Hudson Brothers Limited

NON TECHNICAL SUMMARY

rEIAR - Substitute Consent Application

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PUBLIC

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1 INTRODUCTION

1.1 INTRODUCTION

WSP Ireland Consulting Ltd (WSP) and Cunnane Stratton Reynolds Ltd (CSR) have been commissioned to prepare this remedial Environmental Impact Assessment Report (rEIAR) to accompany a substitute consent application for consent for an existing quarry over approximately 71.9 hectares (ha.) located in the townlands of Philipstown and Redbog, Co. Kildare. This rEIAR is submitted on instruction of Hudson Brothers Ltd (HBL), owner and operator of this quarry who will be the applicant for substitute consent.

It is noted that this rEIAR has been prepared in tandem with an EIAR to accompany an application under Section 37L of the Planning and Development Act, 2000 as amended, for further development of the existing quarry as a quarry by the same Applicant.

This document is a Non-Technical Summary (NTS) of the rEIAR, and its purpose is to describe the Development and provide a summary in non-technical language of the key findings of the rEIAR submitted to An Bord Pleanála (ABP) in support of the substitute consent application.

The HBL operational facility summarily consists of: a quarry pit where rock, sand and gravel are extracted; processing plant and ancillary structures; offices and welfare facilities; main offices at New Paddocks, Blessington, County Wicklow where the main entrance, weigh bridge and wheelwash to their operation exists onto a local road that accesses the N81. Generally, the facility is approximately 2 km north of Blessington, Co. Wicklow.

The HBL operation in Kildare is adjacent to other quarry and associated land uses operated by unrelated parties.

The quarry the intended subject of application for substitute consent, lies at the centre of a, established landholding located within the townlands of Philipstown and Redbog. The centre of this landholding has been the subject of historic, current and intended future extraction. The southern boundary is delineated by the Wicklow and Kildare county boundaries and the western and northern boundaries of this area are delineated by the Philipstown townland boundary. The east of the area is within the Redbog townland and delineated by field/property boundaries. This area extends to approximately 95.8 ha. and constitutes the EIA project boundary for this development and entirely encompasses the substitute consent application area of approximately 71.9 ha.

The reserve at this quarry is greywacke rock and it is overlain by sand and gravel. The quarry is currently worked to a maximum depth of 188 mOD.

The rock reserve is traditionally excavated by blasting and mechanical means, and processed by mobile plant at the working face. In this case, however, blasting has not occurred in the period since the planning application Reg. Ref.:07/267 expired on 18 September 2020.

Excavated sand and gravel material is transported to a centrally located existing administration and processing plant area over approximately 5 ha. that holds further processing plant (washing, screening, grading). This plant and processing area is an established part of the quarry area.

Figure 1-1 shows the regional location of the Site, whilst Figure 1-2 provides a depiction of the substitute consent application area and the EIA project boundary.

Figure 1-1 - Regional Site location.

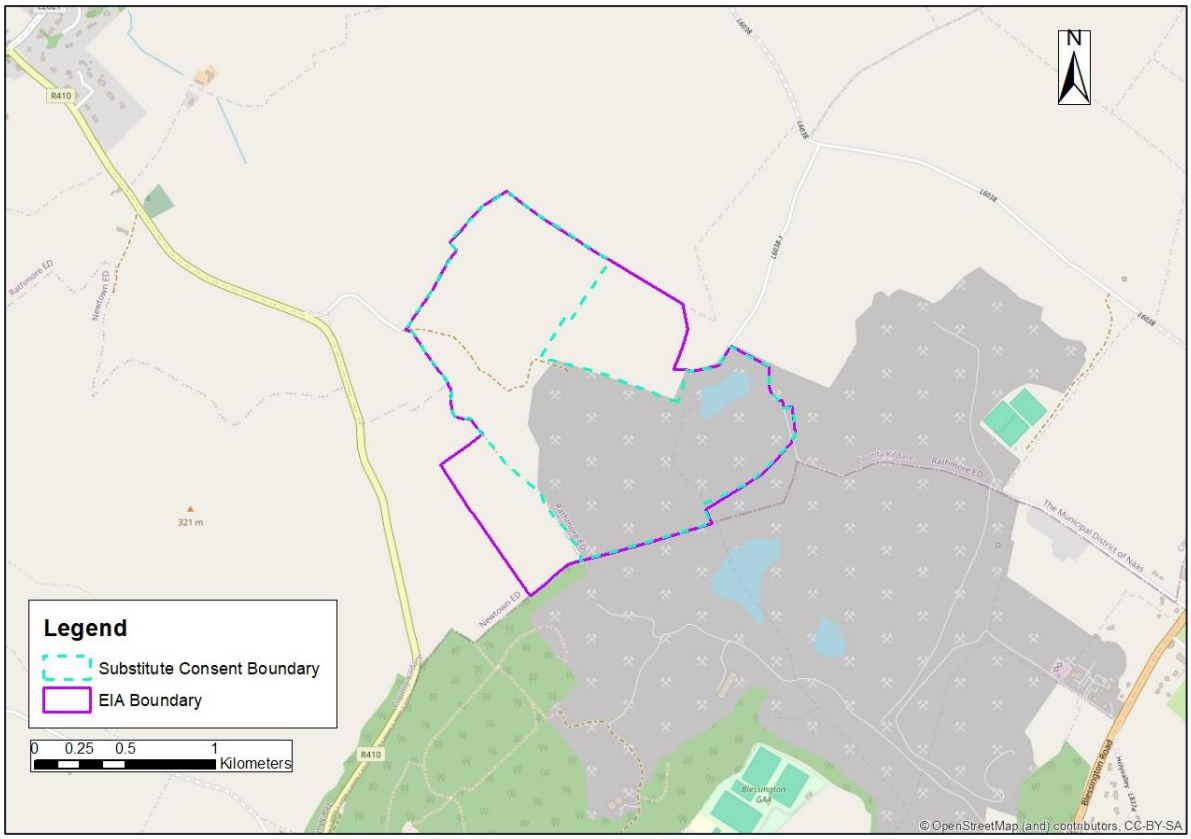

Figure 1-2 – Substitute Consent application area and the lands the subject of the EIAR.

To note, a remedial Stage 1 Screening Report for Appropriate Assessment (AA) has been submitted to accompany this substitute consent application. This assesses the potential effects which may have occurred on Natura 2000 sites and associated qualifying species as a result of the Development.

1.2 SCOPE AND METHODOLOGY

Environmental Impact Assessment (EIA) is a process used to predict the adverse, neutral and beneficial impacts of a proposed development. It provides a means of drawing together the findings from a systematic analysis of the likely significant environmental effects of a scheme to assist planning authorities, statutory consultees and other key stakeholders in their understanding of the impacts arising from a development.

Certain proposed developments, due to their type, and scale automatically attract the requirement for EIA by a competent authority as part of that authority's formal assessment of the development proposal when that proposal seeks permission, consent or licensing. A hierarchical suite of European and national legislation and guidance govern EIA and direct EIAR content.

Remedial EIA and rEIAR arise where retrospective consent for development that ought to have attracted the requirement for EIA has been undertaken. The consent for that type of development is substitute consent, itself the subject of dedicated legislative provision.

Legislation requires that an EIA be carried out for certain classes of project or development. The Development was screened against the Schedule 5 (Developments for the purposes of Part 10) threshold criteria for EIAs in the Planning and Development Regulations (2001, as amended), and was found to exceed the EIA threshold for an extractive industries development which proposes the *'Extraction of stone, gravel, sand or clay, where the area of extraction would be greater than 5 hectares'*.

