

3.0 POPULATION & HUMAN HEALTH

3.1 Introduction

This Remedial Environmental Impact Assessment Report (rEIAR) has been prepared to accompany a substitute consent application for an existing quarry at Windmillhill, Rathcoole, Co. Dublin (the Development).

The substitute consent application is to be made concurrent with an application for further development of the quarry for extraction to be made under S.37L of the Planning and Development Act, 2000 as amended that is accompanied by an EIAR.

The lands the subject of this rEIAR extend to 46.14 ha. that reflect historic operational site information including the extractable area declared under S.261 quarry registration in 2005. The quarry area that makes up the application for substitute consent planning unit currently extends to approximately 28.8 ha. at the centre of the EIA project area that is generally bounded by the N/M7 to the north and the local Windmillhill Road to the south. The eastern and western EIA project boundaries are demarcated by the Windmillhill townland boundary that consist of field boundaries and the entrance to a dwelling called 'Four Winds' that is within the ownership of the substitute consent applicant to the east; and the former local Athgoe Road to the west.

The current quarry site is accessed toward the center of its northern boundary from the N/M7 and has been accessed from that road since grant of planning permission for stone quarrying on site in 1968 (under Reg. Ref. 11547). The current quarry void is centrally located within the EIA unit and roughly rectangular in shape with an east - west orientation, parallel to the N/M7 and local Windmillhill Road.

At the center of the current quarry area is the existing administration and processing plant area over approximately 5 ha that currently holds 2 no. office buildings, 4 no. portacabins, 4 no. containers, 2 no. storage / maintenance sheds, a storage / drying shed, water recycling unit and silt press, an asphalt plant, a concrete plant and washing, crushing, screening and bagging plants. Also, within this plant and administration area are 2 no. weighbridges, 4 no. wheel washes, fuel storage and refueling area, and sewage holding tank. The concrete plant and the storage / drying shed have been erected within the last three years and will be the subject of a separate planning application process.

At baseline in 1990 the quarried area has been determined in the Land, Soils and Geology Section of this rEIAR to extend just over 10.1 ha. and in 2021 to have expanded laterally to approximately 28.8 ha. with an average working depth of 173 mAOD.

This section of the rEIAR considers and assesses potential significant effects on the surrounding human environment resulting from quarrying related activities that have been carried out on the Site. It also records remedial mitigation measures undertaken or proposed to be undertaken.

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 discrete sections of this rEIAR in their own right and corresponding mitigation measures are comprehensively provided in those sections.

The following assessment has been prepared by Kevin McGillicuddy (BA (Mod), MSc). Kevin is a Practitioner Member of the Institute of Environmental Management and Assessment and has more than 8 years' experience.

3.2 Methodology

3.2.1 Technical Scope

This assessment has been made with reference to the 'Guidelines on the information to be contained in environmental impact assessment reports', published in 'draft' by the EPA in August 2017 (EPA, 2017 Draft

Guidelines). These guidelines were drafted by the EPA with a view to facilitating compliance with the EIA Directive (Directive 2011/92/EU, as amended by Directive 2014/52/EU, together the 'EIA Directive').

The EPA's 2017 draft 'Guidelines on the information to be contained in environmental impact assessment reports' suggest the following sub headings under which to arrange issues; *"Employment, Human Health (considered with reference to other headings such as water and air), Amenity (e.g. effects on amenity uses of a site or of other areas in the vicinity – may be addressed under the factor of Landscape)."*

The assessment also considered 'Advice Notes for Preparing Environmental Impact Statements', also published in 'draft' by the EPA in September 2015.

Having regard to the above guidance; particularly the 2017 EPA draft guidance on the information to be contained in EIAR; the characteristics and context of the lands that are the subject of this rEIAR; and the retrospective nature of the development, this rEIAR chapter aims to identify the likely significant impacts that the development has and may have had on the 'quality of life' and are discussed under the following headings:

- Populations;
- Employment;
- Amenity;
- Land Use and Development Patterns;
- Human health; and
- Health and safety.

