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**POPULATION AND HUMAN HEALTH**



## 3 POPULATION AND HUMAN HEALTH

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### 3.1 INTRODUCTION

This chapter of the EIAR was prepared by Cunnane Stratton Reynolds, Landscaping and Planning Consultants. This chapter has regard to the other inputs to this EIAR and the application, and in particular the following chapters addressing Ecology and Biodiversity (Chapter 4.0); Land, Soils and Geology (Chapter 5.0); Water (Chapter 6.0); Air Quality (Chapter 7.0); Climate (Chapter 8.0); Noise and Vibration (Chapter 9.0); and Landscape and Visual (Chapter 11.0).

Population and Human Health comprise an important aspect of the environment to be considered. Any significant impact on the status of human health, which may be potentially caused by a development, must therefore be comprehensively addressed. Population and Human Health is a broad ranging topic and addresses the existence, activities and wellbeing of people as groups or 'populations'.

Construction and operational related impacts from the subject development in relation to Traffic and Transport have been addressed in Chapter 12.0 of this EIAR, (Traffic and Transport). Impact in relation to other built services, (such as electricity, telecommunications, water supply and foul water capacity) have also been addressed in Chapter 13.0, (Material Assets).

The assessments in combination with the relevant sections presented above proposes mitigation measures, as appropriate, to reduce the significance of adverse impacts from the development.

The existing environment is considered in this section under the following headings:

- Economic Activity
- Social Patterns;
- Land Use and Settlement Patterns;
- Employment;
- Health & Safety; and
- Risk of Major Accidents and Disasters.

#### 3.1.1 PROJECT BACKGROUND AND OVERVIEW

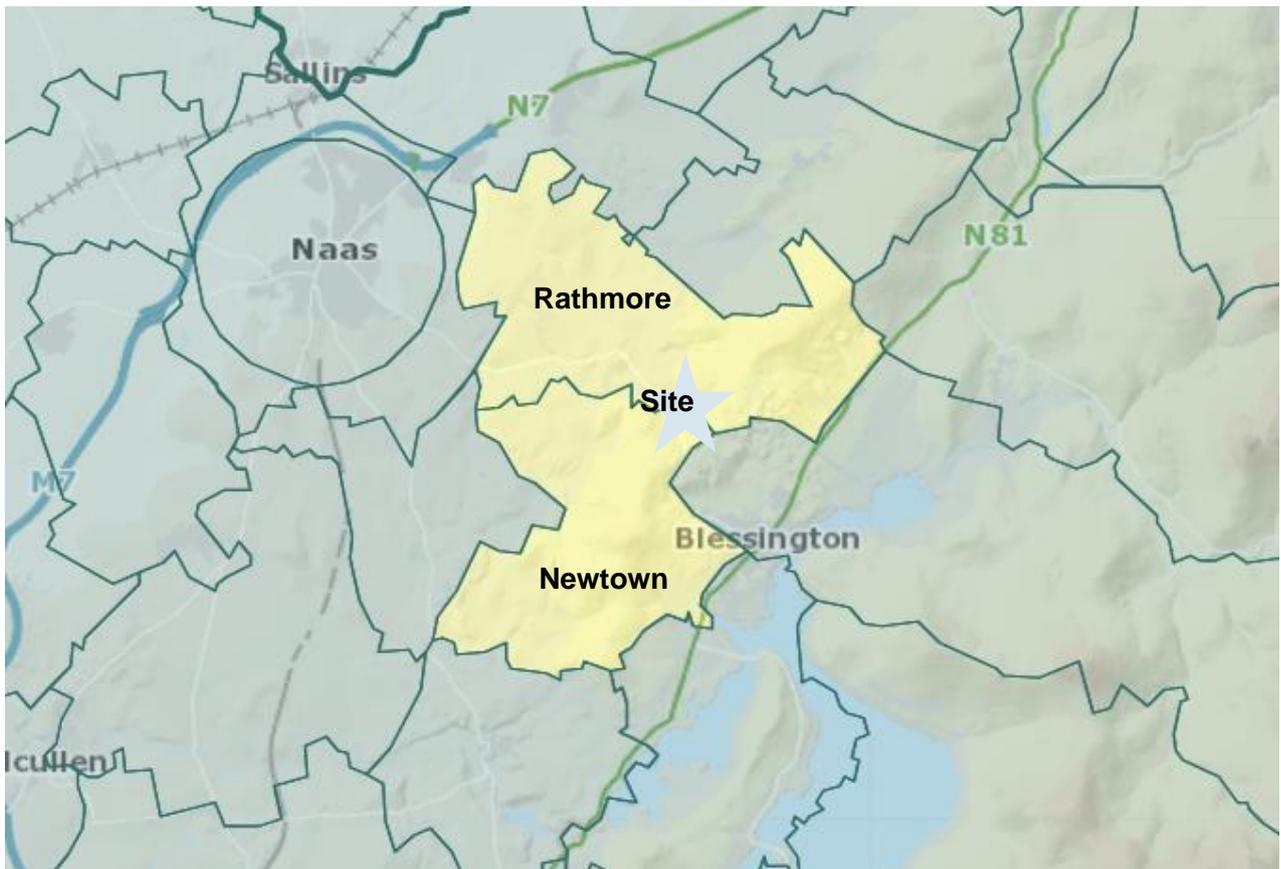
##### **Characteristics of the Subject Development**

Consideration of the characteristics of the subject development allows for an assessment of the level of impact on any particular aspect of the environment that would have or continues to arise for the subject development. In this chapter the impact on population and human health is assessed. A full description of the subject S37L application is provided in Chapter 2 of this EIAR

Effects of a development on the environment can impinge upon the surrounding human environment, directly and indirectly, positively and negatively. Direct effects may include such matters as safety, air and water quality, noise, landscape quality and road traffic. Indirect effects pertain to such matters as ecology and biodiversity, heritage and archaeology. These matters form discreet sections of this EIAR in their own right and corresponding mitigation measures are comprehensively provided in those individual sections and within the specific mitigation section of the EIAR, (Chapter 16).

## Study area

The study area defined for the population and demographic trends is the Electoral Division (ED) of Rathmore and Newtown, shown in Figure 3-1 below. An assessment of residential receptors has been made within a 500 m radius of the EIA project boundary. A total of 25 No. existing residential dwellings were found to be within 500 m of the EIA boundary. One further dwelling was noted to have been granted planning permission and construction of this development is underway; nevertheless this has been included in the assessment. Of the 25 residential receptors identified, 7 No. residential receptors are located within 250 m of the EIA boundary. The number of residences is based on a field survey, a review of the aerial photography, DCCA Eircode mapping and a local authority planning permission search.



**Figure 3-1: Electoral Divisions which the application site is located within.**

## 3.2 METHODOLOGY

At the time of writing there is no specific guidance from the EU Commission on the 2014 EIA Directive to indicate how the new term 'Human Health' should be addressed. Therefore, this chapter of the EIAR document has primarily been prepared with reference to recent national publications which provide guidance on the 2014 EIA Directive including the Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018) and the Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA in May 2022.

The preparation of this chapter has also had regard to the guidance published by the European Commission in 2022 on the preparation of EIARs (taking account of the changes introduced under

the 2014 Directive). The European Commission guidance states the following in relation to the assessment of Human Health:

*“In an EIAR, the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc.. The Advice Notes provide further discussion of how this can be addressed”*

In accordance with this approach to Human Health espoused in the Commission Guidance, this chapter addresses human health in the context of other factors addressed elsewhere in further detail within the EIAR where relevant. Relevant factors identified include inter alia water, air quality, noise, and the risk of major accidents and disasters. The insight provided by the Institute of Environmental Management and Assessment (IEMA) high level primer document (2017) has also been considered in the preparation of this chapter. The IEMA document posits that human health spans environmental, social and economic aspects and does not merely represent an absence of disease. A broad conception of human health is put forward, that should encompass factors such as local economy and community, rather than relying on a narrower focus on biophysical health factors and determinants. In this regard, the current chapter seeks to address population and human health in a wholistic manner, including consideration of economic factors, settlement patterns, landscape and land-use. The 2018 EIA Guidelines published by the DHPLG state that there is a close interrelationship between the SEA Directive and the 2014 EIA Directive. The Guidelines state that the term ‘Human Health’ is contained within both of these directives, and that a common interpretation of this term should therefore be applied. To establish the existing receiving environment / baseline, several site visits were undertaken to appraise the location and likely and significant potential impact upon human receptors of this substitute consent development. A desk-based study of published reference documents such as Central Statistics Office Census data, the ESRI Quarterly Economic Commentary, the Regional Spatial and Economic Strategy for the Eastern and Midlands Regional Assembly 2019-2031, and the Kildare County Development Plans 2023 - 2029 were also considered in preparing this EIAR.