Each technical environmental topic necessarily has separate legislative, policy and best practice requirements, however, the assessments have applied the same overall standard approach. These include:

- Confirming the relevant legislative and policy context;
- Determining the applicable study area for that discipline;
- Establishing the baseline conditions for that discipline (in this instance it is the expiration of the Planning Reg. Ref.: 07/267 permission; September 2020);
- Identifying potential receptors and their importance;
- Identifying potential sources of impact (change) to the receptors due to the Development;
- Applying a risk-based assessment methodology to evaluate the level of significance of environment effects resulting from each of the identified impacts;
- Where applicable, propose measures to avoid, reduce or remedy undesirable potential impacts, as appropriate, and thereby reduce the level of significance of each potential effect; and
- Conducting a final assessment of residual environmental effects, factoring in the measures and compensation strategies.

The rEIAR was prepared by appropriately qualified and competent consultants as required by the EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU). Further technical details concerning the scope and methodology of the rEIAR have been provided in Chapter 1 of the rEIAR.

As noted above, the rEIAR assesses the period from September 2020 to present. The structure of the main rEIAR document is laid out as follows:

- Chapter 1 – Introduction, Scope and Methodology;
- Chapter 2 – Project Description;
- Chapter 3 – Population and Human Health;
- Chapter 4 – Ecology and Biodiversity;
- Chapter 5 – Land, Soils and Geology;
- Chapter 6 – Water;
- Chapter 7 – Air Quality;
- Chapter 8 – Climate;
- Chapter 9 – Noise and Vibration;
- Chapter 10 – Cultural Heritage;
- Chapter 11 – Landscape and Visual Impact;
- Chapter 12 – Traffic;
- Chapter 13 – Material Assets;
- Chapter 14 – Major Accidents and Disasters; and
- Chapter 15 – Interactions.

1.3 THE NEED FOR THE DEVELOPMENT AND CONSIDERATION OF ALTERNATIVES

The greywacke rock and sand and gravel reserve at the subject location is of a proven good quality capable of being used for a range of materials in the construction industry. Therefore, the reserve material assumed to be present at the subject site and now extracted provided suitable aggregates for construction purposes.

In considering alternative sites, it is a basic principle that aggregates can only be worked where they naturally occur. As with all aggregate extraction development the nearer the supply of aggregate to the market, the more economically viable it is and given the nature of aggregate deposits. In this case the Site has the benefit of being strategically located adjacent to the National Road Network (N81). Aligned to this economic situation is the environmental and social preferability of locally sourced aggregates. Aggregates sourced close to their market are preferable to those sourced at more remote locations as this lessens road traffic and associated environmental impacts and economic costs. Socially, the local sourcing of construction aggregate strengthens the local economy through job provision and associated spending and exploits advantages and opportunities inherent in local supply chains.

Aggregates are an essential material for the construction industry and are used in all major development plans (housing, road surfacing, infrastructure etc.). As such, they are of major significance to the overall growth of their local areas and the country and an important economic resource despite fluctuations in levels of construction due to wider economic forces, or events such as the COVID-19 pandemic suspension of construction.

The purpose of this rEIAR is to assess the site with regard to experienced / potential impacts on the environment, and to recount / propose measures to avoid, reduce or remedy undesirable potential impacts, as appropriate.

In this case, the quarry site represents the predominant land asset upon which the developer's companies and employees rely. The developer has a personal intergenerational association with the lands and is a quarry operator and employer who wishes to maintain this asset. The continued quarry use and sustainable further development is contingent on further planning permission to secure future reserve especially as the substitute consent process is restricted to extant development. The reader is reminded that a concurrent Section 37L application with accompanying EIAR is to be submitted for a lateral expansion of the quarry void and to secure the quarry land use and future reserve.

Maintaining the quarry site and adjacent suitable lands as a viable quarry with associated processing plants will ultimately realise the sustainable extraction potential of this extant, established quarry and will maintain those direct and indirect jobs.

1.3.1 SITE SELECTION

In this instance, the rEIAR has arisen as a direct requirement of an application for leave for substitute consent. In other words, the subject site is not a proposed site but rather an existing extraction and processing site. In view of the retrospective nature of the substitute consent process we cannot point to a site selection methodology employed in choosing the subject site. As such, site selection is outside the control of the developer having originated from their inheritance of the extant quarry land, having operated from this location over several decades.

1.3.2 ALTERNATIVE DESIGNS CONSIDERED AT THE SUBJECT SITE

In common with the reduced site selection methodology and consideration of alternative locations under the substitute consent process, alternative design proposals are ruled out due to the retrospective nature of the rEIAR. A review of aerial photography and information supplied by the developer details the subject lands were extracted for rock from their centre, and in a south easterly direction above the watertable. Sand and gravel extraction occurred in the north area of the main pit. Pit layouts progressed during the assessment period (September 2020 to present) based on the developers desire to remain in accordance with the lateral and depth extents identified in the KCC Reg. Ref. 07/267 permission and has not expanded laterally beyond this extent to the present day.

1.3.3 OVERVIEW OF PLANNING PERMISSION HISTORY

The Hudson Brothers business has been in operation in since the 1950's. Following the coming into force of Section 261 of the Planning and Development Act, 2000 (as amended) in 2004, HBL registered their facility with both Wicklow County Council under their Reg. Ref. QY/43, and Kildare County Council under their Reg. Ref. QR/42. HBL's operational facility was correctly and properly registered in accordance with Section 261 of the PDA and both registrations related to pre 1963 quarrying.

For their site located in Co. Wicklow, HBL applied for planning permission to Wicklow County Council (WCC) for the components of the existing quarry that lay within that county's jurisdiction. This was applied for under WCC Reg. Ref. 06/6932 and for which planning permission was granted for 25 years.

Planning permission was also sought and obtained by HBL for the components of their site in Co. Kildare under KCC Reg. Ref. 07/267 (and An Bord Pleanalá Ref. PL09.235502). Planning permission was granted for 10 years expiring on 18 September 2020. The applications

subsequently lodged prior to expiry of that permission are identified below and are set out in further detail in the accompanying planning statement by Cunnane Stratton Reynolds Limited:

- Refusal of retention planning permission under KCC Reg. Ref. 19/1230 for a maintenance shed;
- Invalidated planning application under KCC Reg. Ref. 20/511 for continuation of development granted under 07/267 and extended area of quarrying extraction; and
- Invalidated planning application under KCC Reg. Ref. 20/532 for continued use for quarrying of aggregates and ancillary plant and welfare facility.

The inability of this applicant to apply for retention under normal planning circumstances meant at the time that they had to apply for leave to lodge a substitute consent application which was duly granted on 01 August 2023. That has dictated the requirement to simultaneously lodge this substitute consent application with a S37L application.

2 PROJECT DESCRIPTION

The subject lands have been used for quarrying since the early 1950's and as such, the quarry and associated uses are an established feature of the landscape and the main feature of the EIA project lands.

The extracted area lies within the substitute consent area and occupies the centre of the EIA project unit. The lands the subject of this rEIAR are roughly triangular in shape. The lands are bound to the south by the Kildare / Wicklow border, and are located approximately 500 m to the east of the R410 Blessington / Naas regional road, and approximately 1.4 km north west of the N81 national road.

The quarry is accessed via Danker Lane through lands owned by the client in Co. Wicklow. The Co. Wicklow land is accessed via the N81 National Secondary Road. The Client's Wicklow lands contain the administration/office area for their business and are permitted under WCC Reg. Ref.: 06/6932.

The processing plant area within the Site is established. Extraction has been to the west and north west of the processing plant and maintenance shed area where extraction depth is above the watertable and at a maximum depth of 188 mAOD.

A review of aerial photography, mapping and applicant communications identifies that the extraction activities undertaken during the period of September 2020 to present have been contained within the permitted KCC Reg. Ref.: 07/267 area.

