



### **3.0 DESCRIPTION OF PROPOSED DEVELOPMENT**

#### **3.1 Introduction**

This chapter has been prepared by Tom Phillips + Associates in conjunction with Breedon Cement Ireland Limited and provides a detailed description of the proposed development together with details of the existing environment.

As set out in Chapter 2 of this EIAR, the subject site in Kinnegad Quarry is located in County Meath in the townland of Killaskillen. The townland of Killaskillen also crosses the County boundary into Westmeath, where it borders the townland of Kinnegad. The applicant's wider landholding comprises an existing limestone quarry, cement plant and asphalt plant. The proposed extraction area, subject of this application, of approximately c. 4.13 hectares is permitted as part of the existing quarry permission<sup>1</sup>. The overall quarry area extends to approximately c. 286 hectares.

#### **3.2 Summary of Proposed Development and Rationale**

The proposed development is intended to facilitate the continued operation of Breedon Cement Ireland Limited quarry at Kinnegad and will take place within an area already permitted for quarrying activities. The proposal will involve deepening of an area of c. 4.13 hectares by 4 extractive benches to a level of 10m OD.

Access to the quarry is currently provided from the local road (L8021) that runs in a north-south direction and bounds the eastern portion of the quarry site. The proposed development will not result in any increase to the annual output of the existing limestone quarry or to the production capacity to the existing cement plant. The proposed development will be served by the existing on-site haul road from the existing vehicular access point on the L8021 to the northeast of the site.

The proposed deepening of this section of the existing quarry will be consistent with the permitted depths of the adjacent permitted quarry area and is intended to facilitate the efficient extraction of material from the overall quarry. The proposed development is intended to be carried out in phases as outlined in Figures 3.1 – 3.4 whereby the adjacent permitted quarry area and the proposed development area will be quarried in tandem.

##### **3.2.1 Overview of Existing Quarry operations**

The Lagan Group opened its first quarry at Whitemountain on the outskirts of Belfast in 1960 and Lagan has been a name synonymous in the quarrying and construction industries ever since. To meet future demands of the group, an ultra-modern cement manufacturing facility was constructed in Kinnegad, Co. Meath, which began production in 2002. The cement plant has the capacity to produce up to 700,000 tonnes of cement per annum. In April 2018, Lagan Cement was acquired by the Breedon Group plc. Breedon is a public company with ordinary shares traded on the Alternative Investment Market (AIM). Throughout the UK and Ireland, the company employs approximately 3,600 people and operates 2 cement plants, 70 quarries,

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<sup>1</sup> Meath County Council Planning Ref: 98/2026, ABP Ref PL17.111198.



40 asphalt plants, 200 ready-mixed concrete plants, 9 concrete and clay products plants, 4 contract surfacing businesses, 6 import/export terminals and 2 slate production facilities.

The development of the quarry and planning history of the wider landholding are outlined in Section 2.5, Chapter 2 of this EIAR.

The manufacture of cement combines both the cement works and the quarries on site. The main raw materials used are limestone and shale. Cement is produced in a specially designed kiln and is heated to very high temperatures with the required mix of raw materials. These materials need to be finely ground and mixed in precise proportions to form a raw meal of required chemistry. The raw meal is heated in the kiln process to form what is known as clinker. The clinker is milled down to produce the final cement powder. Gypsum is also added at the final grinding stage to control the setting time of the cement.

### **3.3 The Quarrying Process**

There are five broad stages in the quarrying process:

1. Blasting of rock faces;
2. Transport to crusher;
3. Crushing;
4. Stockpiling; and
5. Conveying to cement plant.

Each of these steps is summarised below.