It should be noted that there are numerous inter-related environmental topics described throughout this EIAR document which are also of relevance to Population and Human Health. Issues such as the potential likely and significant impacts of the S37L on landscape and visual impact, daylight and sunlight, archaeology and cultural heritage, air quality and climate, noise and vibration, water, land and soils, microclimate, material assets including traffic and transport impacts, are of intrinsic direct and indirect consequences to human health. For detailed reference to particular environmental topics please refer to the corresponding chapter of the EIAR and other accompanying substitute consent application reports and drawings. The Guidelines on the information to be contained in environmental impact assessment reports, published by the EPA states that ‘in an EIAR, the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil etc’. This chapter of the EIAR document focuses primarily on the potential likely and significant impact on population, which includes human beings, and human health in relation to health effects/issues and environmental hazards arising from the other environmental factors. Where there are identified associated and inter-related potential likely and significant impacts which are more comprehensively addressed elsewhere in this EIAR document, these are referred to. The reader is directed to the relevant environmental chapter of this EIAR document for a more detailed assessment.

Information for the assessment of potential impacts on populations and human health was obtained by means of a desk-based review, and included the following sources:

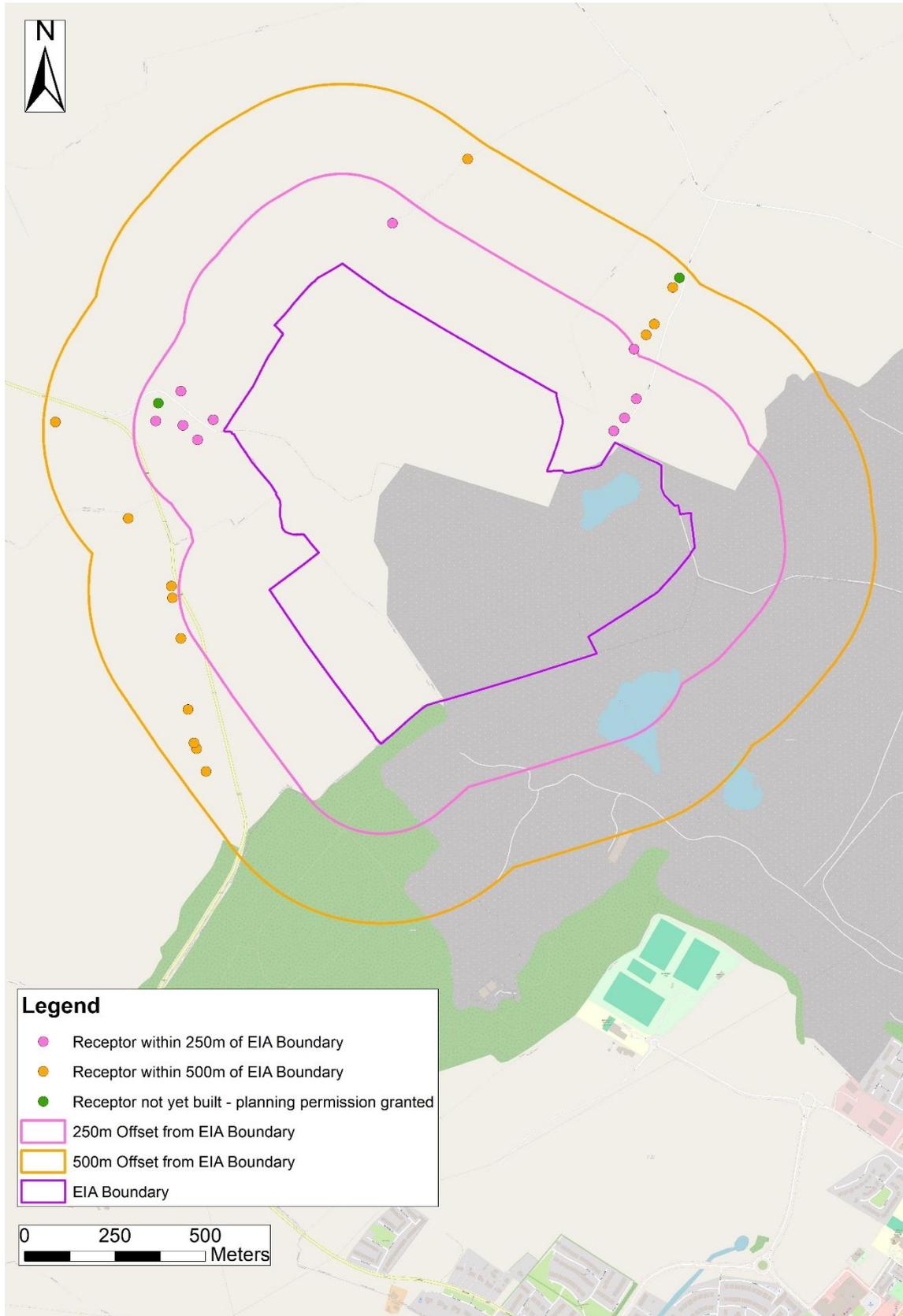
- Census Returns (Central Statistics Office (CSO), 1991, 1996, 2002, 2006, 2011, 2016 and 2022 Census where available);
- Kildare County Development Plans 2017 – 2023 and 2023 - 2029;
- The Eastern and Midlands Regional Assembly (EMRA) Regional Spatial and Economic Strategy (RSES) 2019-2031;
- Department of Health, Key Trends in Ireland, 2022;
- Field surveys of the Application Site;
- Department of Communication, Climate Action and Environment (DCCA) Eircode maps; and
- Aerial and ordnance survey maps of the area.

The EPA Guidelines identify that the legislation does not generally require assessment of Land Use planning, demographic issues or detailed socio-economic analysis, which should be avoided in an EIAR, unless issues such as economic or settlement patterns give rise directly to specific new developments and associated effects. As such, assessments of these topics have not been conducted as the proposed continued development is not considered to have impacts on the Land Use planning within the locality, nor will it affect the local demographics or socio-economic dynamics of the area. However, baseline information on the local area has been provided to show its context to, and comparison with, the region (county) and national average. In addition, information on industrial Land Use in proximity to the Site has been included. The land-uses identified include: similar industry to the proposed development, EPA regulated and licenced facilities (such as waste or IPC/IE sites); and upper or lower tier SEVESO sites.

### 3.3 EXISTING ENVIRONMENT

The site is located in the east of Co. Kildare, immediately west of the border with Co. Wicklow, and approximately 1.8 km northwest of Blessington and approximately 7.5 km northeast of Naas. The lands surrounding the site to the north and west can be characterised as rural in nature, with land uses in the area being agricultural and single-house residential. Glen Ding Woods are located on lands further to the southwest, and can be characterised as forestry and a semi-natural area. Quarrying and aggregate extraction are widely practiced in the adjacent lands to the east and south. The sand and gravel pits in the Blessington area are an important and strategic source of sand and gravel used in the production of construction material for the Greater Dublin Region.

Figure 3-2 below shows the immediate context of the application site in the context of surrounding uses. The surrounding uses include forestry and woodlands to the south west, agriculture to the north, quarry activity to the south and east along with residential development to the north and east in particular.



**Figure 3-2: Receptors within 250m and 500m of the EIA boundary.**

### 3.3.1 THE EXISTING RECEIVING ENVIRONMENT (BASELINE SITUATION)

A description of the relevant aspects of the current state of the environment (baseline scenario) in relation to population and human health is provided below. Specific environmental chapters in this EIAR provide a baseline scenario relevant to the environmental topic being discussed. Therefore, the baseline scenario for separate environmental topics is not duplicated in this section; however, in line with guidance provided by the European Commission, the EPA and the DHPLG, the assessment of impacts on population and human health refers to those environmental topics under which human health effects might occur, e.g. noise, water, air quality etc. An outline of the likely evolution without implementation of the project as regards natural changes from the baseline scenario is also provided. This is the “Do Nothing” scenario.

