase community sports complex.

14.1.16 For the operational phase mine development mitigation includes the exclusive use of the cut and cover tunnel for internal site access, and the signage established during construction phase will be maintained.

14.1.17 During the restoration phase, a construction (demolition) traffic management plan will be developed, to be agreed with Monaghan County Council as appropriate.

14.1.18 The residual effects are deemed not significant, following mitigation.

14.1.19 Section 14.10 assesses the effect of the development cumulatively with other projects. The cumulative effects from the Project are therefore deemed Not Significant, in line with the potential effects already assessed in Section 14.6. As outlined in Section 14.6, consideration has also been given to the N2 Ardee to Castleblayney Scheme under potential road infrastructure effects. Link and Junction capacity analysis has demonstrated that the Project will have an Imperceptible effect on the local road network, and thus can be expected to have no impact or effect on the N2 Ardee to Castleblayney Preferred Route being advanced.

14.1.20 Section 14.10.2 finds the cumulative effects as deemed Not Significant between the Project and other offsite Projects.

15 CULTURE HERITAGE CHAPTER 15

15.1 Overview

15.1.1 Chapter 15.1 presents the scope of the project under assessment.

15.1.2 A Site visit conducted on 29th August 2018 and August 2022.

15.1.3 Chapter 15.4 presents the findings of the baseline assessment through field inspections, review of available information and the landscape. This includes designated structures locally, non-designated structures locally, recorded monuments, sites and monuments records, cartographic sources place name evidence, minor place name, aerial photography -historic and previous archaeological assessments locally.

15.1.4 Chapter 15.6 presents the construction phase of the Community Sports Complex. Due to the nature of the ground involved, there will be no direct or indirect impacts or effects on any known items of archaeology, cultural heritage or buildings of heritage interest at the Community Sports Complex site.

15.1.5 Construction phase works on the Mine Development, the assessment identifies 2 buildings listed in the Monaghan County Development Plan situated within the study area. These are considered too distant to be directly or indirectly impacted or affected by the proposed construction phase of the Mine Development. Similarly, all 7 identified non-designated structures are considered too distant to be directly or indirectly impacted by the construction phase of proposed Mine Development.

15.1.6 Potential effects of the construction phase of the mine development on undesignated structures within the Knocknacran West site involved the identification of upstanding non-designated structures within the site. There are five structures identified in this area which are not of heritage interest, four of which will be demolished but have no heritage interest. All properties have been recorded in detail by the specialist within the appendices of the chapter, and the effect though permanent negative is deemed imperceptible as the structures have architectural special interest is generally low.

15.1.7 Potential Effects of the construction phase of the mine development on recorded monuments, Undesignated Monuments, is considered to be too distant to be directly or indirectly impacted or affected by the proposal during the construction phase.

15.1.8 Potential Effects of the construction phase of the mine development on Cartographic Sources is considered that there will be no direct or indirect impact or effect from the proposal during the construction phase.

15.1.9 Potential Effects of the construction phase of the mine development on Place Names, the impact of this will result in the loss, partially or fully of existing field. However, while the construction phase will initiate the removal of fields within the Knocknacran West site, a record of the field names has been recorded and given to public sources to allow the evolution of the cultural landscape to be preserved. The historical and current record of the field names in the area indicate that the names are generational, not static and have evolved over time as the ownership and quality of the fields have evolved and the landscape has changed. It is considered that there will be a neutral effect from the proposal during the construction phase on minor place names.

15.1.10 The closest Protected Structure is St. Peter and St. Paul's Church (41403003) which is situated c.180 m to the northwest of the application area. This is considered too distant to be directly or indirectly impacted or affected by the proposed operational phase of the Mine Development.

15.1.11 The closest structure in the NIAH to the proposed Mine Development is a Teacher's House (41403011) which is situated c.121 m to the northwest. This is considered too distant to be directly or indirectly impacted by the operational phase of proposed Mine Development.

15.1.12 There is one structure (Structure 4) situated on the Knocknacran West site which is not of heritage interest (Table 15.10). This is the Shirley House, and the structure sits outside the open-cast extraction area and will not be directly impacted by the operational phase of the Mine Development.