In terms of the detailed operation of the quarry; sand and gravel, and rock, has been extracted by two separate methods:

The first method involves the extraction of overlying sand and gravel by mechanical means (excavation by mobile excavator). An excavator loads the material onto dump trucks, which transports the material to the fixed aggregate processing plant on the quarry surface. This aggregate processing plant has operated a wet process where the aggregate is washed and screened before being segregated into stockpiles of different sized product which is then loaded by a front-end loader onto road going trucks for export to market. The aggregate processing plant operates a closed circuit washing system where water is recirculated. This system has resulted in significantly lower fugitive dust emissions compared with dry screening processes. Silt from the washing process is pumped to silt storage ponds south west of the plant site.

The second method extracted rock by rock breaking (excavator attachment), and crushing and screening on the pit floor, (carried out by mobile crushing and screening units). Prior to the expiration of the KCC Reg. Ref.: 07/267 permission blasting was used as a means to extract rock, however, blasting has not occurred in the period since the expiration of that permission in September 2020. Following the crushing/screening on the pit floor the screened rock is segregated into stockpiles of different sized product. Front-end loaders then load the rock products at onto trucks for onward transportation to market.

The quarry plant area is approximately 5 ha. in size and that currently holds 1 no. maintenance shed (including underbody truck wash on a concrete apron surrounding the shed, staff welfare facilities [shower and toilet], proprietary wastewater treatment system and percolation area, interceptor and soakaway), 1 no. generator/power house (within a shipping container), 1 no. control room, 1 no. office and canteen, a water recycling plant, an aggregate processing plant (washing, crushing, and

screening), 1 no. bunded fuel tank and generator room, 1 no. storage shed, 1 no. shipping container storage structure, and 1 no. shipping container. Within this plant/maintenance shed area is a fuel storage and refuelling area.

The plant area also holds a dormant secondary crusher and aggregate screen, a dormant crushing plant, and a dormant former concrete plant. These infrastructure items are not in use and are not part of the substitute consent application. These items of plant have remained unused for a period prior to the expiration of the KCC Reg. Ref.: 07/267 permission. These will be decommissioned in conjunction with the restoration plan for the Site. However, given the challenges of the post-2008 economic downturn and the potential for a severe Covid-19 related economic crisis the Applicant believes it prudent to classify the structure as 'dormant' and will not be operated without prior consent from the appropriate planning approvals.

3 POPULATION AND HUMAN HEALTH

Section Purpose

The purpose of this section of the rEIAR is to provide an assessment of the potential effects of operations of the subject site for quarrying and aggregate operations on population and human health. That assessment is made with regard to the prevailing background in terms of population, employment, amenity, land use, and human health over the substitute consent assessment period which is from September 2020 to the present day. The impact on human health and safety is assessed in regard to air quality, water, noise and vibrations, and in respect of general health and safety, site security and boundary treatment as raised as a third party concern in prior applications made by HBL, and finally on water supply and quality.

Setting and Existing Conditions

The study area is identified as the EIA boundary, as set out in other chapters including Chapter 1 of the rEIAR. The study area comprises two electoral divisions namely Rathmore ED and Newtown ED.

The existing environment is set in the assessment under the following headings: population, employment, amenity, land use, and human health.

Population

Over the period 2016 to 2022 population in Rathmore ED declined and increased in Newtown ED.

Employment

Employment remains at high levels in this area, within Kildare County and within the State. There is commuting for work to Dublin from this area. The immediate area provides employment in the quarrying, aggregates operation and in ancillary activities. Naas centre is a 20-minute drive away and provides service-based employment for the area.

Amenity

The area generally is one of rural and agricultural character. The immediate location is characterised by a well established quarry and aggregates operation presence. The existing three quarries are well established in this location and as indicated in Chapter 11 (Landscape and Visual) are a defining feature of the existing landscape.

The site is relatively close to Blessington which is seen as a gateway to the Dublin and Wicklow Mountains. Poulaphouca Reservoir (Liffey Lake) is located approximately 2.2 km from the application site. Both the local soccer club and GAA clubs are located a kilometre or less from the site. The existing facilities and amenities in the area are used by the local population and from those coming from further afield.

Land Use

The site is classified by the EPA as a Mineral Extraction Site and the use the subject of this application is established over any years and indeed received planning permission from WCC which is still in force and a permission from KCC which expired as relatively recently as 2020. Glen Ding Woods are located on lands further to the south-west and are defined as forestry and a semi natural

area. There are a number of one-off residential properties located in the vicinity of the application site, and which are located primarily to the west, north and east.

There are no waste licenced or IE/IPC licenced facilities within 1 km of the development. Within 5km there are seven EPA regulated activities. There are no upper or lower tier SEVESO sites within 5 km of the site. The closest SEVESO site is Johnston Logistics Ltd, which is an upper tier SEVESO site and is located approximately 8.5 km to the north of the site.

Human Health

The 2016 census, which is the latest for which health data is available, indicates that a significantly higher percentage of people in both Rathmore ED and Newtown ED indicated their health as 'very good' compared to State and County in the same period. Those recording their health as bad was less than that recorded for both the State and the County. This would indicate a relatively healthy local population as a general position on health in close proximity to the application site.

Potential Effects During the Assessment Period and Mitigation

Population

Employee numbers associated with the subject development have been maintained from the existing permitted development under KCC Reg. Ref. 07/267. Therefore, any potential growth in local population attributable to the subject development over the assessment period is deemed to be negligible, and not significant. There is no impact on other population factors such as age distribution, population density, household composition or commuting patterns over the assessment period.

In respect of commuting there has been a positive impact on job retention in the area over the assessment period.

Employment

Existing employment levels have been maintained on site. The application site has been providing aggregates to construction sites in the Greater Dubin region over many years which also leads to further indirect employment. It is therefore considered that the operation of the application site has had, and is having, a 'positive' and 'slight' effect on economic activity in the area and the Greater Dublin Region.

Amenity

It is concluded that the subject development has had an imperceptible impact on tourism and recreation in the area over the assessment period. It is considered that there has been a negligible effect from dust and a 'not significant' impact on the amenity of Glen Ding Woods from noise. There is an imperceptible visual impact on Glen Ding Woods.

Land Use

As quarrying is an established practice the extraction activities during the assessment period have had an imperceptible effect on social considerations. There has been no significant loss of land or agricultural land during the assessment period.

Human Health and Health and Safety

Potential impacts to human health from the effects of discharges to the underlying groundwater may occur. This could result in a change to water quality but have not occurred during the assessment

period. Extraction has been, and is, limited to a depth of 1 m above the maximum water table thereby ensuring that there is no significant impact on local water supply.

Regarding both impact from dust and noise there has been no significant impact. In the context of vibration and potential harm to human health it should be noted that blasting has not been undertaken on site during the assessment period of September 2020 to the present day.

Over the assessment period site security and boundary treatment has been enhanced to the betterment of safety to the surrounding population and livestock.

Conclusions

There is no cumulative impact of significance with other projects existing or planned in the area. It is considered that there has been no significant impact from the subject development operationally over the assessment period from September 2020 to present. There is no requirement for monitoring in this chapter subject to monitoring being implemented in other chapters.

4 ECOLOGY AND BIODIVERSITY

Section 4 of the rEIAR provides an assessment of potential impacts of the continued operation of the Site on ecological receptors (called important ecological features). This assessment included consideration of both potential effects from the Site and cumulative effects of plans and projects in the surrounds of the Site.