#### **3.3.1 Blasting of Rock Faces**

In order to extract the limestone and to provide limestone feed to the cement plant, the active rock face must be blasted using explosives. The blast charges will be placed at regular intervals. It is not proposed to alter the frequency of blasting at the site as part of the proposed development, as it is not proposed to increase the rate of extraction. Currently, Breedon Cement Ltd employ specialist blast contractors who design and carry out each blast in the quarry. This arrangement will continue in relation to the proposed deepening area. All blasts at the site are subject to a specific design, which is carried out in accordance with the relevant standards, which establish best practice and safety. Each blast is specifically designed to release a quantum of rock from the working quarry face. In this regard, a pre-determined grid of vertical holes are drilled on top of the quarry face to a required depth. The intervals between the drill holes are specifically designed having regard to the explosives to be placed within each of the holes and the depth of the rock, which is sought to be released. There are pre-determined intervals or delays in the detonation of explosives in the drilled holes. This process minimises vibration arising from the blasting and increases the efficiency with which the rock can be removed. The shot-firing of the blasts and the explosives used are monitored by the Quarry Manager.

#### **3.3.2 Transport to Crusher**

Once blasting has occurred, the rock is loaded into mobile dump-trucks, which then transport the blasted rock to the primary crusher, which is located on the quarry floor.



### **3.3.3 Crushing of Rock**

There are two crushing stages, primary crushing and secondary crushing. Each crusher consists of a set of electrically operated rotating drums, which function to reduce the particle size of the rock to a scale that can be easily transported using belt conveyors. The primary crusher reduces the rock size to a maximum diameter of 100mm and the rock is then conveyed out of the quarry to the secondary crusher via an elevated conveyor. The secondary crusher reduces the rock size to a maximum diameter of 50mm.

### **3.3.4 Stockpiling of Crushed Rock in the Blending Shed**

The crushed rock is conveyed to the blending shed to the west of the application site. An online analyser is used to analyse the chemical composition of the rock and the stockpiling of homogenous material within the blending shed. The stockpiles also act as reserves in the event of a crusher or mobile equipment failure.

### **3.3.5 Conveying to Cement Plant**

Following the blending of the raw material to provide the correct chemical composition, it is conveyed to the raw mill, which crushes the raw material to a fine powder and dries it at the same time. The 'raw meal', which results from this process is then conveyed to the homogenising silos, which store the material prior to entry into the kiln and the subsequent production of cement.



### 3.4 Phasing of Works

It is the intention of the applicant to continue to extract from the application site until its end of life and provide for the subsequent restoration of the entire site. The restoration of the quarry including the current subject site is illustrated in the Restoration Plan produced as part of the previous 2009 permitted development (Meath County Council Planning Register Ref: TA/900603) and referenced in chapter 6 of the EIAR.

The proposed deepening of this section of the existing quarry will be consistent with the permitted depths of the adjacent permitted quarry area and is intended to facilitate the efficient extraction of material from the overall quarry site.

Figures 3.1 to 3.4 illustrate the proposed phasing of the development. The completion of all phases will involve the extraction of limestone rock to a final depth of 10 metres above Ordnance Datum (AOD).