3.2.2 Prediction of Impacts and Effects Prior to Mitigation

Prediction methods are required to identify and assess the significant effects of the development on the environment. The predictive method used for this assessment is a common framework of assessment criteria and terminology based on the EPA's draft 'Guidelines on the information to be contained in environmental impact assessment reports' with some adjustments to improve clarity.

This common framework follows a 'matrix approach' to environmental assessment which is based on the characteristics of the impact (magnitude and nature) and the value (sensitivity) of the receptor. The terms used in the common framework are described below. Details of how these specifically relate to the human environment are based on the UK's Design Manual for Roads and Bridges (Volume 11, Section 3, LA112, Revision 1, Sustainability and environment. Appraisal. Population and human health). The sensitivity of communities and populations has been included and has been conservatively attributed a 'High' sensitivity. These descriptions for value (sensitivity) of receptors are provided in Table 3.1 and Table 3.2.

Table 3.1: Environmental value (sensitivity) and descriptions.

Value (sensitivity) of receptor / resource	Typical description
High	High importance and rarity, national scale, and limited potential for substitution.
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution.
Low	Low or medium importance and rarity, local scale.
Negligible	Very low importance and rarity, local scale.

The environmental sensitivity descriptions have been assigned to receptor groups as appropriate for the assessment on the human environment. These descriptions and rankings have been provided below in Table 3.2.

Table 3.2: Environmental value (sensitivity) and descriptions for assessment groups.

Group	Receptor / resource	Designated value (sensitivity) of receptor / resource
Populations / Communities	All individuals located in a particular location (this can be local, regional or at a national scale), and groups of people living in the same place or having a particular characteristic in common.	High
Private Dwellings	Residential property.	High
Community land and facilities, and other lands	Designated local green space / valued community facility.	High
	Undesignated local green space / non-essential community facility.	Low
	Derelict or unoccupied buildings or lands.	Low
Local Businesses	Businesses where viability is likely to be permanently jeopardised by a short disruption or worsening of trading conditions.	High
	Businesses where profitability may be harmed by a short or medium-term disruption or worsening of trading conditions.	Medium
	Businesses that could continue to operate without substantial harm if affected by a disruption or worsening of trading conditions.	Low
	Businesses that could continue to operate relatively unharmed if affected by a disruption or worsening of trading conditions.	Negligible
Non-motorised users	All non-motorised users utilising roads and networks, including pedestrians, cyclists, horse-riding, etc.	High
Human health	Health receptor that would be likely or expected to be directly affected. Receptor is well placed to take advantage of beneficial impacts, and/or is not well placed to deal with any adverse impacts.	High
	Health receptor that would be likely to be indirectly affected. Average ability to maximise beneficial impacts or cope with adverse impacts.	Medium
	Health receptor that would be unlikely to be affected. Receptor is not well placed to take advantage of beneficial impacts, and/or is well placed to deal with any adverse impacts.	Low
	Health receptor that would be unlikely to be affected or effects would be temporary in nature, or which would be anticipated to have a slight or no effect on human health.	Negligible
Vehicle travellers	Public transport, motor vehicles.	Low

The descriptions for magnitude of impact are provided in Table 3.3. The numerous descriptions for both the adverse and beneficial magnitudes of impact provided below reflects the diverse range of receptor groups which may be impacted.

Table 3.3: Magnitude of impact and typical descriptions.