Methodology

The impact assessment has examined survey data gathered before the assessment period (in 2019 and 2020), and compared it with survey data gathered recently (November 2023). Surveys covered habitats, botany and protected fauna on lands within the existing quarry pit as well as in the surrounding landscape. Publicly available species records from within 5 km from the Site were examined, and the onsite habitats were assessed for their potential to accommodate protected or notable species identified. The assessment has also used historical aerial imagery and environmental emissions monitoring data to help determine the types of effects likely to have occurred.

Existing Conditions

It was found that quarry operations were largely within the pre-existing quarry footprint, and did not increase in intensity so as to give rise to increased environmental emissions. Dust and noise monitoring data supports this finding. Groundwater monitoring has indicated that there is no connection between groundwater at the site with the nearby Red Bog SAC and pNHA. There are no surface water connections between surface water bodies onsite and offsite.

Aerial imagery has shown that approximately 1.12 ha of agricultural grassland was excavated between January and October 2023. Aside from the loss of grassland as described, there has been no loss of habitat during the assessment period. This includes no loss of hedgerows, treelines, scrub and woodland. In this context, the habitat assemblage at the Site is largely consistent with what was previously recorded in 2019/2020. There have been some changes within the quarry pit where the locations of silt lagoons have changed, and what was previously recorded as agricultural grassland (north of the quarry pit) appeared in 2023 to have transitioned to semi-natural grassland.

The surveys also found evidence of the following protected species:

- Evidence of badger activity, including several potential setts, associated with hedgerows/treelines outside the quarry pit;
- Several potential bat tree roosts, associated with hedgerows/treelines outside the quarry pit;
- One of these trees also provided a suitable pine marten denning site;
- Red squirrel, observed on a camera trap in 2020;
- A live frog, in an area of pooled water outside the quarry pit;
- Hedgerows/treelines, scrub and woodland (outside the existing quarry pit) were considered suitable for hedgehog, pygmy shrew, Irish hare red squirrel, for which public records had been submitted from within 5 km of the Site; and
- Sand martin burrows (approximately 40) at the top of one of the existing walls of the quarry pit.

Peregrine falcons were not observed during the surveys, but they are known to nest at the top of one of the walls of the quarry pit.

Invasive fauna, including Sika deer, feral goats and grey squirrel, were observed outside the quarry pit. No invasive flora were recorded.

Potential Effects During the Assessment Period and Mitigation

The removal of 1.12 ha grassland occurred between January and October 2023. As such, it cannot be ruled out that this occurred during the bird nesting season; nor can it be ruled out that ground-nesting birds were nesting at the time of excavation. Such an event would have resulted in a permanent, negative impact on local populations of ground-nesting birds.

Aside from the above event, considering that operations have not migrated laterally and have been confined to areas of highly-disturbed bare ground, no significant negative effects are considered to have occurred to any of the other identified important ecological features. Sand martin burrows and the existing nesting site of peregrine falcon have been unaffected.

Compensation and Enhancement

Compensation and enhancement have been proposed in the form of reinstatement of grassland habitat, which is to be bolstered with a range of native graminoids and other herbaceous species. The provision of suitable nesting habitat will encourage local populations to breed in this location, such that any losses to populations incurred during the assessment period will be restored. On this basis, there is considered to be no residual significant impact to important ecological features following restoration of the site.

No other impacts were identified, from the Development alone, nor cumulatively with other plans or projects.

5 LAND, SOILS AND GEOLOGY

Section Purpose

Section 5 of the rEIAR provides an assessment of potential effects of the continued operation of the Site on the surrounding land, soils and geology. This assessment included consideration of both potential effects from the Site and cumulative effects of other extractive or sizable industries in the surrounds of the Site.

Setting and Existing Conditions

The Site is on lands at Philipstown and Redbog, Red Lane, Co. Kildare, along the Kildare/Wicklow border. Regionally, the nearest town is Blessington, which is located approximately 2 km to the south of the Site. The Site comprises lands which are currently used for quarrying activities.

The quarry is comprised a northeastern area with buildings, parking and storage areas; an eastern plant area with the processing plant used for the screening and washing of excavated material and a water treatment plant; a southern area where sediment laden water from processing is pumped to settle in a silt pond; a central area where material is subject to extraction; and a northern area where surface run off and rainwater is captured and recycled for processing.

Three main land uses have been identified within the Site and the study area (500 m from the Site boundary) over the assessment period. These are the agricultural and single-house residential lands, the R410 road and other quarry operations. The lands to the north and west can be characterised as rural in nature, with land uses in the area being agricultural and single-house residential. Sheep rearing and grazing of cattle are the main activities in the area. The R410 road passes through the 500 m buffer to the southwest of the Site and the lands immediately to the east and south of the Site are largely taken up by quarrying activities operated by unrelated parties. There was little change in the surrounding land use over the review period, other than the addition of a single house dwelling.

Within the Site boundary, there was re-growth of vegetation over the screening berms. There has also been changes to the internal site track layout at this access point. A berm and buffer to segregate a silt pond located north of the Site was developed during 2020 and the pond was closed off by October 2023. The silt pond to the southeast of the process area can be seen to be filling during the assessment period.

There are limited soils remaining in-situ due to the ongoing extraction activities onsite. The process plant is composed of made ground (e.g. concrete pads, hard standing and concrete foundation areas for the plant area) overlying natural ground (soils). The areas north and west of the Site containing agricultural fields are underlain by natural ground.

The underlying bedrock geology in the region comprises of sedimentary rocks and low-grade metamorphic rocks of the Kilcullen Group. The Site is underlain by the Glen Ding Formation to the west and Slate Quarries Formation to the east.

The floor of the quarry area in 2020 was approximately 190 mAOD. The deepest part of the quarry is currently at approximately 188 mAOD. The extraction area has expanded from an initial 37.3 ha (0.373 km^2) in 2020, to the current ca. 38.8 ha (0.388 km^2).

It is estimated that approximately 1 Mt of rock and sand and gravel was excavated from the Site each year over the review period.

The silt pond located in the southern part of the quarry has been previously excavated down to the depth of the competent bedrock. The pond is allowed to overflow to the base of the quarry to help prevent against over-filling. The silt naturally lines the pond, preventing water from seeping into the surrounding superficial deposits or bedrock, which has the potential to lead to instability issues.

Potential Effects During the Assessment Period and Mitigation

Five main sensitive receptors were identified in the impact assessment for the Site: land (agricultural land), superficial deposits (soil/subsoils), bedrock geology, human health and geological heritage. These are classified as of low, medium, medium, high and low sensitivity respectively.

The main potential impacts and associated effects considered were as follows:

- Activities or events that might have impacted land quality (e.g. leaks and spills from machinery or stored substances, or discharges);
- Change of land use/land take (i.e. loss of agricultural lands);
- Loss of superficial deposits and bedrock;
- Destabilisation and/or subsidence of unconsolidated soils, sub-soils or rock faces; and
- Loss of geological heritage.

A review of water quality during the assessment period (refer to Chapter 6.0 Water of the rEIAR) indicates that groundwater quality is generally good.

The nature of the development involved the removal and storage of soil. The impact on these can be considered temporary in nature, as they are stored for reuse as part of the Site's restoration. By the nature of quarrying the underlying sands and gravels and bedrock has been removed, which has resulted in a direct and irreversible impact. However, the removed material has a medium to high resource potential and will be used in future construction projects.

There were no geotechnical incidents, which would include collapse of a wall or surface, recorded over the review period.

The Development had no direct impacts on the geological heritage sites as extraction activities did not extend into the designated areas.

Future mitigation measures shall include:

- Silt pond to have a geotechnical assessment and be inspected regularly for signs of any structural defects that may cause a leak of material or failure;
- Future design explores the possibility of moving the silt pond into the base of the quarry; and
- Future plans and designs for extraction of the bedrock are to use available information from boreholes, to determine the depth at which the bedrock aquifer is likely to be intercepted.