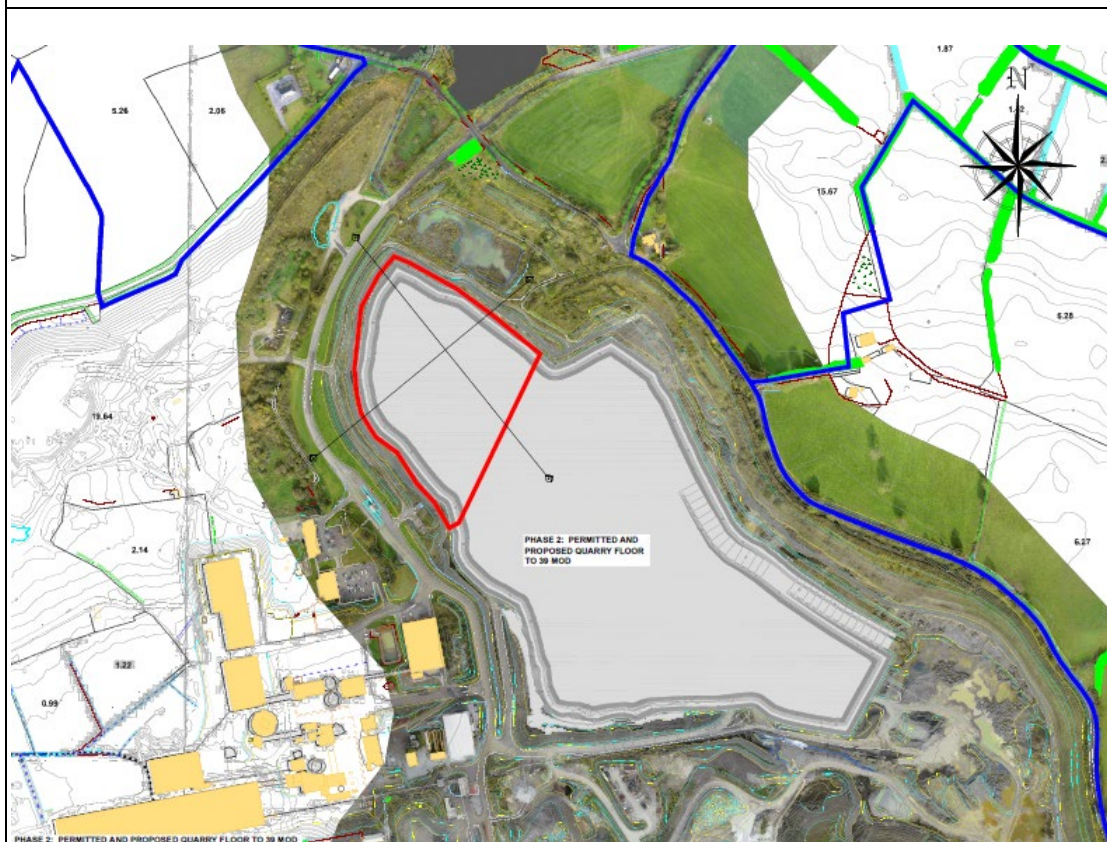
It should be noted that the four phases are indicative in illustrating the intended direction of works within the proposed quarry. In this regard, there may be need to alter the area or direction of extraction, in order to obtain rock with the correct chemical composition for blending and the production of cement. As such, the extraction of material in parts of the site may need to be supplemented by materials from other areas of the site.

Initially, limestone will be generally extracted from adjacent quarry areas that are not subject to the current proposed development. All production benches will be subject to ongoing geo-technical monitoring on a regular basis in keeping with the highest industry standards, best industry practice, and current health and safety regulations and guidelines.

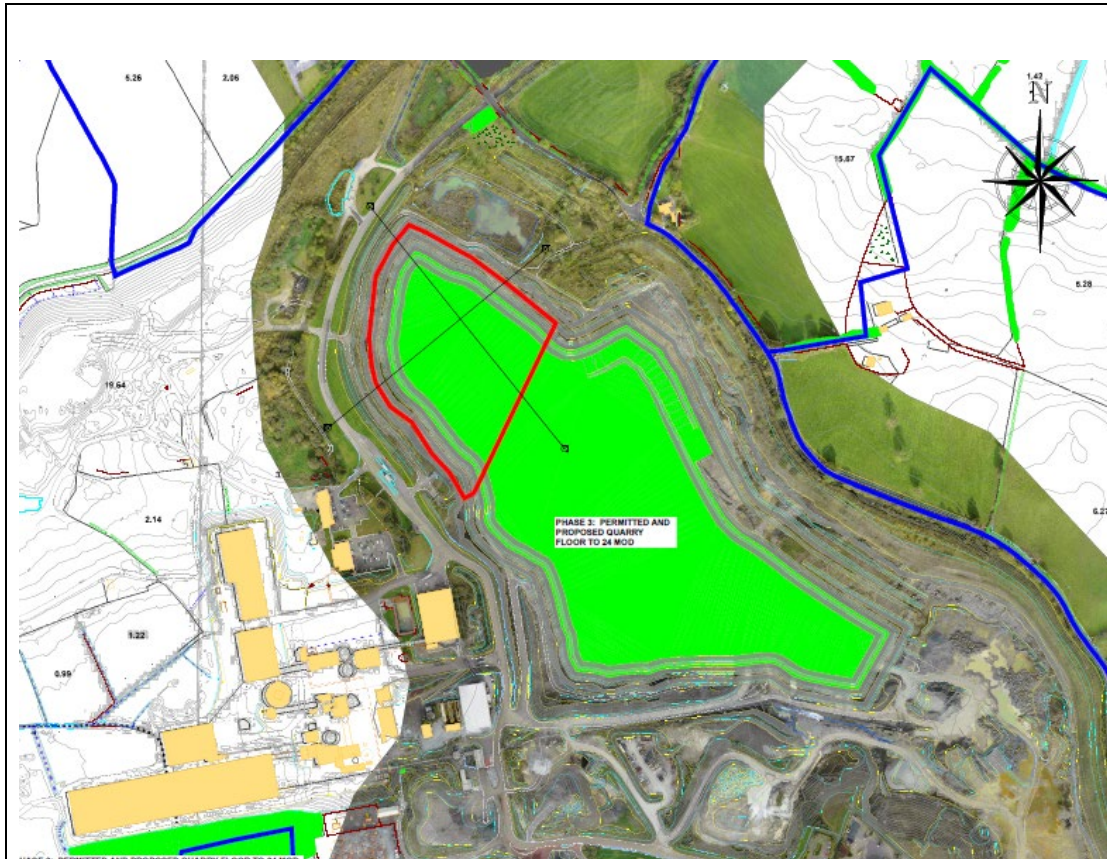
The phasing of the extraction allows for multiple faces to be opened-up and worked at any given time, thereby enabling the blending of materials from the quarry, essential to the continued efficient operation of the cement plant.