Magnitude of impact (change)		Typical description
High	Adverse	<ul style="list-style-type: none"> ■ Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements; ■ An impact that is expected to have considerable adverse socioeconomic effects. Such impacts will typically affect large numbers of businesses, workers or residents; ■ Very large damage to local business which may compromise its viability; ■ Adverse health impact to a large number of people and adverse impact affecting sensitive population groups.
	Beneficial	<ul style="list-style-type: none"> ■ Large scale or major improvement of resource quality; extensive restoration; major improvement of attribute quality; ■ An impact that is expected to have considerable beneficial socioeconomic effects. Such impacts will typically affect large numbers of businesses, workers or residents; ■ Very large direct or indirect benefits for local business; ■ Beneficial health impact to a large number of people and beneficial impact affecting sensitive population groups.
Medium	Adverse	<ul style="list-style-type: none"> ■ Loss of resource, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements; ■ Moderate magnitude impacts will typically be long-term in nature, resulting in the permanent change of the study area's baseline socio-economic conditions; ■ Moderate to large damage to local business, but with changes to management it should remain viable; ■ Adverse impact affecting moderate number of people. Adverse impact affecting some sensitive population group(s).
	Beneficial	<ul style="list-style-type: none"> ■ Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality; ■ Moderate magnitude impacts will typically be long-term in nature, resulting in the permanent change of the study area's baseline socio-economic conditions; ■ Moderate to large benefits for local business; ■ Beneficial impact affecting moderate number of people. Beneficial impact affecting some sensitive population group(s).
Low	Adverse	<ul style="list-style-type: none"> ■ Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements; ■ An impact that is expected to have a minor socio-economic effect. Such impacts will typically have a noticeable effect on a limited number of businesses, workers or residents, and will lead to a permanent (but not drastic) change to the study area's baseline socio-economic conditions; ■ Slight to moderate damage to local business, but with minor changes to management it should remain viable; ■ Adverse impact affecting low-moderate number of people. Adverse impact affecting few sensitive population groups.
	Beneficial	<ul style="list-style-type: none"> ■ Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring; ■ An impact that is expected to have a minor socio-economic effect. Such impacts will typically have a noticeable effect on a limited number of businesses, workers or residents, and will lead to a permanent (but not drastic) change to the study area's baseline socio-economic conditions; ■ Slight to moderate benefits for local business; ■ Beneficial impact affecting low-moderate number of people. Beneficial impact affecting few sensitive population groups.

Magnitude of impact (change)		Typical description
Negligible	Adverse	<ul style="list-style-type: none"> Very minor loss or alteration to one or more characteristics, features or elements; An impact that is expected to affect a small number of businesses, workers or residents. Or an impact that may affect a larger number of receptors but without materially changing the study area's baseline socio-economic conditions. Such impacts are likely to be temporary in nature; The identified impacts are predicted to have little or no damage to local business; No or non-perceptible impact to health, population or sensitive groups.
	Beneficial	<ul style="list-style-type: none"> Very minor benefit to or positive addition of one or more characteristics, features or elements; An impact that is expected to affect a small number of businesses, workers or residents. Or an impact that may affect a larger number of receptors but without materially changing the study area's baseline socio-economic conditions. Such impacts are likely to be temporary in nature; The identified impacts are predicted to have little or no benefit to local business; No or non-perceptible impact to health, population or sensitive groups.

The approach followed to derive effects significance from receptor value and magnitude of impacts is shown in Table 3.4. Where Table 3.4 includes two significance categories, evidence is provided in the topic chapters to support the reporting of a single significance category.

Table 3.4: Significance Matrix

Environmental value (Sensitivity)	Magnitude of Impact (Degree of Change)				
		Negligible	Low	Medium	High
	High	Slight	Slight or moderate	Moderate or large	Profound
	Medium	Imperceptible or slight	Slight or moderate	Moderate	Large or profound
	Low	Imperceptible	Slight	Slight	Slight or moderate
	Negligible	Imperceptible	Imperceptible or slight	Imperceptible or slight	Slight

A description of the significance categories used in Table 3.5.

Table 3.5: Significance categories and typical descriptions.