### 3.3.2 BASELINE – POPULATION

#### Population Growth

Table 3-1 below summarises population statistics for the State, Kildare and the Rathmore and Newtown EDs within which this S37L application is located. The percentage population increase has been calculated between the Census periods of 2006 to 2011, 2011 to 2016 and 2016 to 2022 where the latter census data is currently available. Generally consistent increases in population were observed in the State, Kildare and the Electoral Division areas over the Census periods of 2006 to 2022 with subsequent lower rates of population increase observed in the period of 2011 to 2016. The population of Rathmore ED decreased slightly over the Census periods of 2011 to 2022. During these periods, the population increased in the county, regionally and nationally. Population increase in Newtown was experienced over the same period.

**Table 3-1: Population statistics for the State, Co. Kildare and the Rathmore and Newtown Eds (CSO)**

	2006	2011	2016	2022
Ireland	4,239,848 (+8.11%)	4,588,252 (+7.82%)	4,761,865 (+3.78%)	5,149,139 (+8.12%)
Kildare	186335	210312 (+13%)	222504 (5.8%)	247774 (+11.4%)
Rathmore ED	N/A	1169	1142 (-2.3%)	1139 (-0.26%)
Newtown ED	N/A	920	941 (+2.3%)	1035 (9.9%)

Over the 6 year period to 2022 which is during the period that only the substitute consent will apply (i.e., after September 2020 the growth in population in Newtown ED exceeded by a small rate the population growth across the whole State but was less than the rate of growth across the whole county. The population of Rathmore experienced marginal decline. The population of Newtown ED increased by 94 persons in the 2016-2022 period suggesting that there may have been new housing development in the area in that period. The extension of the extraction area of the existing quarry as set out in this S3n7L application is not expected to have any bearing on population growth or otherwise over the next census period.

## Population Age Distribution

The current age profile of the area is shown in Table 3-2 below.

**Table 3-2: Population Age Distribution, 2011 and 2016 (CSO)**

Year	Area	% Person aged 0-14	% Person aged 15-29	% Person aged 30-44	% Person aged 45-64	% Person aged 65+
2011	State	21.3	32.5	23.7	22.7	11.7
2016	State	21.1	18.4	23.3	23.8	13.4
2011	Kildare	24.5	20.2	25.8	21.6	7.9
2016	Kildare	24.1	18.1	24.8	23.2	9.9
2011	Rathmore ED	25.2	19.6	17.2	29.5	8.5
2016	Rathmore ED	20.4	18.3	17.1	32.8	10.9
2011	Newtown ED	28.2	15.6	29.4	20.5	6.3
2016	Newtown ED	28.4	14.0	27.5	21.3	8.8

Table 3-2 summarises population distribution across the key age cohorts for the State, Leinster, Co. Kildare and the Rathmore and Newtown EDs. Rathmore has an age profile that is greater in the 15-29 age group than in the State, the county or in comparison with Newtown ED. Newtown has a greater proportion of its population in the youngest cohort 0-14, less in the 15-29 age group, more in the 30-44 age group, and less over 45 years old than Rathmore ED. A typical age scenario in Newtown ED for the year 2016, which is the last year for which there are census records on age available, is one of households or families with parents in the 30-44 age group and children more likely in the 0-14 age group.

Population densities are also available between the Census periods of 2002 to 2006, 2006 to 2011 and 2011 to 2016, as the 2022 figures are not yet available. Population densities also increased in the State, province and county areas in the period to 2016. The population density of Rathmore ED increased from 42.4 persons per km<sup>2</sup> in 2006 to 47.8 persons per km<sup>2</sup> in 2011, whereas the density of the Newtown ED increased from 23.2 to 41.2 during the same period. This increase in density in this period as noted above could be attributed to the development of a housing estate within the Newtown ED during this time. The population density of the Rathmore and Newtown EDs are still lower than that observed in the county, regionally and nationally, which reflects the rural nature of these EDs.

### 3.3.3 BASELINE - EMPLOYMENT

#### National Employment



Nationally, the CSO's Quarterly Labour Force Survey (which has now replaced the Quarterly Household Survey) for Q2 2023, which is the latest available, indicates that the employment rate for persons aged 15-64 years was 74.2% in Quarter 2 2023, which was the highest rate recorded since the surveys began in 1998. The number of persons aged 15-89 years in employment increased by 88,400 or 3.5% to 2,643,000 persons in the year to Q2 2023.

### **Local Employment Centres**

As previously described, the application site is situated adjacent to the Kildare-Wicklow border, north-west of the N81 national road. The site is in close proximity to the towns of Blessington and Naas. The site is also well positioned to serve the aggregate needs of the greater Dublin area through an extension of its extraction area, and its location in a regional context has continued influence on the economic activity of the area. Public transport linkages and the N81 road provide vital compact connections and strengthen the area's status as a centre for economic investment and activity, and as a commuter zone. Using the N81 road, Dublin city centre is approximately 50 minutes away by car, while Blessington can be reached in less than 5 minutes. Naas is approximately a 20 minute drive using the R410 road. Such ease of access increases the attractiveness of the site as a source of high value aggregate to meet the demands of the region. An extension of extraction area is required to meet this demand. The ease of access also makes the area an ideal location for commuters, but it is accepted that the Applicant provides substantial local employment both directly and indirectly.

#### **3.3.4 BASELINE - AMENITY**

The immediate area surrounding the application site is primarily used for quarrying and agriculture, and therefore has limited amenities. A large proportion of public amenities, recreational clubs/areas, and areas of tourism value in the vicinity of the Site are concentrated in and around the town of Blessington. Some of these main areas have been identified and are described below. Blessington acts a gateway to the north-western part of the Dublin and Wicklow Mountains, providing a wide range of accommodation and food services.

Sport and recreational grounds within the vicinity the site include the Blessington Association Football Club, which is located approximately 700 m east of the of this S37L Site; and the Blessington Gaelic Athletic Association Club which is located approximately 1 km to the south. The Poulaphouca Reservoir (Blessington Lake) is located east of Blessington, ca. 2.2 km south-east of the Site. It offers opportunities for sports and recreation with the Three Castles Rowing Club and The Avon Activity Centre. It also acts as an attractive area for walking and mountain biking along tracks such as the Blessington Greenway.

There are two formal gardens open to visitors, namely June Blake's Garden and Hunting Brook Gardens, approximately 4.2 km north-east of the site, respectively. June Blake's Garden also offers holiday accommodation on-site. The clubs and amenities presented above are utilised by the wider east Kildare and west Wicklow communities and not just limited to the local population of the surrounding area.

#### **3.3.5 BASELINE - LAND USE**

The S37L application site is approximately 64.0 ha in area within an EIA boundary area of 95.8 ha. The site comprises lands which are currently used for quarrying activities and are classified (Level 3) in Corine Landcover (EPA, 2018) as 'Mineral Extraction Sites'. The lands to the north and west are defined as 'Agricultural areas' and 'Pastures'. The lands surrounding the site to the north and west can be characterised as rural in nature, with land uses in the area being agricultural and single-house residential. Glen Ding Woods located on lands further to the southwest are defined as

forestry and a semi-natural area. Quarrying and aggregate extraction are widely practiced on adjacent lands to the east and south. The boundaries of the lands owned by the Applicant comprise hedgerows and areas of scrub. There are a number of one-off residential properties located in the vicinity of the site, primarily concentrated to the west, north and east of the site.