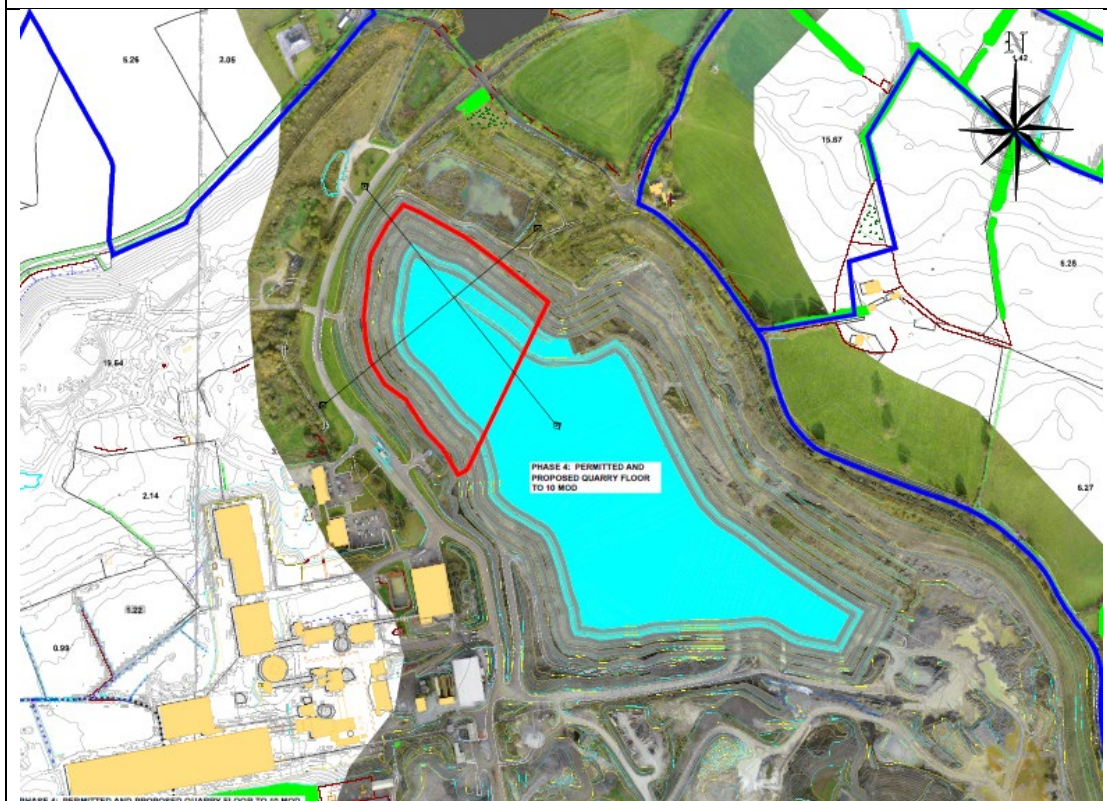
**Figure 3.1 - Phase 1 of quarry extraction – adjacent areas extracted to 35m OD**