Significance Category	Typical Description
Profound	An effect which obliterates sensitive characteristics. Only adverse effects are usually assigned this level of significance. These factors are key issues in the decision-making and consent process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance which are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also be included in this significance category.
Large	An effect which, by its character, magnitude, duration or intensity alters a significant proportion of a sensitive aspect of the environment. These can be beneficial or adverse effects and are considered to be very important issues which are likely to be substantial in the decision-making process.

Significance Category	Typical Description
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. These are beneficial or adverse effects which may be important but are not likely to be central to decision-making or consent. The cumulative effects of these factors may influence consent or decision-making if they should lead to an increase in the overall adverse effect on a particular resource or receptor.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the project.
Imperceptible	An effect capable of measurement but without significant consequences. No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

The approach to assigning significance of effect included reasoned argument and the professional judgement of competent experts. The assessment of the significance of environmental effects covered the following factors:

1. The receptors/resources (natural and human) which would have been affected and the pathways for such effects;
2. The geographic importance, sensitivity or value of receptors/resources;
3. The duration (long or short term); permanence (permanent or temporary) and changes in significance (increase or decrease);
4. Reversibility - e.g. is the change reversible or irreversible, permanent or temporary;
5. Environmental and health standards (e.g. local air quality standards) being threatened; and
6. Feasibility and mechanisms for delivering mitigating measures, e.g. Is there evidence of the ability to legally deliver the environmental assumptions which are the basis for the assessment?

Using the described classification and professional judgement, **effects considered to be Profound or Large are deemed significant and those Moderate, Slight, or Imperceptible, to be not significant**, for the purposes of this assessment.

3.2.3 Information Sources

The description of the receiving environment for this retrospective EIAR is set out under the headings identified in Section 3.2.1 at the current time and at baseline 1990.

In regard to Human Health the reader is minded that other chapters of this rEIAR assess effects and set down mitigation measures for other environmental factors that ultimately require emission regulation by national/internal standard or specific planning / licensing condition for reason of protection of human health and the environment. Those assessments are referenced in this chapter to address felt and potential anticipated Human Health impacts in accordance with EPA draft guidance on the information to be contained in EIAR; *“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 [Advice Notes on Current Practice (in the*

preparation of Environmental Impact Statements, Sept. 2003] provide further discussion of how this can be addressed.”

Sources of information for the assessment of potential impacts on populations and human health included the following sources:

- Census Returns (Central Statistics Office (CSO), 1991, 1996, 2002, 2006, 2011 and 2016 Census);
- South Dublin County Council Development Plans, 1998 – 2004, 2004 -2010, 2016-2022;
- South Dublin County Council Development Plan, 2016-2022, Two year Progress Report, 2018;
- South Dublin County Council Development Plan, 2022-2028, Issues paper, 2021;
- Department of Health, Key Trends in Ireland, 2018;
- Field surveys of the Application Site and inspection of the surrounding area;
- Correspondence with the Developer/Site Owner;
- Desktop reviews of previous assessment from historic planning applications;
- Review of available Ordnance Survey of Ireland Aerials (1991, 1994, 1995, 2000, 2004, 2012, 2016 and 2020); and
- Department of Communication, Climate Action and Environment (DCCAE) Eircode maps.

The EPA's 2017 'Guidelines on the information to be contained in environmental impact assessment reports' 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 development is not considered likely to have impacts on the land use planning within the locality, nor is it likely to 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.

3.2.4 Temporal Scope

This rEIAR arises as a result of an application for substitute consent which is retrospective. Therefore, the rEIAR is also retrospective as it requires a description and assessment of the impact of development already undertaken to inform an environmental impact assessment for substitute consent determination. As identified in Chapter 1.0, the original EIA Directive (85/337/EEC) was transposed into Irish Law through the Planning and Development Act, 2000 as amended (P&D Act), and the appointed day at which the requirement for the same arose is 01 February 1990. Therefore, the baseline for this rEIAR has been set to 01 February 1990, and the rEIA process has assessed environmental impacts from that date to the present.