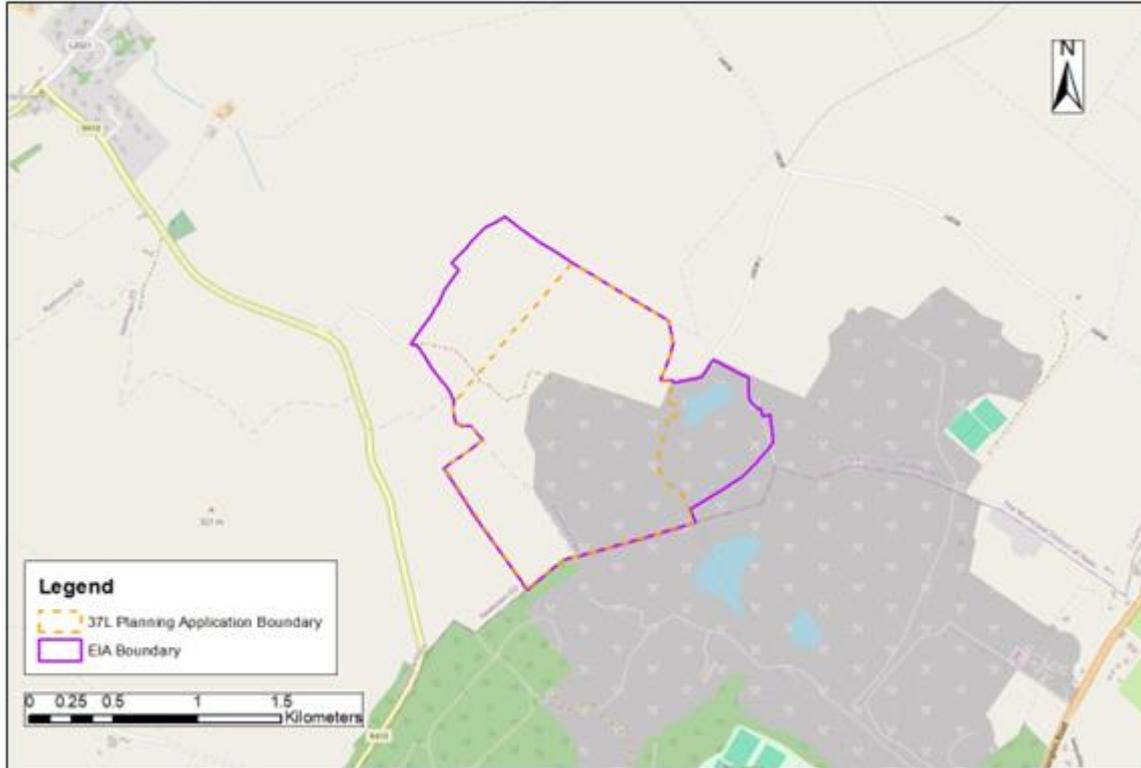
There are no waste licenced or IE/IPC Licenced facilities within 1 km of the subject development. Within 5 km of the site, there are seven EPA regulated activities;

- Dillonsdown (waste facility; EPA Waste Licence No. W0080-01), adjacent lands to the south-east;
  - Roadstone Dublin Remediation Landfill (surrendered waste facility; EPA Waste Licence No. W0213-01), ca. 700 m south-east;
  - A.B. Group Packaging (IPPC Licence No. P0197-02), ca. 2.7 km south;
  - Blackhall Soil Recovery Facility, (waste facility; EPA Licence No. W0247-01), ca. 3.0 km east;
  - Glassco Recycling Ltd (waste facility; EPA Waste Licence No. W0279-02), ca. 3.0 km north;
  - Walshestown Restoration Ltd (waste facility; EPA Waste Licence No. W0254-01), ca. 3.8 km east; and
  - Arthurstown Landfill (waste facility; EPA Waste Licence No. W0004-04), ca. 3.8 km north-west.
- Within 5 km of the site, there are four consented Section 4 discharges:
- Scoil Cheile Chriost National School, S4033-15, ca. 1.3 km north-west;
  - Scoil Cheile Chriost National School, S4033-15(b), ca. 1.3 km north-west;
  - Breton Rocrete WPL/60, ca. 3.6 km north-east; and
  - Teehill Management Company Ltd, WP218/05, ca. 4.9 km north-east.

There are no upper or lower tier SEVESO sites within 5 km of the subject development. 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 subject site.

### **Demographic and Development Pattern**

The S37L application area holds the main pit extraction area of the quarry and also (1) a proposed northern extension of approximately 21.2 ha in total of which 17.7 ha comprises an internal extraction area; and (2) a western extension of approximately 10.2 ha in total of which there is an internal extraction area of approximately 9.4 ha. The extent of this S37L application boundary in relation to the EIA boundary is shown in Figure 3-3 below.



**Figure 3-3: Extent of this S37L Planning Application Boundary in relation to the EAI Project Boundary**

The lands surrounding the Site to the north and west can be characterised as rural in nature, with land uses in the area being agricultural and single-house residential. The landscape character of the area is set out in Chapter 11 of this EIAR entitled Landscape and Visual Impact. Quarrying and aggregate extraction are widely practiced in the adjacent lands to the east and south. The sand and gravel pits in the Blessington area are an important and strategic source of sand and gravel used in the production of construction material for the Greater Dublin Region.

### 3.3.6 BASELINE - HUMAN HEALTH

Table 3-3 below summarises the general health of persons by percentage for the State, Co. Kildare and the Rathmore and Newtown EDs at the time of the 2016 census (which are the latest census figures available for health specifically). In the 2016 Census there was a greater percentage of persons in the Rathmore ED (93.5%) and Newtown ED (92.2%) who classified themselves as being in 'Good' or 'Very Good' health in comparison with the average for the State (87.0%).

The percentage of persons who classified themselves as being in 'Bad' or 'Very Bad' health in the Rathmore and Newtown EDs (0.9% and 1.0%, respectively) was lower than those in the State and Co. Kildare (1.6% and 1.3% respectively). This would indicate a relatively healthy local population as a general position on health in close proximity to the S37L application site.

**Table 3-3: General health percentage of the population (CS0)**

<b>General Health</b>	<b>State(%)</b>	<b>Co.Kildare (%)</b>	<b>Rathmore ED (%)</b>	<b>Newtown ED (%)</b>
Very good	59.4	63.1	68.1	70.0
Good	27.6	26.4	25.4	22.2
Fair	8.0	6.8	4.4	5.0
Bad	1.3	1.1	0.6	0.8
Very bad	0.3	0.2	0.3	0.2
Not stated	3.3	2.3	1.2	1.8

### **Health and Safety**

Hudson Brothers Ltd are committed to health and safety at their operations. The Site Manager is responsible for safety and management on site. That person is also responsible for the working environment, traffic management, emergency procedures, first aid arrangements and safe systems of work. There is no record of any significant accident or incident affecting, or potentially affecting the health or safety of the area

## **3.4 POTENTIAL IMPACT**

### **Introduction**

Potential impacts from the proposed development may include nuisance from noise, vibration, dusts, landscape and visuals impacts, and impacts to groundwater and surface waters. The potential extent of these will be limited to the local community in the region of the Site. These potential impacts have been assessed in the respective chapters of: Soils and Geology (Chapter 5.0), Water (Chapter 6.0), Air Quality (Chapter 7.0), Climate (Chapter 8.0), Noise and Vibration (Chapter 9.0); and Landscape and Visual (Chapter 11.0). A significant difference from this application to the S261A substitute consent application is the proposal to recommence blasting. This operational feature of development has the potential to affect upon Water (Chapter 6.0) and Noise and Vibration (Chapter 9.0).

Traffic has the potential to impact receptors at a greater distance from the Site, however given the road infrastructure surrounding the Site this is expected to be imperceptible and medium-term. The effects of these impacts have been assessed in Chapter 12 of this EIAR (Traffic and Transport). That chapter indicates a not significant increase in traffic generation from the extraction area extensions proposed.

Employee numbers associated with the proposed development will be maintained from the existing permitted development. These are ca. 46 full-time staff and a further ca. 26 contract truck drivers; however the number of workers may fluctuate depending on market demands.

Local population growth due to workers migrating to the local area is not anticipated as the current employment levels are to be maintained. Therefore, the potential growth in local population due to the proposed development are deemed to be negligible.

It is considered that there will be no impact on other population factors such as population age distribution, population density, household composition or commuting patterns as a result of the proposed development.