15.1.13 The closest Recorded Monument to the Mine Development, RMP MO030-036---- Drumgoosat Ringfort – rath, is situated 0.35 km northeast of the proposed application area (Figure 15.1 and Appendix 15.1). This monument is considered to be too distant to be directly or indirectly impacted or affected by the operational phase of the Mine Development.

15.1.14 There is one identified undesignated monument included within the study area external to the proposed new mining area (Figure 15.1 and Appendix 15.4). SMR MO030-049---- Drumgoosat Mass-rock is situated 0.3km northwest of the proposed Mine Development and is considered to be too distant to be directly or indirectly impacted or affected by the proposal during the operational phase.

15.1.15 It is considered that there will be no direct or indirect impact or effect from the proposal during the operational phase on Cartographic Sources.

15.1.16 The operational phase will remove the fields within the Knocknacran West site, a record of the field names has been recorded and given to public sources to allow the evolution of the cultural landscape to be preserved. The historical and current record of the field names in the area indicate that the names are generational, not static and have evolved over time as the ownership and quality of the fields have evolved and the landscape has changed. In addition, during the operational life, fields will be created within the Knocknacran Mine site and will contribute to the evolving landscape of cultural heritage within the locality. It is considered that there will be a neutral effect from the proposal during the operational phase on minor place names.

15.1.17 The assessments present no likely effects will occur during the restoration of the Site, as blasting and extraction will have ceased.

15.1.18 In relation to mitigation, construction stage is deemed unnecessary unless specified by the Competent Authority for the Community Sports Complex, and exiting preservation by record is sufficient for the construction phase of the Mine Development. Though it is proposed the application area for the Knocknacran West Mine site shall be archaeologically monitored during soil stripping.

15.1.19 Once the identified mitigation measures, appropriate design standards and operational infrastructure management plans are adhered to, it is considered that any effects surrounding the Proposed Development are presented as Not Significant.

15.1.20 There is deemed no cumulative effects.

16 MATERIEL ASSETS CHAPTER 16

16.1 Overview

16.1.1 The scope of this Chapter includes Traffic and Transport; Fuel Resource Management; ESB Utilities Network; Gas Supply; Telecommunications; Magheracloone Group Water Scheme; Third Party Water Wells; Drumgoosat Dewatering Borehole; wastewater Infrastructure; Surface Water Infrastructure; Local Waste Infrastructure; Surface Infrastructure; Geological Resource; Land Resource; and Scenic Routes.

16.1.2 It is noted in Chapter 16.4.4 that current electrical usage is 23.9KwH/tonne, and all sourced from CO2 neutral source in line with SGMI corporate policy.

16.1.3 The chapter clearly outlines the existing baseline information known on the topics covered, the use of such resources by the Applicant and the key characteristics the construction and operational phases will have in terms of effect, back referencing to specialist topic chapter, where relevant.

16.1.4 The chapter presents under direct effects, the low sensitivity of the material assets assessed, and the negligible adverse impacts, result in effect on material assets is considered to be Imperceptible, though a slight significance (benefit) associated with future land use arising from the Community Sports Complex, and slight benefit for land use under mine development, due to the permanent removal of future subsidence risk. Furthermore, the mining of the gypsum (operational phase) is deemed large and beneficial due to the mineral's importance.

16.1.5 The restoration and closure, effects on the surface water infrastructure are deemed slight positive, primarily due to the low effect predicted on the Corduff stream and the increase in water volume supplied to the water body catchment. Furthermore, the assessments present the restoration of the propose mine, arising from the lands created during this phase of works been usable for agriculture, result in a slight beneficial effect.

16.1.6 The operational mining stage mitigation strategy, chapter 16.7.4.2 notes stripping of the site will be undertaken in campaigns lasting no longer than 6 months, and the programmes will be in agreement with relevant authorities prior to commencement.

17 MAJOR ACCIDENTS CHAPTER 17

17.1 Overview

17.1.1 This chapter outlines in detail the context, legal requirement and the available methodologies available and used, for disasters and major accidents.