This assessment period equates to 31 years and is identified in the EPA's draft 2017 'Guidelines on the information to be contained in environmental impact assessment reports' as 'long-term' duration (those lasting fifteen to sixty years).

3.2.5 Geographical Scope

The rEIA directly covers the physical extent of the Site as shown in Figure 3.1. As predicted impacts on the human environment can extend beyond the immediate Site boundary, a wider 'zone of influence' has been considered.

The geographical study area for the assessment covers the development area and a buffer zone of 500 m from the development boundary. The buffer area has been identified based on the UK's Design Manual for Roads and Bridges (Volume 11, Section 3, LA112, Revision 1, Sustainability and environment. Appraisal. Population and human health). An assessment of residential receptors has been made in relation to a 500 m offset to the planning application boundary. Aerial photography of the surrounding environment has been an important source of information for identifying receptors and determining changes in the areas and the Development during the assessment period

The study area defined for the population and demographic trends is the Electoral Division (ED) of Rathcoole.

In the assessment of cumulative impacts the geographical extent of the rEIAR has been extended as appropriate to include relevant related or unrelated development activities that have the potential to create significant negative impacts with the Development.

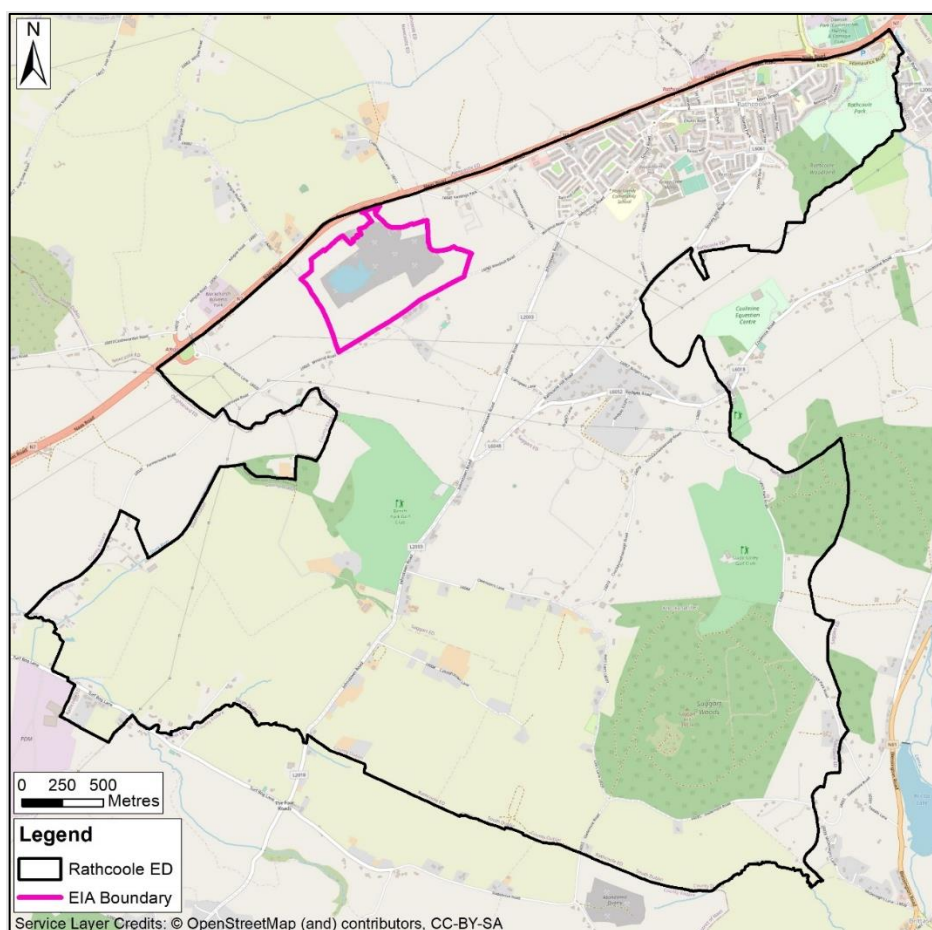


Figure 3.1: The Application Site and Rathcoole ED boundary.