### **Mitigation Measures**

Nuisance to the local population from noise, vibration, dusts, landscape and visual impacts, and impacts to groundwater and surface waters will be mitigated during the operation at the proposed development. Specific mitigation measures and best practices have been discussed in the respective chapters of this EIAR, (Soils and Geology (Chapter 5.0), Water (Chapter 6.0), Air Quality (Chapter 7.0) and Climate (Chapter 8.0), Noise and Vibration (Chapter 9.0); and Landscape and Visual (Chapter 11.0).

### **Residual Impacts**

With the successful site management and the implementation of the Environmental Management System (EMS) it is anticipated that there will be no significant residual nuisance impacts on the local population as a result of the proposed development.

## **3.4.1 3.4.1 POPULATION**

Potential impacts from the S37L development may include nuisance from noise, vibration, dusts, landscape and visual impacts, and impacts to groundwater and surface waters. The potential extent of these will be limited to the local community in the region of the site. These potential impacts have been assessed in the respective chapters of: Soils and Geology (Chapter 5.0), Water (Chapter 6.0), Air Quality (Chapter 7.0), Climate (Chapter 8.0), Noise and Vibration (Chapter 9.0); and Landscape and Visual (Chapter 11.0).

Traffic has the potential to impact receptors at a greater distance from the site. However, given the road infrastructure surrounding the site this is assessed to be imperceptible and medium-term. The effects of these impacts have been assessed in the Traffic and Transportation chapter, (Chapter 12.0).

Employee numbers associated with the subject development will be maintained from the existing permitted development under Reg. ref. 07/267. These are ca. 46 full-time staff and a further ca. 26 contract truck drivers; however the number of workers may fluctuate depending on market demands. Local population growth due to workers migrating to the local area is not anticipated as the current employment levels are to be maintained. Therefore, any potential growth in local population attributable to the subject development is deemed to be negligible. It is anticipated that there will be no impact on other population factors such as population age distribution, population density, household composition or commuting patterns as a result of this S37L development proposed proceeding.

### **Commuting**

Table 3-4 summarises the commuting times per person aged 5 years or over to work, school or college for Co. Kildare and the Rathmore and Newtown EDs. The statistics have been calculated for the Census periods 2016 and 2022 for which most recent information is currently available. It is considered that the vast majority of persons who commute for a period of greater than  $\frac{3}{4}$  of an hour are travelling towards Dublin and the greater Dublin area. This comprised approximately 24% of the working population within the Rathmore ED population in 2016 and 20.5% in 2022. For the Newtown ED, the comparative rate of commuting was approximately 27.5% in 2016 and 22.4% in 2022. This

is higher than commuting times for Co. Kildare as a whole during the same period (2016 – 21.6%; 2022 – 20.8%). The marginally higher percentage of persons commuting for longer times may indicate a greater proportion of persons travelling towards Dublin and the greater Dublin area. It should be noted that a significant number of employees and sub-contractors currently working within the Applicant’s existing operation live locally.

**Table 3-4: Commuting times for percent of people (aged 5 years and over) in Co. Kildare and Rathmore ED, (CSO)**

<b>Journey Time</b>	<b>Kildare 2016 (%)</b>	<b>Kildare 2022 (%)</b>	<b>Rathmore ED 2016 (%)</b>	<b>Rathmore ED 2022 (%)</b>	<b>Newtown ED 2016 (%)</b>	<b>Newtown ED 2022 (%)</b>
< 15 mins	28.8	26.3	28.5	26.1	29.0	30.6
¼ hour – under ½ hour	27.3	27.2	22.1	27.0	20.7	21.9
½ hour – under ¾ hour	16.7	17.5	20.6	21.9	19.4	19.5
¾ hour – under 1 hour	7.6	7.7	10.6	8.2	12.3	10.8
1 hour – under 1 ½ hours	10.7	9.7	9.8	9.8	11.2	9.1
1 ½ hours and over	3.3	3.4	3.6	2.5	4.0	2.5
Not stated	5.6	7.9	4.8	4.4	3.3	5.3

It is considered that there will be a slight positive impact as employment will be retained by the applicant over the period of any planning permission in the area.

### **Mitigation Measures**

Elsewhere in this EIAR it is demonstrated that nuisance to the local population from noise, vibration, dusts, landscape and visuals impacts, and impacts to groundwater and surface waters will not occur with mitigation embedded in this proposed development and as set out in the mitigation measures listed within Chapter 16. Specific mitigation measures and best practices have been discussed in the respective chapters of this EIAR, (Soils and Geology (Chapter 5.0), Water (Chapter 6.0), Air Quality (Chapter 7.0) and Climate (Chapter 8.0), Noise and Vibration (Chapter 9.0); and Landscape and Visual (Chapter 11.0). An EMS will be developed for the site in line with further conditions resulting from the grant of planning permission for the subject site. The revised EMS shall provide provisions for the mitigation of nuisance and the management of the site in respect to the local environment and local population for current impacts.

The initial assessment of the significance of potential effects resulting from the S37L Proposed Development takes into consideration any embedded design and implemented Site management practices undertaken at the Site. These elements of the Proposed Development design and good working practices that reduce the potential for impacts to the surrounding human environment include the following:

- Site operations are managed in accordance with relevant health and Safety legislation (Safety, Health & Welfare at Work Act (2005, as amended); and the Mines and Quarries Act (1965, as amended)) and subsequent Quarries Regulations relating to health and safety, training, geotechnical assessments, and appropriate site management; fencing is actively maintained at the Site to ensure that the risk of injury to the public and livestock is minimised. The entrance gate is locked and controlled by the site's management;
- Exposed edges in the quarry are fenced or protected with safety berms;
- Blasting takes place at the Site using licenced and experienced operators.

### **Soils and Ecology**

- The removal of soils is proposed to be conducted in phases and remain on site as formed berms to reduce the overall potential impact on the land use and underlying groundwater;

### **Water**

The implementation of Site management practices to mitigate the impact to the water environment, as identified in Chapter 6 of this EIAR, including:

- Safe storage and handling of hazardous substances;
- Maintenance of equipment and plant to ensure there are no leakages of fuels, oils and potentially contaminating substances;

### **Air Quality**

Site management practices are implemented to mitigate the impact to air quality, as identified in Chapter 7 of this EIAR, including:

- Use of wet suppression of dust during dry periods, and the maintenance of physical screening of activities.
- The design and nature of the Proposed Development is such that the quarry face and benches provide natural screening as the operational phase progresses;
- Use of wheel wash to minimise dust transmission from HGVs, and the covering of loads during drier periods

### **Noise and Vibration**

The implementation of Site management practices to mitigate the impact to noise, as identified in Chapter 9 of this EIAR, including:

- The design of internal haul roads is such as to have as low a gradient as possible so as to minimise excessive revving of vehicle engines on-site;
- The use of vehicle horns was and is discouraged during the daytime period and was and is banned during the early morning periods before 10:00 am;
- The maintenance of bunds, as appropriate, to mitigate noise impacts at surrounding sensitive receptors;
- Plant and equipment is shut down when not in use;
- The imposition of speed limits on site and the access road to reduce noise from moving plant and HGVs.

## **Residual Impacts**

With the successful site management and the implementation of the EMS it is anticipated that there will be no significant residual nuisance impacts on the local population of the subject development either on its own or in combination with other developments including any other quarries operating in the area.

### **3.4.2 EMPLOYMENT**

The S37L proposed development will extend the life of the operation over the next approximately 13-15 years, whilst proposing to maintain the current level of direct employment at the site, with circa 46 full-time staff and circa 26 contract truck drivers utilising the site, depending on market conditions. In addition, the site will create indirect employment through roles such as site service contractors and additional contract truck drivers, depending on market conditions. Stripping of overburden, excavation and screening of materials, and restoration will take place on a phased basis, however, these can potentially be carried out at irregular intervals and will be dependent on market demands and weather conditions.

The application site has been providing aggregates to construction sites in the Greater Dublin Region over many years and the extension to the extraction also will maintain current direct employment levels and lead to further indirect employment. The proposed extend will therefore have a 'positive' but 'slight' effect on economic activity in the area and the Greater Dublin Region.

#### **Mitigation Measures**

No mitigation measures relating to the economic factors are required for the proposed development.