17.1.2 Chapter 17.4 presents the context of the area under the headings of Social (surrounding population centres and local receptors); Environmental receptors (Natura and protected areas); Infrastructure (major road, rail, shipping and airports); Water supplies and wastewater (Local authority supply schemes); Power suppliers (electrical supply routes); and Gas supplies (Local gas transmission lines).

17.1.3 The chapter assesses the following natural hazard scenarios of Seismic Events and/or Storm Events.

17.1.4 The chapter assesses the following industrial hazards of Industrial Hazards Aircraft strike; Structural failure and collapse of the open-pit faces; Subsidence event, including the collapse of overlying public roads and overlying lands; Fire and explosions; Contamination of underlying soils and groundwater from fire water run-off, and hydrocarbon and chemical releases; Gas leaks; Unplanned explosions; and Unplanned outages and disruption to services, including groundwater pumps and the power systems.

17.1.5 One hazard is identified as having a moderate score value, “sinkholes under the adjacent public roads”, however this, along with other hazards are deemed to be controlled under existing emergency response procedures established.

17.1.6 The hazards identified and assessed within this chapter are extensive and dealt with clearly.

17.1.7 Although chapter 17.7.2.2 presents storm event, and risk of flooding to the site, both specifically on ingress of large volumes of water but additionally siltation of such water, there is no obvious assessment of this within the chapter.

18 INTERACTIONS AND COMBINED EFFECTS – CHAPTER 18

18.1 Overview

18.1.1 Table 18.1 presents the summary on environmental interactions arising from the proposed development. It is unsure, in the context of the overall development how human health is not deemed likely to be inter linked with the biodiversity.

18.1.2 The chapter cross references to the specialist topics in relation to understanding the assessments completed.

19 MITIGATION CHAPTER 19

19.1 Overview

19.1.1 This Section presents the mitigation and monitoring measures identified in the EIAR that are considered necessary to protect the environment during the construction, operation and decommissioning of the Proposed Development.

19.1.2 It states “*The design of the Proposed Development takes environmental constraints and considerations into account and has embedded mitigation as a fundamental component of the design that enables many potential environmental impacts to be avoided entirely. Where environmental impacts cannot be avoided by embedded*

*mitigation, additional mitigation and monitoring measures have been recommended in the EIA*R".

19.1.3 Although the chapter back references subsection 7 of each specialist chapter for full mitigation measures, the inclusion and referencing of 'key mitigation measures' in Chapter 19 implies any mitigation not included is not 'key' to controlling environmental effect, and could thereby be omitted. This is contrary to their inclusion by the specialist of relevant chapters. As such either mitigation identified in relevant chapters are reviewed and unnecessary mitigation removed, or all mitigation measures committed to within EIAR are presented in Chapter 19.

19.1.4 Tables 19.1 to 19.4 present the mitigation clearly, and whether they apply to construction or operational phases.

19.1.5 Table 19.15 presents the monitoring commitments for the Proposed Development, in a clear manner.

20 CONCLUSION

20.1.1 Based on a detailed peer review undertaken by MOR of the EIAR and NIS submitted by SLR, dated March 2023, it would be reasonable to conclude that there is a significant amount of environmental data available for the facility based on previous successful planning applications and ongoing compliance with the EPA Licence.

20.1.2 The EIAR submitted presents, in the most, a clear understanding of the proposed development, the need for the development, the reasoning for this design and location over alternatives, and the key characteristics of the proposed development under specific topics.

20.1.3 However, we consider that the EIAR has information gaps that require attention to ensure a full understanding of the baseline and potential impacts, and thereby justify the mitigation strategy proposed is sufficient.

20.1.4 We conclude that the information submitted as part of this specific EIAR, by the Applicant, is not sufficient to allow the Local Authority to properly adjudicate on this planning application, without further information bene submitted.

20.2 Recommendation

20.2.1 Based on the findings of our technical review, we would recommend that the Local Authority, where other matters do not preclude a decision to grant, that the Local Authority should issue a Request for Further Information (RFI) to the Applicant. This RFI should include some or all of the following items:

20.2.2 The EIAR chapter 1 introduction presents a clear overview of the Proposed Development and the rationale for this application been submit.