The assessment concludes that the existing Development has not given rise to significant adverse effects on the land, soil or geology at or surrounding the Site during the assessment period of 2020 to present. In all cases the residual adverse effect is Not Significant and not greater than Slight.

6 WATER

Section Purpose

Section 6 of the rEIAR provides an assessment of potential effects of the continued operation of the Site on the water environment. This assessment included consideration of both potential effects from the Site and cumulative effects of other extractive or sizable industries in the surrounds of the Site.

Setting and Existing Conditions

The Site is on lands at Philipstown and Redbog, Red Lane, Co. Kildare, along the Kildare/Wicklow border. Regionally, the nearest town is Blessington, which is located approximately 2 km to the south of the Site. The Site comprises lands which are currently used for quarrying activities.

No streams occur within the Site boundary due to the permeable nature of the underlying sands and gravels. The nearest water course is the River Morell. Water quality analysis shows there is no correlation between the water quality at the stations for the River Morell and their proximity to the Site. The Red Bog SAC shows seasonal trend in water levels, with higher water levels corresponding to the months with higher rainfall and no indication of declining trends in response to the activities at the Site.

Water enters the Site through direct rainfall precipitation and via the movement of groundwater through the subsurface which predominantly flows from northeast to southwest to west, consistent with local topography. In the excavated areas of the Site in the west, water is present in the lowest elevations of the pits, where it collects in and around an artificial lagoon, which is utilised for process water. The artificial pond is a mix of rainfall, recycled process water and silt pond overflow. Following periods of heavy rainfall, water is also seen to collect within the excavated bedrock in the centre of the quarry. This water is only lost to evaporation or infiltration into the underlying sands and gravels / bedrock and is not discharged off-site.

Pumping was not required to remove ponded water and allow deeper extraction of the rock material over the review period. This confirms that the confined aquifer within the bedrock has not been intercepted, with dry quarrying (above the confined aquifer) continuing to take place.

Bedrock underlying the Site is classified as unproductive. Flow in the bedrock is likely to be predominantly confined to bedding planes, faults and fractures due to the fine-grained, low porosity nature of the bedrock.

Connectivity of fracture sets within the bedrock is expected to be low, with limited lateral connectivity (tens of metre from the Site), and limited connectivity of groundwater with off-site receptors (such as adjacent domestic water supplies).

Groundwater quality has not been impacted by activities at the Site over the review period. Elevated Nitrate as NO_3 continues to be recorded in a monitoring well and is reflective of off-Site activities, such as applying fertiliser to agricultural land.

Potential Effects During the Assessment Period and Mitigation

Five main sensitive receptors were identified in the impact assessment for the Site: groundwater (quality/quantity), surface water (quality/quantity) and flooding (on-Site). These are classified as of negligible, low and medium sensitivity respectively. Additional sensitive receptors of flooding (off-

Site), human health and Red Bog SAC were determined to not currently have a connection with the Site.

The main potential impacts and associated effects considered were as follows:

- Changes in groundwater / surface water quality due to excavation, crushing or washing activities;
- Changes in surface water / groundwater quality from wastewater generated by on-Site welfare, holding tank and wheel wash facilities;
- Changes in surface water / groundwater quality from uncontrolled material storage;
- Changes in surface water / ground water quality caused by hydrocarbon leaks from fuel storage tanks or the unmanaged spillage of fuels or lubricants from Site plant or vehicles; and
- Increased flooding risk due to elevated rainfall and/or discharge of silt laden process water into the silt pond, resulting in uncontrolled overflow to the quarry floor.

The magnitudes associated with the potential impacts at the Site were assigned either a negligible or low value due to:

- Monitoring of groundwater and surface water quality in the available monitoring wells and artificial ponds has not detected any deteriorating trends;
- Limited off-Site hydraulic connectivity of groundwater, due to not encountering the confined aquifer, has prevented the migration of any (possible) contaminants from the Site;
- Low or undetected concentrations of hydrocarbons in groundwater and surface water throughout the review period;
- No exceedances of surface water EQS threshold values for inland waters and generally good quality of water in the River Morell observed throughout the review period; and
- No significant flooding of the Site as a result of intercepting the bedrock aquifer or an uncontrolled release from the silt pond.
- Future mitigation measures shall include:
- To not quarry deeper into the central greywacke (currently 188 mAOD), as there will be increasing risk that the water confined within the bedrock will be intercepted.
- Future northern and southern extension areas of the quarry to are proposed to be no deeper than 200 mAOD,
- Future planning of the quarried depth is to consider the anticipated depth to the aquifer for each area of the quarry;
- The silt pond should have a geotechnical assessment and be inspected regularly for signs of any structural defects that may cause a leak of material or failure; and
- The silt pond should be moved into the base of the quarry. This will allow the silt pond to cover a larger area to reduce overflow requirement.

The assessment concludes that the existing Development has not given rise to significant adverse effects on the water environment during the assessment period of 2020 to present. In all cases the residual adverse effect is Not Significant and not greater than Slight.

7 AIR QUALITY

Section Purpose

Section 9 of the rEIAR provides an assessment of potential effects associated with the historic operation of the Site on Air Quality. This assessment included consideration of both potential effects from the Site and cumulative effects of other extractive or sizable industries in the surrounds of the Site.

A qualitative assessment of dust impacts from the quarrying activities has been undertaken in line with the Institute of Air Quality Management (IAQM); Guidance on the Assessment of Mineral Dust Impacts for Planning, 2016. The effects have been assessed in the context of relevant national, regional and local air quality policies.

Potential Effects During the Assessment Period and Mitigation

The background air quality has been classified using Site monitoring data gathered from 2019 to 2023 for dust, and EPA monitoring data for airborne particulate matter (PM_{10} and $PM_{2.5}$). Climate data for the area has been obtained from the Met Éireann station at Casement Aerodrome, Baldonnell, Co. Dublin, ca. 10 km north-northeast of the Site, and has been used to inform the dust assessment.

The main potential impact on ambient air quality associated with extraction activities and aggregate processing is that associated with deposition of dust generated by the rock extraction and material transfer operations. Potential dust emissions associated with quarry workings are:

- Movement of full and empty trucks along haul roads;
- Stripping of subsoil and overburden;
- Loading and movement of overburden to dump areas;
- Blasting and rock breaking;
- Extraction of materials;
- Loading of materials;
- Unloading of overburden for restoration; and
- Wind erosion at dump areas and exposed faces.

It has been found that deposited dust does not generally travel beyond 400 m (IAQM, Appendix 2, 2016), therefore all receptors within 500 m of the Site boundary are considered (see Figure 7-1). The guidance states that it is commonly accepted that the greatest impacts will occur within 100 m of the source, with the potential for travel up to 400 m. With regards to receptors along haul routes, this guidance states that receptors within 50 m of the routes used by vehicles for 350 m from the Site exit point should be considered.