#### **Residual Impacts**

It is considered that there has been, and are, no residual impacts in relation to employment resulting from the proposed development either on its own or in combination with other developments in the area including existing quarry operations in the area.

There are no negative residual impacts on employment than a slight positive indirect impact in terms of secondary or indirect employment.

### **3.4.3 AMENITY**

As noted, factors such as air quality, noise nuisance, vibration, traffic and landscape and visual can affect the amenity of an area. These items have been assessed in dedicated impact assessments in their respective chapters of this EIAR. Given that any existing facilities and amenity hubs in the vicinity of the site have developed in recent years while quarrying at the application site (and other sites) has been ongoing over a period since at least the 1950's, it is unlikely that the proposed extension will have a negative impact on the amenity potential of the area. Further information regarding landscape and visual impact and mitigation measures is included in Chapter 11.0 (Landscape) of this EIAR. Proposed perimeter embankments coupled with an increased programme of planting (with native species) will consolidate the existing screening of the proposed development. Consequently, it is concluded that the development will have an imperceptible impact on tourism and recreation in the area and as long as screening berms and areas of planting are retained in place and maintained, and are supplemented as proposed, the proposed development will not give rise to any negative impact on the area.

Particular previous interest was focused on the impact of quarrying on Glen Ding Woods. The Glen Ding Woods are located to the south-west of the proposed further extended extraction area. These woods are an amenity area for the local community and contain a number of nature walking and cycling trails. An assessment of potential dust impacts on Glen Ding Woods has been documented in the Chapter 7 (Air Quality). This assessment identifies that the magnitude of dust effects on the Glen Ding Woods as a 'negligible effect'. In-situ baseline monitoring was also undertaken to assess existing impacts of dust south east of the quarry.

These results have been provided in Chapter 7 and are below the recommended dust deposition emission limit values. An assessment of predicted noise impacts on the amenity of the Glen Ding Woodland has been included in Chapter 9 (Noise and Vibration) and identifies no significant impact upon the enjoyment of that amenity.

Given the nature of the Glen Ding Woods, the forestry itself provides a visual screening to the development from its internal walking and cycling trails. It is noted that visual impacts from developments such as quarries can effect amenity woodlands when the developments are visible from the peripheral walking trails. However, there are no defined perimeter trails in the Glen Ding Woods bordering the site or the site's proposed extension area. As identified in Chapter 11 (Landscape and Visual), the Applicant has proposed to construct screening berms which will be located around the perimeter of the site and will be left intact for the life of the quarry (and in perpetuity to continue to provide biodiversity to the site and the local environment). This includes screening berms to the south-west of the development bordering the Glen Ding Woods. Coupled with the natural screening of the woodland itself, it is considered that these mitigation measures (and the increased visual screening on the quarry perimeter as the planting matures) result in 'imperceptible' visual impacts from the Glen Ding Woods.

### **Mitigation Measures**

Nuisance to the local amenity and recreation areas from noise, vibration, dusts and traffic is mitigated during the operation. Specific mitigation measures and best practices have been identified in the respective chapters of this EIAR, Air Quality (Chapter 7.0), Climate (Chapter 8.0), and Noise & Vibration (Chapter 9.0) and Material Assets (Chapter 12.0). As noted previously, an EMS has been used for the environmental management for the development up to this point in time and will be continued for this S37L development.

### **Residual Impacts**

With the implementation of appropriate operational management practices and the mitigation measures identified in this EIAR it is considered that residual impacts upon amenity are considered to be not significant.

## **3.4.4 LAND USE**

The existing operational quarry has been in use since the early 1950's. Quarrying activities on the lands have been operated since then by various parties including members of the Hudson family. Quarrying activities in the vicinity of the site have gradually increased in the subsequent years and the local area is very well known for quarries. With respect to social considerations, there has been little or no change to local activities and land uses as a result of quarrying activities in the vicinity of the site since operations began to the current day. Apart from quarrying and farming, the mainstay of local activities being agriculturally based including one-off low-density residential housing.



Therefore, as quarrying is an established practice, the continuation and expansion of extraction activities will have an ‘imperceptible’ effect on social considerations compared with the current dynamics.

It is important to acknowledge that aggregate resources can only be worked where they naturally occur. The subject continuance and expansion of activities does incorporate an additional land take from surrounding agricultural lands for extractive use. However agricultural lands are widely available in the locality.

### **Mitigation Measures**

As identified previously, specific mitigation measures and best practices have been discussed in the respective chapters of this EIAR. There are no additional specific mitigation measures identified in relation to Land Use.

### **Residual Impacts**

With the implementation of appropriate environmental management practices and the mitigation measures identified in the EIAR it is considered that the likelihood of residual impacts to land use is considered to be not significant.

## **3.4.5 HUMAN HEALTH, AND HEALTH AND SAFETY**

### **Human Health**

Potential impacts to human health from the effects of the extraction extension to the environment surrounding the site include discharges to the underlying groundwater. This could result in a change in water quality depending on the activities that are undertaken. There is the potential for impacted underlying groundwater to migrate to local groundwater wells and effect the users of such water supplies.

Potential impacts to human health from the impacts to air include dust generating activities on the site and increase in concentrations of airborne particles and nitrogen dioxide due to exhaust emissions from diesel powered vehicles and equipment used on-site and vehicles accessing the site. Blasting was not undertaken on the Site in recent years. Impacts to human health from excess noise and vibration on-site has potential to result in hearing loss and various vibration syndromes of workers from high level occupational exposure and also annoyance and effects on mental health in the surrounding residential receptors. Good environmental practice for water, air, and noise and vibration management will be undertaken as specified in Chapters 6.0 (Water), Chapter 7.0 (Air Quality), and Chapter 9.0 (Noise and Vibration) of this EIAR. Mitigation measures are detailed in the respective discipline chapters and consolidated in Chapter 16 of this EIAR.

## **3.4.6 WATER**

A concern in general and in health terms for local residents was the impact of development under 20/532 on nearby residents.

The effect of extending excavation to the north and west on water is assessed in Chapter 6 of the EIAR. The key components of the proposed scheme are set out as embedded features which include the following: excavation will not occur below the groundwater table; run off from the floor and faces of all areas of the extraction slope runs towards a low elevation point with trenches helping water to collect in Pond K2; there is no discharge to surface water; wash water is discharged into the silt pond with that pond being located above the groundwater table and is not in a direct

connection; wheel washing will be undertaken; mobile plant maintenance activities use a concrete apron with associated interceptors at the maintenance shed with spill kits managed on site and spill training given to all relevant staff; refuelling takes place on hardstanding on a designated location; all plant and machinery will continue to be regularly serviced and maintained; hydrocarbons are stored in bunded tanks on an impermeable hardstanding surface with all diesel fuel and hydraulic fuel stored in bunded fuel tanks; and finally, monitoring of groundwater and surface water quality using available monitoring wells and artificial wells and artificial ponds will ensure no pollution of groundwater or surface water occurs.

When samples were compared to the Drinking Water Regulations, it should be noted that all samples were below the thresholds for these parameters. The main potential risks associated with the subject extension of excavation at the site to the water environment (and subsequently human health) are identified to be:

- the release of hydrocarbons to surface water and groundwater.
- the capacity of the waste water treatment facilities on-site.

Deficient management of site activities and design of waste water treatment facilities have the potential to impact underlying groundwater and neighbouring residential groundwater supplies.

Mitigation measures identified in Chapter 6 (Water) will ensure that there is no adverse environmental impact to the underlying groundwater. It is therefore considered that there will be no significant risk of water related impacts from the proposed development on human health.

### **3.4.7 AIR QUALITY**

Receptors are identified in Chapter 7 - Air Quality of the EIAR that are within 500m of and 50m of the application site respectively. Residential receptors are categorised as high sensitivity receptors. The remaining non-residential (industrial) receptors are categorised as medium sensitivity receptors.

The air quality assessment within Chapter 7 of the EIAR concludes that the impact of coarse particulates (dust) on the surrounding area as a result of the continued activities at the Site is considered to be 'slight' and therefore Not Significant. The assessment considered the employed mitigation measures which will continue to be in place and considered them effective.