20.2.3 The EIAR chapter 2 presents public consultation, including with prescribed bodies. It is noted this consultation primarily derived from the withdrawn planning submission 22/34. As the Proposed Development is fundamentally unchanged, and the previous consultation is within 2 years, with limited significant changes in legislation and guidance, it is deemed this is acceptable, though additional consultation would have been positive, the number of submissions received on the application is indictive of the awareness of this application locally.

20.2.4 Chapter 3 presents details on the Proposed Development in a clear and organised manner. Details on the scale of the construction and operation of the various elements of the application are presented, along with the operational days and hours.

The chapter includes and outlay description of the key infrastructure of the Proposed Developments future working.

20.2.5 Chapter 4 alternatives look at alternative location, layouts, and raw materials, i.e., recycling of waste gypsum, along with a Do-Nothing scenario. The alternatives are clearly presented, with a justification for the proposed option presented.

20.2.6 Chapter 5 Population and Human Health summarised the findings of environmental specialist assessments elsewhere in the EIAR. This chapter presents a comprehensive assessment to determine the impacts of the Proposed Development on populations and human health, with a comprehensive baseline data set provided. The approach to the assessment was a combination of reasoned argument and professional judgement of competent experts.

20.2.7 Chapter 5 however does not incorporate impacts of the Proposed Development on climate both the impacts of mining operations on climate change and the vulnerability of the project to climate change. Similarly, the impacts and vulnerability of climate change to people living close to the mine were not explored in this chapter of the EIAR. For example, the effects of predicted increases in rainfall events in Ireland, and the predicted prolonged drier summers have not been considered in this section of the EIAR.

20.2.8 There is very limited commentary in chapter 5 on how the Proposed Development supports European and National legislation, Plans, Programmes and Policies. Reference to the National Planning Framework 2040, Ireland's Climate Action Plan, the North-West Regional Plan 2024 would provide support for the Proposed Development and demonstrate how the development meets Irelands economic, social, and environmental goals.

20.2.9 No evidence has been provided in chapter 5 for consultations with the public on the project, except for the resident who will be re-located from the site and those who made submissions. The outcomes of consultations with the public would demonstrate transparency in the environmental impact process. Details of the on-going communications between the Applicant and the local residents, as outlined in Chapter 2.3.2 should be presented here as relevant.

20.2.10 Within chapter 6 biodiversity, clarity is required in relation to the Survey effort and methodologies for fauna used to inform this assessment. The reported survey methodologies within the chapter are not sufficient or completed in-line with the referenced guidance or best practice. Where deviation from best practice is required, robust justification must be provided.

20.2.11 Mitigation developed for the project needs to be evidence based. Further information on the baseline is therefore needed, along with clarity on the impacts proposed, such as the extent of vegetation clearance, the type of vegetation, the importance of said vegetation, in the short to medium terms, to justify and thereby assess the mitigation strategy.

20.2.12 Reliance on future surveys is not an appropriate approach in order to inform the planning authority of potential impacts. A comprehensive baseline assessment is required.

20.2.13 Chapter 7 land, soil geology, generally the findings of the 2022 EIAR and the RFI, as noted within chapter 2 consultation, have been incorporated into the 2023 EIAR chapter in a clear and concise manner. We are satisfied that the issues highlighted in earlier reviews have been addressed and that there is now a clear progression from baseline to predicted impacts.

20.2.14 There is a clear separation of construction and operational phases. A full presentation of former subsidence events is now included. The undertaking to perform permanent remediation of mine working under the road is also included. In conclusion, previous written submissions, together with the in-person discussions which took place on Thursday 23rd February 2023, have resulted in a chapter that is considered largely acceptable and in accordance with the stated expectations.

20.2.15 Chapter 8, water, is structured and coherent and follows a systematic approach. The baseline and factual information are provided in a clear manner and potential impacts at the various project phases are identified and discussed. Associated mitigation measures are identified.

20.2.16 The assessment considers the potential cumulative effects between the two construction phases and with other known developments but does not consider the potential cumulative effects of specific impacts within each construction phase (e.g., mine development).