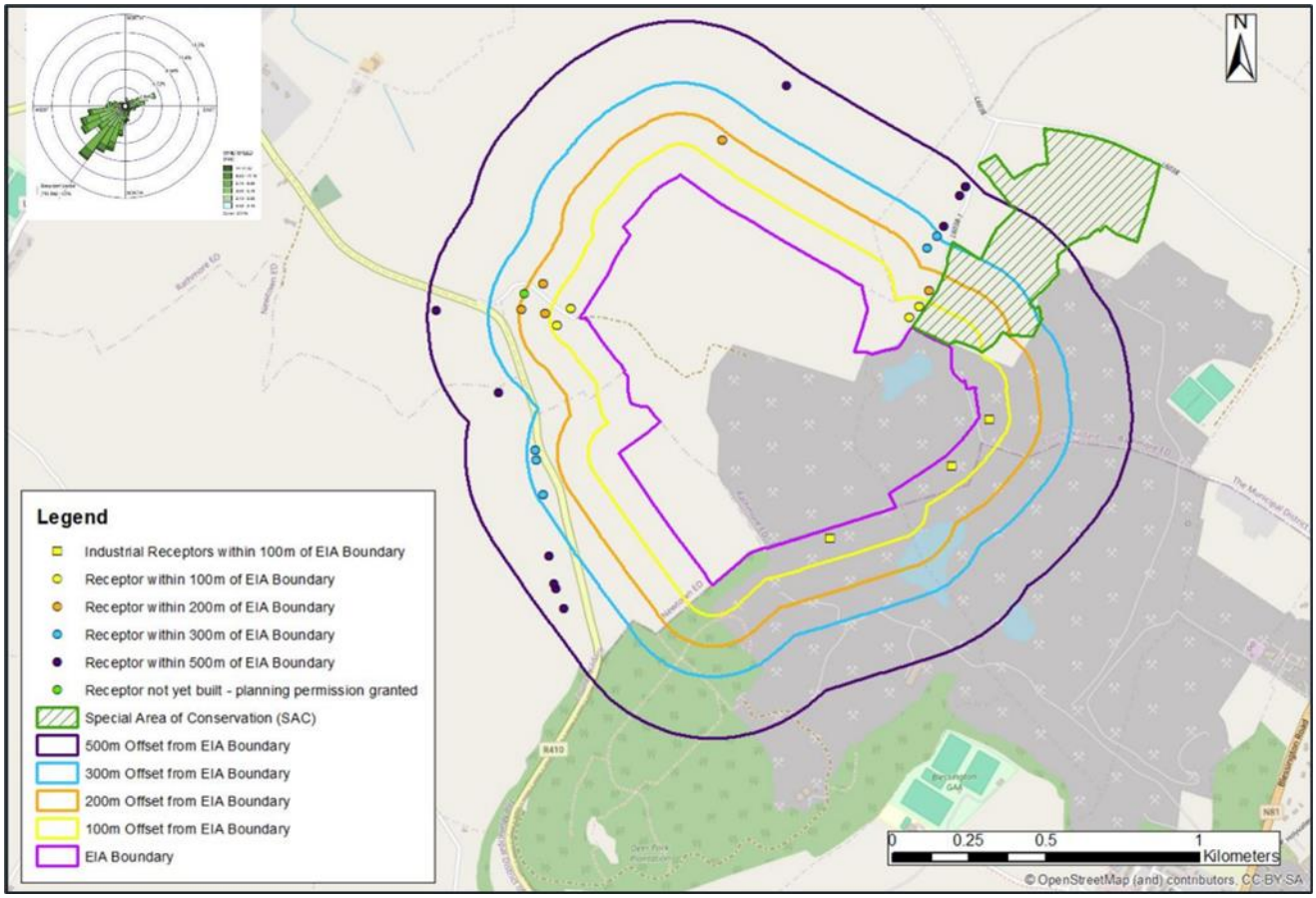

Figure 7-1 - Location of receptors within 500 m of the Site and prevailing wind direction.

The assessment has considered the potential emissions to air and impacts from particulates, and demonstrates that there will have been an impact on Air Quality during the historic operation of the Site, but the impacts are considered to be not significant.

Mitigation measures to minimise the potential for dust emissions from the Site have been consistently in place throughout the historic operation of the Site, and from this assessment it can be seen that these measures have been successful, and it is not considered necessary that any additional remedial measures are put in place.

8 CLIMATE

Section Purpose

Section 9 of the rEIAR provides an assessment of potential effects of the continued operation of the Site on the surrounding climate. This assessment included consideration of both potential effects from the Site and cumulative effects of other extractive or sizable industries in the surrounds of the Site.

Setting and Existing Conditions

The Application Site located in the townlands of Philipstown and Redbog, Co. Kildare. The Site is located within an area that has been historically used for quarrying.

The current climate at the Site is temperate maritime.

Potential Effects During the Assessment Period and Mitigation

Potential climate impacts can be generated through the following processes at the Site:

- Impacts of climate change on the development, including the sensitivity, exposure and the overall vulnerability of the development to impacts from relevant climate hazards; and
- Impacts of the development on the climate.

The assessment and combination of the Site's climate 'Sensitivity' and 'Exposures' have shown, overall, that the Site is at a low risk from climate hazards. Adaptions have been inbuilt into the Site as the area of extraction is the most exposed to potential climate impacts. Good site management in terms of groundwater monitoring and the good management of site excavations and run-off management during very extreme rainfall or flooding events have been incorporated into the design and operation of the quarry site. The overall impact from climate hazards at the site is considered to have been imperceptible and is therefore effects are considered to be not significant

The development is not considered to be of a sufficient scale to have had the potential to impact the regional or local climate in any significant manner. In addition, the operation of plant and traffic movements at the Site are estimated to have generated on average less than 50 kt CO_2e per annum during the assessment period of September 2020 to present. The Site has not had any significant effects on local prevailing weather conditions, nor has the Development increased the potential of flooding in the surrounding area. Quarry operations during the assessment period had the potential to result in a loss of soil organic carbon in form of CO_2. Given the small area of stripping that occurred (approximately 1.5 ha, Chapter 5 Land, Soils and Geology), the liberation of soil organic carbon and impact on the climate is considered to be imperceptible. Overall the impacts of the Development on the climate are considered to be not significant.

9 NOISE AND VIBRATION

Section Purpose

Section 9 of the rEIAR provides an assessment of noise from the quarry between September 2020 and present. No blasting was undertaken during this period and so ground borne vibration and air overpressure resulting from quarry blasting was scoped out of the assessment. This assessment included consideration of both potential effects from the Site and cumulative effects with development surrounding the Site.

Setting and Existing Conditions

Baseline noise monitoring at five locations (four being representative of nearby dwellings and one being at the quarry boundary) has been undertaken at least twice a year between April 2019 and January 2024. The baseline noise environment included contributions from road traffic noise, quarrying activities, other traffic sources, e.g. occasional overhead aircraft, and other sources typical of a rural environment, e.g., birdsong and rustling trees. The average measured noise level at each location did not exceed the permitted level, with the exception of a monitoring location adjacent to the R410 (Naas-Blessington road; monitoring location is representative of dwellings located along the R410) where exceedances were due to road traffic noise from the R410 rather than from quarrying activities.

Potential Effects During the Assessment Period and Mitigation

Using a 3D environmental noise model, operational noise from the quarry has been predicted for the current operational activities undertaken at the quarry. These activities occurred during daytime periods only; night-time operations did not take place. The modelled operational scenario has followed a conservative approach to determine the likely 'worst-case' noise levels at noise sensitive receptors (NSRs). The predicted noise levels at each NSR are within the permitted daytime limits and the levels recommended by the EPA Environmental Management Guidelines – Environmental Management in the Extractive Industry. As such, the specific noise levels from quarry operations resulted in a negligible adverse effect at all NSRs which is not significant.

In conclusion, no significant noise or vibration impacts have been identified throughout the operation of the quarry between September 2020 and present.

10 CULTURAL HERITAGE

Section Purpose

Section 10 of the rEIAR provides an assessment of the significant effects, if any, on the cultural, archaeological and architectural heritage, which may have occurred, are occurring or can reasonably be expected to occur because of quarrying carried out by the applicant on 71.9 ha of land located in the townlands of Philipstown and Redbog, Co. Kildare.

This assessment included consideration of both potential effects from the Site and cumulative effects with development surrounding the Site.