**Figure 3.2 - Phase 2 – Permitted and proposed quarry floor area extracted to 39m OD**



**Figure 3.3 - Phase 3 of proposed development**



**Figure 3.4 - Phase 4 of proposed development**



### 3.5 Potential for Environmental Impacts

The application site is already part of an overall site whose operations are overseen by the EPA and activities controlled in an Industrial Emissions (IE) License Ref. P0487-07 for Breendon Cement Ireland Ltd. The proposed development will involve the deepening of an existing extraction area and will not result in any intensification of existing activities at the wider quarry. The various chapters in this EIAR include detailed assessment of the potential of the proposed development to produce effects in terms of population and human health, biodiversity, water, land, air, noise, landscape and visual etc. The following represents a brief summary of some of the key considerations in relation to the proposed quarrying activity.

#### 3.5.1 Biodiversity and Appropriate Assessment

Chapter 6 of the EIAR (Biodiversity) has been prepared by Ecology Ireland Wildlife Consultants Ltd. and describes the habitats, flora and fauna present at the application site of the proposed development at the existing quarry and includes:

- A detailed desktop review of available ecological data of the study area, including a review of designated nature conservation sites in the adjacent hinterland.
- Results of ecological field surveys carried out in order to obtain information on the baseline ecology of the study area.
- Evaluation of the ecological importance of the ecological resources of the study area.
- Assessment of the potential impacts on the existing ecology that could arise from the proposed continuation of quarry works within the application site.
- Details of avoidance and mitigation measures, to eliminate or reduce potential negative impact(s) on the existing local ecology arising from the continuation of quarry operation.

There are no Natura 2000 sites located within 5km of the application site boundary. A screening report was also prepared in support of the Appropriate Assessment (AA) process. The main purpose of this report was to identify whether likely significant effects on any Natura 2000 site are likely to arise from the proposed development.

The outcome of the screening stage assessment is outlined in Section 6.4 of the EIAR with the Screening Assessment report submitted to accompany the planning application. There are four Natura 2000 sites, five NHA sites and five pNHA sites located within 15km of the applications boundary (See Table 6.3; Figure 6.4 and Figure 6.5).

The most proximate Natura 2000 site is Mount Hevey Bog SAC (002342), located 5.3km to northwest of the application site. There is no potential impact-receptor pathway connecting the proposed extension to the limestone quarry to this designated site.

#### 3.5.2 Land, Soils and Geology

The potential impacts of the proposal in terms of land, soils and geology are outlined in detail in chapter 7 of the EIAR, as prepared by Hydro G. The current application will not increase the footprint of exposed bedrock, or the approved limestone quarry footprint. The current application will give access to bedrock in the northern part of the limestone quarry and make the quarry layout more efficient to manage in terms of blasting, benches and vehicular routes.



The potential of the proposal to generate cumulative impacts in conjunction with the existing quarry is also assessed in this chapter and the authors have determined that there will be no cumulative impact to soil/subsoil reserves or quality in the area as the application area has already been stripped under a previous permission<sup>2</sup>. In addition, the potential for cumulative impacts to the Waulsortian Limestone reserves in the local and regional area is imperceptible.

### 3.5.3 Emissions (Air and Water)

The proposed development is not anticipated to result in any significant changes in terms of impacts or required mitigation when compared to the wider existing permitted quarry operation.