20.2.17 Chapter 8 Water does not describe the worst-case scenarios if the identified mitigation measures fail.

20.2.18 Climate Change chapter 9 includes overview of climate change on global level; global, EU, Irish and local GHG emissions commitments, legislation and plans; Irish climate, risks of climate change to the project, and adaptation of the Project to Climate Change. It continues with an attempt to quantify Scope 1,2, & 3 emissions from the construction and operational phase, presents mitigation measures, presents significance of direct, indirect, cumulative and residual effects.

20.2.19 Although chapter 9 presents lots of information related to potential impacts on climate change and adaptation to climate change, there are significant gaps in methodology, study boundaries, quantification of emissions, and basis for the assessment of significance. Overall, there is lack of clarity.

20.2.20 In section 9.3.2., the author states, “Table 9.3 presents a combination of the Site’s ‘Sensitivity’ and ‘Exposures’ to establish the vulnerability of the Proposed Development to climate hazards. The table shows that the greatest risk ‘Medium’ is from temperature extremes.” However, Table 9.3 shows vulnerability rating, not risk. For risk assessment to be completed, likelihood of occurrence should have been presented, which was not. So, the basic methodology in the European Commission, Climate Change and Major Projects, 2016 is not followed.

20.2.21 The author proceeds to state, “Temperature extremes can lead to changes in permitted mine water discharge levels within certain exceptionally wet or dry periods.“ There is no explanation of relationship between temperature extreme and water discharge levels, likelihood of this occurring or magnitude / significance of the consequence.

20.2.22 The assessment quantifies the worst case total fuel used and worst case total distance travelled by vehicles associated with each scope 1 phase (Table 9-6), which are presented in Tables 9-7 to 9-15. The assessment does not quantify GHG emissions from any of the scope 1 phases, although the data required to calculate is presented. This is a significant gap in the assessment.

20.2.23 In the operational phase mine development diesel usage calculation (Table 9.12), a 30% reduction in diesel fuel consumption is included in this calculation from phase 4 mine development onwards. According to the authors, this is based on fleet replacements, during the operational life of the mine, which will have increased fuel efficiency or replacement with electric vehicles. There is no justification as to why 30% was chosen.

20.2.24 Section 9.9 describes residual effects and states "there will be a permanent effect (>60 years) of carbon sequestration, resulting in a positive effect on the microclimate." This conclusion states that the mine restoration will result in positive effect on microclimate. Use of term microclimate should be clarified, typically it refers to shading and wind tunnelling effects, which have not been discussed at all in the chapter. It should be clarified if conclusion refers to GHG emissions and related climate impacts, or microclimate.

20.2.25 Carbon release during soil stripping and CO_2 sequestered during restoration is mentioned in residual effects. However, this potential effect is not discussed in any of the previous sections (as a potential impact or effect of such potential impact). It is not assessed in qualitative or quantitative manner. It is recommended that a full mass a balance for carbon is provided by the Applicant. As a minimum this should include GHG emission generated during construction, operation, and de-commissioning of the mine.

20.2.26 Air quality chapter presents a detailed baseline environment. The methodology used is detailed in Section 10.3. The study area is detailed in section 10.3.1, with details regarding the appropriate use of buffers for both the Construction and Mineral Dust Risk assessments. The chapter identifies potential effects, mitigation measures and residual effects. However, detailed risk assessments for the Construction Phase and Operational Phase are presented in Appendix 10-1 and Appendix 10-2, respectively.

20.2.27 Overall, regardless of errors and some clarifications required, baseline conditions for the Site in terms of air quality are relatively well established.

20.2.28 Record of dust-related complaints stemming from the existing operations, along with the reasons behind these complaints is not provided. This information is important for contextualising the current dust conditions at the existing mine and level of nuisance that could be expected from future operations. Clarifications on whether the complaints correspond to reported elevations of baseline dust records would be beneficial in assessing this history.

20.2.29 Clarity is requested from the baseline PM10 to be supplied in 24-hour averages, and to be presented against the AQS of annual AQS (of 40µg/m3) or 24-hr AQS of 50µg/m3. Additional Zone D EPA sites should be used to present the baseline, and, unless adequate reasoning is presented, the urban baseline locations should be removed.