Setting and Existing Conditions

The application area is located in the townlands of Athgarrett, Philipstown and Redbog Co. Kildare, on OS Six Inch Sheet No. 25, approximately 1.8 km north-west of the town of Blessington and approximately 1.4 km north-west of the N81 road.

The assessment undertook a review of Protected Structures potentially impacted by the Development. Sources included the relevant Kildare and Wicklow County Development Plans, National Inventory of Architectural Heritage resources, and historical mapping related covering the Site. A field inspection was also carried out on the 26 August 2020 and 08 January 2024. This involved an inspection of all the lands in the application area.

Mapping was produced in the assessment identifying all relevant structures in the vicinity of the Development. A systematic review of all fields surrounding the Development footprint was undertaken.

There have been no effects on any known items of archaeological, architectural or cultural heritage in the application area or the vicinity.

Potential Effects and Mitigation

SMR WI005-123---- a Deerpark wall is situated on the southern edge of the application area forming the boundary with Deerpark townland. but it has not been impacted by activity in the application area. There have been no direct effects on any known items of archaeology, cultural heritage or buildings of heritage interest in the application area or the vicinity. Ongoing and future extraction should be set back 10 m from SMR WI005-123---- the Deerpark wall that is situated on the southern edge of the application area forming the boundary with Deerpark townland.

There is no other known the archaeological, architectural and cultural heritage in the application site and the development has had no (significant) impact on any known cultural heritage.

11 LANDSCAPE AND VISUAL

Chapter 11 of the rEIAR provides an assessment of potential Landscape and Visual effects of the continued operation of the Site between September 2020 and the present. This assessment included consideration of both potential effects from the Site and cumulative effects of other extractive or sizable industries in the surrounds of the Site.

Landscape

Landscape – setting and conditions

The Site is located within an area of modified landscape in the form of established quarrying activity and existing farmed pastureland on the Kildare/Wicklow County border.

The landscape effects of the extraction activity that has occurred within the Site since 2020 is contained within a small geographic area of the overall study area. These site works have ensured that the works have not impacted on the surrounding field boundaries within the Site and the agricultural use of these lands has remained in place.

The only changes to have occurred are within the site since September 2020 has been the alternation of the site levels within the southeastern end of the quarry, because of the continued extraction and some indirect alternations to the manmade water bodies from fluctuating ground water/surface water levels, as well as a relatively minor extension (i.e. approximately 1.5 ha) in the northwest area of the main pit. The level changes have mostly occurred vertically across the quarry floor, with only a relatively minor lateral expansion of the quarry limits to what they were in 2020. Indirect changes within the immediate landscape include the continued movement of the vehicles to/from the quarry, as the finished processed material is removed off site. This movement has continued since September 2020, collectively with the other adjoining quarries.

As the quarry has remained active since 2020 it has not been possible to implement the original restoration plan of the 2007 application, which included restoring the affected quarry lands back to agricultural lands and a wetland area. These mitigation measures would still be fully implemented once works ceased and would help revert any negative landscape and visual impacts of the development.

Landscape effects

Overall, the landscape changes since September 2020 have been very localised due to containment of the works mostly within the existing quarry limits. They have had a local **Moderate-Slight, Short Term** and **Neutral** effect around the area of the Application Site. However, these reduce to **Not Significant, Short Term** and **Neutral** across the wider landscape of the study area.

Visual

Visual – setting and conditions

The visual assessment considered if the continuation of the quarrying activity within the Site since the September 2020 visual baseline has resulted in any increased views of the quarrying works from the same 13 visual receptors across the locality and wider study area.

This previous 2020 application had determined that the Site's existing quarry limits, and some of its pastoral lands, were not visible from the vast majority of the 13 selected viewpoints. This was due to these views being mostly obscured either by local landforms and/or intervening vegetation.

The additional site works which has occurred on Site to date since September 2020 has resulted in the lowering of the quarry floor, along with a relatively minor lateral extension of quarry works, with no alternations to the wider pasture lands or berms on the existing boundaries. This meant that the majority of receptors have experienced no additional views of these site works since September 2020, as the quarry walls and mounds have helped to contain the ongoing quarry activities occurring within the Site.

Visual – effects

On review of the 13 no. viewpoints, in 12 no. such viewpoints, the magnitude of visual change was deemed to be 'none,' resulting in 'no change' to the significance and quality of visual effects. The only discernible visual change occurs from Viewpoint 10, due to changes to the workings on the Site, but only partially visible through a small gap between tall vegetation. Receptors at this viewpoint have experienced only a **Negligible** magnitude of visual change, resulting in an **Imperceptible** significance of visual effects and a **Neutral** quality of visual effect, in relation to the quarrying activity that has occurred between September 2020 and the present.

Conclusion

As determined within this assessment, the continuation of quarrying activities from September 2020 to the present have not resulted in any significant landscape or visual effects.

12 TRAFFIC AND TRANSPORT

Section Purpose

Section 12 of the rEIAR provides an assessment of potential effects of the continued operation of the Site on traffic and transportation. This assessment included consideration of both potential effects from the Site and cumulative effects of other extractive or sizable industries in the surrounds of the Site.

Setting and Existing Conditions

This assessment retrospectively assesses the traffic related impacts associated with the operations at the existing HBL Quarry in County Kildare, accessed via the N81 national road near Blessington, Co. Wicklow (for the period 2020 to 2024). The site is and has been accessed directly from the N81 during the assessment period, (which is to the east of the site, and runs in a north to south direction).

Junction Turning Counts were undertaken at the N81/Quarry Access crossroads junction on Thursday 16 November 2023. The number of trips for each year of extraction was calculated between 2020 and 2023 and calculations undertaken to develop a set of traffic generation figures that includes exported material, all staff, and miscellaneous trips. The maximum impact to the N81 occurred in 2022 with a traffic level equivalent to 2.08% northbound and 0.59% southbound as of the 2023 traffic and turning survey, and are considered to be not significant during the assessment period.

Link capacity analysis was carried out on the N81 national road (north and south of the main quarry access) and the L8373 and it was determined that the L8373 continues to operate within capacity in the time period of 2020 to 2024. Traffic generated by the quarry will distribute North and South on the N81 and quarry traffic does not route onto the L8373, meaning that site operations do not impact on the Traffic Levels on this road.

The N81 currently operates above capacity and will continue to do so for the foreseeable future. The traffic data indicates that any additional traffic generated by site operations in the period 2020 to 2023 (between 371 and 495 trips per day and an average trip generation of 414 vehicles per day across the period in question) had a vehicular impact of between 0.41% and 1.69% on the traffic flows from 2020 to 2023 on the N81 at the junction location, and are considered to be not significant during the assessment period.

These calculations are based off of the projected 2024 performance and 2023 survey data. Additionally, a check of nearest traffic counters on the N81 (operated by Transport Infrastructure Ireland, TII) has demonstrated a reduction in traffic volumes along the route, broadly aligning with the Covid restrictions in 2020 and 2021, with traffic levels appearing to return to pre-2020 levels. The trips generated by the site in the 2020 to 2023 period are considered to be reflective of the trends shown in a prior assessment in 2020 as well as a 2007 planning application report, assuming a normal operational basis in the quarry.

Junction Capacity Analysis was undertaken for the N81/L8373/Site Junction crossroads and the 2024 junction RFC indicate that the junction has operated at an adequate level for the period 2020 – 2023.

Sightlines were previously assessed in 2007 as part of a Traffic Assessment at that time against TII standards which requires 215 m of unobstructed visibility, where the design speed is 100 kmph, at a point three metres back from the edge of the carriageway. This was reviewed in 2020, as conditions

at this location have not changed in terms of the road geometry at the date of writing, the available visibility has been reviewed and is confirmed as adequate, visibility exceeds 215 m in both directions.