With regards to fine particulates, it is considered that there may be the potential for an increase in PM10 and PM2.5 concentrations at the residential receptors downwind in the vicinity of the Site, due to the moving of the extraction area, but the predicted environmental concentration (PEC) is still predicted to be below the annual Air Quality Standard (AQS), with headroom. The impact of fine particles from the continued operation of the site is therefore considered to be imperceptible and therefore Not Significant.

Residual impacts of deposited dust and particulates generated during the continued operations at the site on air quality are considered to be slight. During long spells of dry weather, dust emissions may have the potential to be elevated, however dust nuisance from the continued operations is expected to be unlikely as the above mitigation measures will continue to be implemented. The overall impact from the continued operation of the site, in terms of dust emissions and particulates, is considered 'slight' to the air environment and Not Significant.

Potential Air Quality accidents and unplanned events could occur relating to the malfunction of dust mitigation equipment particularly during dry and windy periods and the failure of covers resulting in the spillage of dusty material during transport. Unmitigated unplanned events may lead to short-term increases in dust emission

from the site with the potential for short-term increases in dust nuisance and an increase in PM10 concentrations. Due to the limited spatial and temporal scale of any unplanned event and the climate/meteorological conditions in the area, any impacts from accidents and unplanned events are deemed to be insignificant.

Furthermore, as identified in Traffic and Transport Chapter 12.0, and Chapter 7.0 Air Quality, the traffic flows associated with the extension of extraction are not expected to be significant compared to the previous operating scenario under 07/267, so any worsening of pollutants is assessed to be not perceptible. Considering the likelihood that most airborne particulates are deposited within 200m (as presented in Chapter 7.0 Air Quality), and the traffic flows associated with the site are not anticipated to change substantially, the impacts of air emissions from the site on human health are not perceived to pose a significant risk.

### **3.4.8 NOISE AND VIBRATION**

The impact of the subject development in terms of noise and vibration is assessed in Chapter 9.0 of this EIAR. Noise and vibration can have direct impacts on human health (i.e. damage to hearing from long term exposure, and the development of vibration syndromes such as hand-arm vibration syndrome, vibration white finger or carpal tunnel syndrome). Such risks and impacts to employees are managed on-site through the health and safety management system and by the use of personal protective equipment during certain tasks (including hearing protection).

Noise and vibration from the site can also have indirect impacts to surrounding residential developments through annoyance and effects on mental health. Blasting did not occur from the expiry of 07/267 in September 2020 to the current day. Monitoring did take place at the closest noise sensitive receptor (NSR) location (i.e. residential dwelling) during each blast historically. Planning conditions for the site and industry standards define appropriate limits for vibration peak particle velocity, air-overpressure, and the frequency at which blasting can be conducted at the site. Monitoring records to date show compliance with planning conditions limits and industry standards for the period that blasting did previously occur but as indicated above and vibration. With the continued application of site mitigation measures and cessation of blasting operations, it is considered that there has been, and there is, no current significant impact of vibration on human health surrounding the site.

Operational noise from the quarry has been predicted for three future operational scenarios within the proposed extensions to the quarry. These scenarios occur during daytime periods only; nighttime operations are not proposed (and do not currently take place). All modelled scenarios have followed a conservative approach to determine the likely 'worst-case' noise levels at NSRs. Predicted noise levels for each operational scenario are within the permitted daytime limits and the levels recommended by the EPA Environmental Management Guidelines – Environmental Management in Extractive Industry.

The specific noise levels from quarry operations for each modelled scenario are predicted to not exceed the permitted threshold level, resulting in a negligible adverse impact at all NSRs which is not significant.

At NSRs R3 and R6, noise levels are predicted to increase the ambient noise level above the measured noise level (relative to the nearest measurement location) by <3dB for Scenarios 1 and 3 and no increase for Scenario 2, which may result in a negligible or low adverse impact at these NSRs which is not significant.



At NSR R4, the noise level is predicted to increase the ambient noise level above the measured noise level (relative to the nearest measurement location) by >3dB but <5dB for all future operational scenarios, which may result in a low to medium adverse impact at this noise sensitive location which is not significant.

At all other NSRs and at Glen Ding Wood, there is predicted to be no or negligible change in ambient noise level (relative to the nearest measurement location) due to proposed future quarrying activities, which is not significant.

Vibration monitoring undertaken between 2018 and 2020 at the nearest vibration sensitive receptors to the quarry, including the GNI gas pipeline, determined there were no exceedances in the specified vibration or air overpressure limits. Regression analysis indicates that at the NSR closest to the proposed new quarry face (approximately 300m from the nearest proposed blasting site), the PPV at the typical maximum MIC of 285 kg would be around 6 mm/s (at 95% CL), below the permitted threshold of 12 mm/s. The measured air overpressure levels were substantially lower than the levels which would see structural damage to windows. The predicted vibration impact due to blasting is predicted to be negligible to low adverse, depending on the proximity to the blast site, which is not significant.

When taking into account the predicted absolute noise level, the change in ambient noise level and the likely vibration level due to blasting, the overall magnitude of impact at each receptor is not significant.

Noise from operational activities associated with other quarries in the vicinity of the Site were ascertained to be imperceptible at all measurement locations. As such, the cumulative impact is not significant.

Potential noise and vibration impacts will be controlled by the continued implementation of mitigation measures at the quarry. Supplementary measures have been proposed to ensure that blasting is monitored appropriately, and potential impacts associated with the GNI pipeline are considered. With these mitigation measures in place, residual noise and vibration impacts due to proposed quarry operations have been determined to be not significant.

Regarding the Gas Networks Ireland (GNI) pipeline, Section 9.5.2.3 recognises that there is potential for an improperly managed blast to damage the gas transmission line. Fractures in the line could result in gas leaks and an explosion. The loss of gas transmission would result in further indirect effects elsewhere on the line. The blasted rock face of the quarry is approximately 370 m from the gas transmission line. As the proposed quarry extension progresses westwards, the blasting activities will occur nearer to the transmission line. However, the closest blasted face will be located approximately 315 m away from the line at its closest point. The GNI 2021 'Code of Practice for Working in the Vicinity of the Transmission Network' dictates that: 'blasting shall not be permitted within 400 metres of a transmission network without consulting GNI and making an assessment of the vibration levels at the pipeline'. The Applicant has liaised with GNI on this matter and a site visit has been conducted by GNI.

In order to mitigate and reduce the potential of damage to the gas transmission line, numerous mitigation measures are employed during blasts, as identified in Section 9.7.2. These measures include a number of operational controls and also the requirement for blasting contractors to be trained and competent.

The applicant deploys a vibration monitor at the gas transmission line during all blasting events. From these monitoring records the blasting contractor can determine whether the MIC or methods need to be altered for future blasting events.

### 3.4.9 HEALTH AND SAFETY

#### General Health and Safety

The Site Manager has been, and is currently, responsible for safety management on the site. The predominant health and safety concerns for the human environment relates to the possibility of humans and livestock straying into the quarry area and from blast related activity at the site. To mitigate against such events the following are already in place at the site:

Fencing will continue to be actively maintained at the application site to ensure that the risk of injury to civilians and livestock is minimised. The entrance gate will continue to be locked and controlled by the sites' management;

Exposed edges in the subject extension will be appropriately protected with safety berms. These edges will also be sign-posted appropriately to identify any potential hazard;

The health and safety of all those working for the applicant will continue to receive the highest priority and has been the case over many years. The applicant is committed to implementing the provisions of the Safety, Health and Welfare at Work Act 2005; the Safety, Health and Welfare at Work (General Application) Regulations 2007; the Safety (Working At Height) Regulations 2006; the Health and Welfare at Work (Construction) Regulations 2013; and the Safety, Health and Welfare at Work General Application 2016, S.I. 36 of 2016, to ensure so far as is reasonably practicable the safety, health and welfare of all employees and other persons who may be affected by site activities. The applicant is committed to providing appropriate information, training and supervision to employees have been and who are operating at the application site.

All site employees, contractors and subcontractors are required to wear a minimum personal protective equipment (PPE) whilst on-site, these are steel toed boots and a high visibility jacket or vest. Other task specific PPE which will be used at the application site include, safety glasses/goggles, hard hats, gloves and hearing protection.