As outlined in Chapter 8 (Water), the proposed development area is already a worked limestone zone in which the limestone has been extracted from ground level to an elevation of c. 70m OD. The application site is part of an overall site whose operations are overseen by the EPA and whose activities are controlled in an Industrial Emissions Licence [EPA Ref. P0487-07] for Breedon Cement Ireland Ltd. Therefore, existing operations, emissions and discharges are regulated.

The risk of impact to local water quality arising from the use of explosives at the site is considered negligible. The calculations carried out in relation to water balance data provide the confidence to assert that there will be no adverse impact on the local or regional groundwater regime from the proposed development.

The main potential impacts on air quality associated with the existing activities at the site relate to emissions of dust, PM10 and combustion gases such as SO<sub>2</sub> and NO<sub>2</sub>. The proposed quarry extension will not result in any change in the nature of the emissions from the existing and related activities at the site. Further details are outlined in chapter 9 (Air & Climate).

### 3.5.4 Quarry Blasting

The proposed development is intended to facilitate the continued operation of the existing quarry and it is not proposed to increase frequency or extent of existing blasting activity at the site. Chapter 10 of the EIAR outlines the baseline status at the existing quarry with regard to Noise.

In summary, the noise climate has been assessed over the past number of years by noise assessments carried out as a condition of the existing IE licence (P0487-07). In general, the noise monitoring programme has focused on the noise level experienced at site boundaries and also at the nearest residences to the site. The noise compliance monitoring programme that has been in place at the site since June 2000 has continually demonstrated compliance with the regulatory noise limits at local noise sensitive receptors.

There will be no change in the magnitude of the noise and vibration associated with quarrying activity as a result of the proposed development. This is because there is no increase in the rate of extraction or production proposed, no change in blast methods or frequency and no

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<sup>2</sup> Extraction area proposed for deepening permitted under Meath County Council Planning Ref: TA/900603





change in the nature or magnitude of noise or vibration impacts. Since the quarry area will be deepened rather than continuing at the existing level, the emissions will be effectively contained within the excavation area potentially reducing rather than increasing the noise impact in the vicinity of the site.

The planning application is also accompanied by an Operational Environmental Management Plan prepared by Breedon, which includes a risk analysis and Evaluation matrix. In relation to blasting, the analysis indicates that blasting activities are subject to extensive controls and standard operating procedures. In addition, screening berms fully surround the quarry boundary.

### 3.5.5 Visual Impact and Restoration

The proposed development has been fully assessed in terms of visual impact as outlined in Chapter 14 of this EIAR. The proposal will be entirely hidden from surrounding receptors and the visual impact of the proposal will be consistent with the baseline's conditions. It is therefore not considered that the proposed deepening of a portion of the existing extraction area will noticeably detract from the integrity of landscape patterns or the productive landscape character that prevails in the area.

It is considered that the magnitude of landscape impact is in the order of Low in the immediate vicinity of the application site (c. <500m from site boundaries). The magnitude of impact will soon reduce thereafter as the proposed deepening to the existing extraction area in the north-eastern portion of the existing quarry becomes a smaller component of the overall landscape fabric and will be read in conjunction with the existing quarry.

Once fully exhausted the quarry area will be subject to a comprehensive restoration plan including introduction of lakes to the main extraction areas, tree and grass planting, as well as introduction of wetlands and peat bog restoration on the lower sections of the landholding.

### 3.6 Quarry Operations

It is proposed that the quarry extension will be operated along the same lines as the existing permitted quarry operation. In this regard, the working of the quarry extension will take place between 07:00 and 19:00 hours on Monday to Saturday. Except in emergency, and then on advice to the Planning Authority, working will not take place on Sundays and Bank Holidays.

Quarry operations and Environmental management are guided by the Breedon *Environmental Management Manual* (Appendix 3.1) which is revised annually to meet the requirements of an Environmental Management System as per the ISO 14001: 2015 standard.

### 3.7 Planning History

Section 2.5 of the EIAR provides a summary of the planning history relating to the subject site and the wider Breedon Cement Ltd. landholdings (outlined in blue in Figure 2.1). The existing cement plant and other structures are not incorporated in the current proposed application.



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## **Appendix 3.1 – Breedon Environmental Management Manual**