3.2.6 Planning and Development Objectives

In order to determine predicted impact on human beings and human health, populations subcategory locations and sensitivities must be determined. Prediction generally requires determination of future scenarios that for the purposes of determining likely population locations is estimated using predicted development patterns.

Development patterns are set in planning and development policy at national, regional and local level in Ireland. The EIA project area is located outside of designated urban settlements and as such, its intended development profile is discerned from local planning and development policy contained within the South Dublin County Development Plan, 2016-2022 that has been the subject of 5 no. variations.

The Plan includes mapped land use zoning, specific, transport and conservation objectives for the Site displayed on Map no. 7. An extract of that map is provided in Figure 3.2, and objectives relating to the subject site are provided in Table 3.7 further below.

The EIA project boundary, to the south, includes conservation objectives related to Windmill Hill for the protection of A prospect and the architectural remains as part of Listed Buildings. These conservation objectives are reinforced by a specific local objective “*HCL3 SLO3: To secure the preservation of Windmill Hill, Rathcoole (RPS Ref. 358).*” There is a further conservation objective to “*Protect and Preserve Significant Views*” on Windmillhill Road at the southern eastern corner of the EIAR project boundary.

In addition the EIA site includes, in its north western, quadrant a specific objective “*To provide for Traveller Accommodation Sites to be Selected*”. This specific objective is coupled with that “*To provide for Traveller Accommodation*” and therefore indicates that the specific objective within the EIAR project boundary refers to a location to be assessed. According to Section 2.1.4 of the Plan these mapped objectives reflected the then Traveller Accommodation Programme 2014 -2018 against which “*sites to be selected*” were presumed to be adjudged. The Plan also states that the programme would be reviewed at the Two Year Progress Report of the Development Plan in 2018.

At the time of writing of this EIAR, no proposal for traveller accommodation a been progressed in the vicinity of the specific objective within the EIAR project site. The Two Year Progress Report of the Development Plan refers to A Traveller Development Programme for 2019 -2023 then being prepared, of which the Traveller Accommodation Programme (TAP) 2019 – 2024 has formed part. This TAP includes a map of ‘Existing and Proposed/Indicative sites for Traveller Accommodation 2019-2024’ that records operational accommodation locations and the specific objective “*To provide for Traveller Accommodation*”. In this way, there is not, nor is it anticipated that there will be residential accommodation for travellers arising within the EIAR project boundary.

The application boundary for the proposal for development for a minor lateral northern extension of the extant quarry void and the deepening of that void from an average of 173 AOD to 150 AOD does not include any of the specific, transport or conservation mapped objectives of the Development Plan. The further quarrying proposed has been designed to be confined to the extant void and northern lateral extension for the protection of those objectives. Landscape and cultural heritage assessments are at Chapters 11 and 13 of this EIAR respectively.

The entire of the proposal and larger EIAR project sties hold land use zoning objective ‘RU’ “*To protect and improve rural amenity and to provide for the development of agriculture.*” Table 11.16 of the Plan sets out those land uses permitted in principle, open for consideration and not permitted within areas holding the RU land use zoning objective. The full schedule of those uses are repeated at Table 3.6 below, with the uses of the existing quarry and proposed further quarrying proposal identified by underline.

Table 3.6: Repeat of Table 11.16: Zoning Objective ‘RU’ of South County Dublin Development Plan 2016 – 2022

USE CLASSES RELATED TO ZONING OBJECTIVE	
Permitted in Principle	Aerodrome/Airfield, Agriculture, Allotments, Cemetery, <u>Concrete/ Asphalt Plant in or adjacent to a Quarry</u> , Home Based Economic Activities ^a , <u>Industry-Extractive</u> , Open Space, Public Services, Rural Industry-Food.