The following health & safety improvements have been enforced since 2020 and the expiry of 07/267 and will continue to be activated for the extraction envisaged in this S37 application:

- Dust monitoring locations in numerous field areas within distance of the quarry to check dust levels monthly. These are reported quarterly by an external environmental consultant.
- Water sprinklers and a water bowser utilised to help keep dust levels low during drier periods.
- All plant and machinery are serviced regularly to help ensure they are running smoothly.
- Generators are maintained regularly, and any leakages are repaired almost immediately.
- Edge protection in place on wash plant.
- More lighting put in place.
- More safety signage put in place.
- A new H&S Officer started in August 2023.
- Guards and protection put in place on large wash plant.
- All fire extinguishers tested yearly.
- First aid kits stocked and checked regularly.
- All employees trained and receive regular safety training.

- Safety talks held regularly with employees
- Defibrillators on site checked and serviced when required.
- All safety data sheets on file for oils and chemicals.
- All stockpiles are monitored and grounds assessed for large machinery.
- Reg. Ref.: 07/267 operational hours maintained.
- Wheel was for all vehicles exiting the quarry.
- Road sweeper cleaning access roads.
- Hudson Brothers strive to achieve a high level of safety in their company. H&S Officer is on site full time and does daily checks in the quarry.
- Regular safety training to issued to employees and all new employees undergo a safety induction.

### **Site Security and Boundary Treatment**

Existing management and maintenance of existing boundaries will be extended to the proposed boundary under this application.

It should also be noted that the formalised boundary condition inspections are now included in the EMS. It should also be noted that fencing has been and will continue to be actively maintained at the site to ensure the risk of injury to the public and livestock is minimised. The entrance gate will continue to be locked and controlled by the site's management.

Finally, it should be noted that inspections and deficiencies on the boundaries, fencing and security are to be reported to the applicant's Environmental Officer. That Environmental Officer will be responsible for ensuring that appropriate corrective actions are taken to repair boundaries.

If emergency services are required at the application site, the closest Accident and Emergency unit operates out of Naas General Hospital, Naas, Co. Kildare (and also Tallaght University Hospital, Dublin 24). Fire emergency services for the site operate from Blessington Co. Wicklow. There have been no significant accidents.

### **Impact on Water Quality and Health**

The main potential risks associated with the proposed continuation of quarrying activities at the Site to the water environment (and subsequently human health) are identified to be: the release of hydrocarbons to surface water and groundwater, and the use of the waste water facilities on-site. Deficient management of site activities during the assessment period have the potential to impact underlying groundwater and neighbouring residential groundwater supplies.

As the extraction of both sand and gravel and rock will occur at least 1 m above the highest winter water table no discharge to the environment takes place.

Occasionally perched water is encountered during the extraction of sand and gravel and it drains away naturally as excavation progresses. Water is used in the processing of sand and gravel in a closed circuit 'wet' aggregate processing plant where water is recycled throughout the process. Silt laden water is disposed of in the silt lagoon, where the silt settles out over time and is subsequently made available for site restoration. Water used in the processing of the aggregate is supplied from a pond (Pond K2) on the pit floor. Processing of extracted rock takes place at the quarry face prior to being transported to market. No water is used in the processing of rock.

No streams overrun on the site or the immediate surroundings, due to the underlying sand and gravel.

The nearest surface water features are unnamed streams to the south (1.3 km south west of the application boundary), 240 m from the Red Bog Special Area of Conservation (SAC) and 2.2 km from Poulaphouca Reservoir and a small pond contained within this application site. None of those existing streams, the Red Bog SAC or the reservoir are linking hydrologically to this application site by any surface water features, and as excavation does not occur below the water table, there is no connection and consequently no risk of potential pollution from the recent and continued operation of the application site. The impact from excavation or blasting on the Blessington Public Supply Scheme is identified as imperceptible.

Impact on ground and surface water in the case of flooding due to elevated rainfall and/or discharge of silt laden process water into the silt pond, resulting in uncontrolled overflow to the quarry floor, would be 'slight'. Impact on water supply is imperceptible and impact on surface water is in most cases imperceptible.

Although the initial assessment of effects (considering embedded mitigation) has not identified any significant adverse effects additional mitigation is proposed as follows:

- Extraction of greywacke in the central area should remain at a level of 188 mAOD as there is increased risk that the water confined within the bedrock will be intercepted. Some lateral extension in the central greywacke is planned to level the area and continue extract of the valuable rock to this depth;
- Extraction of sand and gravel in the proposed northern and western extension areas should be undertaken to the proposed levels in the absence of further understanding of the localised groundwater levels in each area;
- Future phasing of the quarried depth is to be considered along with the anticipated depth to the aquifer for each area of the quarry. Borehole logs and quarrying to 188 mAOD have shown that the aquifer is confined in the bedrock and this depth is variable across the site;
- Boreholes to be installed to help better define the depth to the bedrock aquifer and variations across the site. BH3K is to be replaced with a bore that intercepts the bedrock aquifer;
- 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 is to be moved into the base of the quarry allowing the silt pond to cover a larger area to reduce overflow requirements.

Following mitigation, the residual impact is identified in all cases as negligible/imperceptible or negligible/slight.

The main potential polluting impact from existing and current operations is the introduction of hydrocarbon to the underlying groundwater. The existing mitigation and management systems maintain protection measures for water against hydrocarbon pollution. Water monitoring undertaken during the assessment period did not identify any hydrocarbon impacts to the underlying groundwater. Other potential sources of waste water pollution include domestic waste water from the office/canteen similarly water monitoring did not identify impacts from domestic waste water systems. As such, the risk of pollution to surrounding water bodies including private wells during the assessment period is imperceptible.

Whilst the current and ongoing finished floor levels on site will vary due to topography and incline of the site. However, excavation has not taken place below a level of at least 1 m above the highest seasonal water table level. Accordingly, there has been no groundwater discharged from the site

and therefore no impacts on surrounding water uses including numerous private wells referred to in the Water Chapter.

The current design, mitigation measures and monitoring already being undertaken and proposed to be undertaken for this S37L development result in no residual deleterious effects on surrounding waterbodies or underlying groundwater aquifers nor indeed on water supply or water quality for surrounding residents.

### **Mitigation Measures**

As identified previously, specific mitigation measures and health and safety best practices have historically and are currently employed and enforced on-site; no further remedial mitigation measures are considered necessary. Mitigation measures are identified in each of the relevant chapters of the EIAR.

### **Residual Impacts**

With the implementation of appropriate environmental, health and safety management practices, and the mitigation measures identified in the EIAR it is considered that the likelihood of residual health and safety impacts is considered to be not significant.

## **3.5 CUMULATIVE IMPACTS**

Sand and gravel quarrying activities currently take place in adjacent quarries to the south and east of the site. The closest quarries in the surrounding area which conduct rock extraction are located approximately 2.2 km to the northeast. It is considered that this S37L development will have slight beneficial impacts on both direct and indirect employment and economies surrounding the site as evidenced in a substantial number of letters received during the consultation period of 20/532 in support of the applicant's development. Cumulative impacts of these surrounding quarrying activities during the assessment period in relation to water, air quality, and noise and vibration are considered in the respective chapters of this EIAR. With the maintenance of on-site mitigation measures and the adherence to applicable thresholds there are no significant negative cumulative impacts to population and human health anticipated.

There are no other industrial operations in the vicinity of the site that would have generated a cumulative impact upon human beings over the substitute consent period.

## **3.6 'DO NOTHING' IMPACT**

As there is a current quarrying and aggregate extraction operation ongoing there is not estimated to be a significant difference between the 'do nothing' impact and effects associated with the extension of those existing extraction operations.

## **3.7 ECONOMIC ACTIVITY CONSTRUCTION PHASE**

There is limited if any construction activity within the terms of this extension and expansion of extraction area.

## **3.8 SOCIAL PATTERNS CONSTRUCTION PHASE**

There is no significant social pattern to a construction phase that is very limited to permit extraction being extended within the site.



### **3.9 MONITORING**

There is no monitoring required other than that identified in other chapters of this EIAR.

### 3.10 REFERENCES

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