20.2.30 In the construction phase of the mine development with detailed assessment in Appendix 10.1, traffic is assessed for all parts of Proposed Development, however, for various construction activities, dust magnitude for demolition/ earthworks/ construction/ track-out was assessed for each part (community sports complex, road diversion, cut and cover tunnel, site entrance) separately. The dust magnitude for each individual activity should be determined for all parts of development together.

20.2.31 It appears that the two arguably most significant dust sources are not assessed at all: overburden stripping and phased restoration, both of which will involve a lot of soil (up to 2 m tonnes of overburden years 1 and 2) which will not be vegetated. Figure 3.3 in Chapter 3 of EIAR seems to indicate that topsoil and seeding will only take place ca. month 34 into the project.

20.2.32 Although, comprehensive mitigation measures are proposed, given the lack of assessment above, it is difficult to ascertain whether these measures are sufficient.

20.2.33 The residual effects section must provide a clear assessment whether these effects are intermittent or continuous, cover construction, operation and adverse phases, adverse or positive, significant or not significant.

20.2.34 Appendix 10.2, the Mineral Dust Assessment was reviewed, in light of the chapter 10 dust risk assessment, the pathway effectiveness, assessment is lacking sufficient detail. There is no information on the number of hours for relevant wind speed or direction, or the relevant degrees in which a receptor fails therefore it is very difficult to discern if the assessment of pathway effectiveness is adequate. Further detail is required to adequately address this effect on the environment.

20.2.35 The noise assessment presented in Chapter 11, presents a comprehensive baseline survey covering the surrounding receptors for day, evening and night time periods and assesses these receptors against the EPA's NG4 guidance document for Low Noise, assigning the lower noise criteria, as presented in NG4 to such properties that are deemed to qualify.

20.2.36 Clarity is required on the use of $L_{AR,T}$ for night time compliance limits. Should this be $L_{Aeq,T,}$ as per NG4, or is there a purpose for his parameter on night-time.

20.2.37 The assessment shows site specific compliance with limits for the Proposed Development, however there is no impact assessment presented in relation to the likely predicted change at sensitive receptors. Although BS4142 is referenced within the methodology of the chapter, an assessment such as BS4142, specifically looking at the likely change in the acoustic environment at sensitive receptors, and rating that change against the ambient background, is not presented. To inform on the likely impact of change, to the locality, this should be supplied.

20.2.38 Table 11.15 assessed construction noise utilising the threshold based "ABC" method. The method is detailed within BS 5228-1:2009+A1:2014, which specifies a construction noise limit based on the existing ambient noise level and for different periods of the day. The predicted construction noise levels were assessed against noise limits derived from advice within Annex E of BS 5228. This is a commonly used and acceptable methodology.

20.2.39 The associated appendices to chapter 11 are unclear and difficult to follow. These appendices need to be coherent and presented in such a manner that it is informative; these should be resupplied with headers or other such information present to clearly present the information included therein.

20.2.40 Chapter 12, vibration clarifies that the existing mine will not undertake blasting once the Proposed Development is operational 'blasting in Knocknacran Open-Cast Mine would no longer be used once Knocknacran West Open-Cast Mine is operational, as the former open-cast will be in restoration and no blasting will take place here'.

20.2.41 Table 12.2 details an impact magnitude criterion. The author does not state where these impact magnitude scales are derived. Clarification on the source of the magnitude scale is required.

20.2.42 Chapter 12 commits to future compliance at sensitive receptors in relation to vibration limit, which relate to superficial damage to buildings or structures. However, the chapter presents human response to vibration, but does not develop this through the impact assessment or otherwise address such. As these values are more intrinsic to the human perception, it is warranted for an assessment of the likely impact of the Proposed Development on such to be assessed.

20.2.43 Chapter 17 does not address potential scenarios resulting in the accidental release of large volumes of mine water and/or heavily impacted water to surface water bodies.

20.2.44 Chapter 17 should present and assess scenarios similar to the incident of 2018 (significant increase in mine water volumes).

20.2.45 Chapter 19 should include all mitigation identified in relevant chapters are included and committed to within the EIAR. Where monitoring is presented, it must be in-line with the relevant specialist sections in relation to the number and location of such monitoring.