Overall impacts of the Development on Traffic and Transport are considered to be not significant during the assessment period.

13 MATERIAL ASSETS

Section Purpose

Section 13 of the rEIAR provides an assessment of potential effects of the operation of the Site during the assessment period of September 2020 to present on material assets. This assessment included consideration of both potential effects from the Site and cumulative effects of other extractive or sizable industries in the surrounds of the Site.

Material assets are physical resources in the environment, which may be of human or natural origin. The objective of the assessment is to ensure that these assets have been used in a sustainable manner with respect to operations at the Site.

Setting and Existing Conditions

The Application Site located in the townlands of Philipstown and Redbog, Co. Kildare. The Site is located within an area that has been historically used for quarrying.

Material Assets in the vicinity of the Site comprise of built services and infrastructure, such as:

- Electricity network utilities;
- Gas infrastructure;
- Telecommunications;
- Local water supplies and foul water network;
- Surface water drainage infrastructure;
- Waste management infrastructure; and
- Geological resource.

Other material assets include roads and traffic, which have been assessed in Chapter 12 (Traffic).

Information for the assessment of potential impacts on the identified material assets was obtained by means of a desk-based review, and included the following sources:

- ESB network utility plans;
- Gas Networks Ireland utility plans;
- Eir CYBD mapping;
- Irish water utility mapping;
- Field surveys of the Application Site;
- Department of Communication, Climate Action and Environment (DCCAE) Eircode maps; and
- Aerial and ordnance survey maps of the area.

Potential Effects During the Assessment Period and Mitigation

Electricity

All works to the electrical lines and appropriate authorisations for connections would have been sought prior to the assessment period of the rEIAR. All works to the electrical power lines during the assessment period have been carried out in accordance with appropriate requirements and ESB Network guidelines and are therefore considered to be imperceptible, and not significant overall.

Gas Supply

There have been no requirements for GNI connections to service the Development. Therefore, there has been no additional supply demands on the GNI network.

The GNI service map indicates that a main high pressure transmission line exists in the North of the Site however, quarrying has not been extended into this area of the Site. The previous extraction activities did not result in any significant impacts to the quality or availability of gas supply to the surrounding users. During the assessment period effects from the Site's activities on the gas supply network have been considered to be imperceptible, and not significant overall.

Telecommunications

The telecommunications network has been used at the site office. No additional telecommunications have been set up. Effects from the Site's activities on the local telecommunication networks are considered to be imperceptible, and not significant overall.

Local Water Supplies and Foul Water Infrastructure

No changes have been made to the existing water abstraction process onsite.

Residential properties local to the Site, utilise both private and public water supplies. These residential dwellings use domestic septic tanks systems for wastewater. The potential effects from the Site's activities on the water supply network are considered to have been imperceptible, and not significant overall.

Surface Water Drainage Infrastructure

Surface water on the Site infiltrates through the underlying soils. There are no existing public surface water networks within the Site.

Waste Management Infrastructure

Small amounts of general refuse waste are generated by the site office and staff facilities.

Waste is generated onsite from servicing equipment and plant. Waste oil and other waste and parts associated with this maintenance are disposed by the service contractor.

Geology as an Economic Resource

The Development has resulted in a permanent loss of the geological resource within the Site. Currently the geological exposures are visible along the southern side of the Site. These exposures have offered a valuable insight into the geology of the area which may not have been previously exposed if there was no quarrying of the Site.

Additionally, the extraction of the aggregate during the period of September 2020 to present is considered an acceptable use of the economic resource at the Site and material extracted from the Site has been used as raw materials in the construction industry. Potential beneficial impacts from the Site's extraction of the geological resources is considered to be low resulting in effects during the assessment period that are slight, and not significant overall.

Land Resource and Local Agriculture

Within the Site there has been a minor loss of grassland (less than. 1.5 ha) which was already in the main operational area and not utilised for agriculture. However, the extraction of aggregates onsite is considered an acceptable use of the resource which will benefit the economy.

14 MAJOR ACCIDENTS AND DISASTERS

Section Purpose

Section 14 of the rEIAR provides an assessment of potential effects of the continued operation of the Site on Major Accidents and Disasters. This assessment included consideration of both potential effects from the Site and cumulative effects of other extractive or sizable industries in the surrounds of the Site.

The consideration of major accidents and disasters seeks to assess the relevant accidents and disasters which a Development is vulnerable to, and the relevant accidents and disasters that a Development could give rise to. These unforeseen and unplanned events are to be assessed on the risk of their occurrence, however in view of the retrospective nature of this rEIAR the scope of this section is limited to a rudimentary review of previous operations at the Site.

Setting and Existing Conditions

Due to Ireland's geographic location, it is less vulnerable to natural disasters such as earthquakes and tsunamis than other regions across the globe.

With regards to natural disasters, severe weather events such as flooding pose the greatest threat to Ireland.

The Site has operated an environmental management system (EMS) from September 2020 to present day, this document manages the risk of environmental accidents occurring. However, the occurrence of a major geotechnical hazard, fire, explosion or fuel spillage resulting from operations at the quarry Site, relating to the control of major-accident hazards involving dangerous substances, has the potential to give rise to a major accident or disaster, immediate or delayed.

Potential Effects During the Assessment Period and Mitigation

Potential risks of major accidents and / or disasters which are inherent to quarrying operations include:

- Fire / explosion;
- Unplanned outages or disruption to services;
- Road traffic accidents resulting from Heavy Good Vehicle (HGV) movements;
- Contamination of the groundwater/ surface water;
- Flooding; and
- Falling debris or the collapse of benches or quarry faces.

During the assessment period of September 2020 to the present day, activities at the Site have not resulted in accidents or disasters which are deemed to be 'Major', therefore there has been an imperceptible effect (including no effect) of the Site activities on the surrounding environment in regard to major accidents and disasters. A regime of geotechnical assessment should be established and undertaken based on the frequency identified in the first assessment

15 INTERACTIONS AND INTER-RELATIONSHIPS

This assessment summarises the primary interactions and inter-relationships and provides a matrix to coherently display the interactions of these disciplines. The overall objective of this assessment is to identify whether additional remedial mitigation is required that would not otherwise have been identified in the individual study areas for these interacting or cumulative effects.

Interactions of rEIA study topic areas are typically displayed visually in a matrix table which identifies potential interactions which are likely to occur between the various disciplines. This table, from Chapter 15 of the rEIAR, has been reproduced in Table 15-1. A '✓' in a box identifies the potential interacting disciplines where a relationship exists.

Table 15-1 - HBL Substitute Consent Environmental Interactions, (X = No Interaction; ✓ = Potential Interaction).

Interaction	Pop. & Human H.	Ecology & Biodiver.	Land, Soils & Geology	Water	Air Quality	Climate	Noise & Vibration	Cultural Heritage	Landscape & Visual	Traffic & Transport	Material Assets	Major Acc. & Dis
Pop. & Human H.		x	x	✓	✓	x	✓	x	✓	✓	✓	✓
Ecology & Biodiver.			✓	✓	✓	x	✓	x	✓	x	x	x
Land, Soils & Geology				✓	x	x	x	✓	x	x	x	x
Water					x	x	x	x	x	x	x	x
Air Quality						x	x	✓	x	x	x	x
Climate							x	x	x	x	x	x
Noise & Vibration								x	x	x	x	x
Cultural Heritage									✓	x	x	x
Landscape & Visual										x	x	x
Traffic & Transport											x	x
Material Assets												x
Major Acc. & Dis												

Town Centre House
Dublin Road
Naas
Co Kildare

wsp.com