USE CLASSES RELATED TO ZONING OBJECTIVE	
Open for Consideration	Abattoir, Advertisements and Advertising Structures, Bed & Breakfast ^a , Boarding Kennels, Camp Site ^h , Car Park ^h , Childcare Facilities ^b , Community Centre, Crematorium, Cultural Use ^a , Doctor/ Dentist ^b , Education, Embassy ^a , Enterprise Centre ^b , Fuel Depot ^b , Funeral Home ^b , Garden Centre, Guest House ^a , Health Centre ^b , Heavy Vehicle Park, Hotel/Hostel, Offices less than 100sq.m ^b , Petrol Station ^b , Place of Worship ^b , Primary Health Care Centre ^b , Public House ^b , Recreational-Facility, Recycling Facility ^b , Refuse Landfill/ Tip, Residential ^c , Restaurant/Café, Service Garage ^b , Shop-Local ^b , Social Club, Sports Club/Facility, Stadium, Traveller Accommodation, Veterinary Surgery.
Not Permitted	Betting Office, Caravan Park- Residential, Conference Centre, Hospital, Housing for Older People, Industry-General, Industry-Light, Industry-Special, Live-Work Units, Motor Sales Outlet, Nightclub, Nursing Home, Office-Based Industry, Offices 100sq.m-1,000 sq.m, Offices over 1,000sq.m, Off-Licence, Outdoor Entertainment Park, Refuse Transfer Station, Residential Institution, Retail Warehouse, Retirement Home, Science and Technology Based Enterprise, Scrap Yard, Shop-Major Sales Outlet, Shop-Neighbourhood, Transport Depot, Warehousing, Wholesale Outlet, Wind Farm.
^a In existing premises ^b In Villages to serve local needs ^c In accordance with Council policy for residential development in rural areas ^f In accordance with a Local Area Plan ^h For small-scale amenity or recreational purposes only	

In their County Development Plan SDCC identify that mineral extraction and the aggregate industry is an important economic sector that provides raw materials for the construction industry. SDCC also state that the processes involved in extraction can give rise to long-term environmental effects and significantly alter landscape character. These effects are stated to require consideration when identifying the suitability of areas for extraction.

Under Section 4.7.0 of the Plan, is the SDCC policy for, 'Policy 10 Mineral Extraction' as part of Economic Development and Tourism. Policy 10 Mineral Extraction states:

'It is the policy of the Council to support the sustainable extraction of aggregate resources at suitable locations within the County subject to appropriate environmental safeguards.'

This section of the Plan refers to the Landscape Character Assessment for the county stating that the most environmentally sensitive high amenity areas of the county are a priority for protection. Chapter 11 of this EIAR of a landscape assessment of the proposal.

Specific objectives in this policy which are relevant to the Site include:

- **ET10 Objective 1:** To facilitate mineral extraction in suitable locations subject to the protection of amenity and environmental quality; and
- **ET10 Objective 3:** To ensure the satisfactory reinstatement and/or re-use of disused quarries and extraction facilities, where active use has ceased.

The Plan acknowledges that factors such as air pollution, water pollution, nuisance noise and vibrations can negatively affect human health, the environment and residential amenity.

Chapter 7 of the SDCC County Development Plan 2016 - 2022 provides policies and objectives related to 'Infrastructure and Environmental Quality'. In this chapter relevant policies which are related to the development and bio-physical factors (air, noise and water) which could affect human health include:

Policy 2 Surface Water and Groundwater:

'It is the policy of the Council to manage surface water and to protect and enhance ground and surface water quality to meet the requirements of the EU Water Framework Directive.'

Policy 7 Environmental Quality:

'It is the policy of the Council to have regard to European Union, National and Regional policy relating to air quality, light pollution and noise pollution and to seek to take appropriate steps to reduce the effects of air, noise and light pollution on environmental quality and residential amenity.'

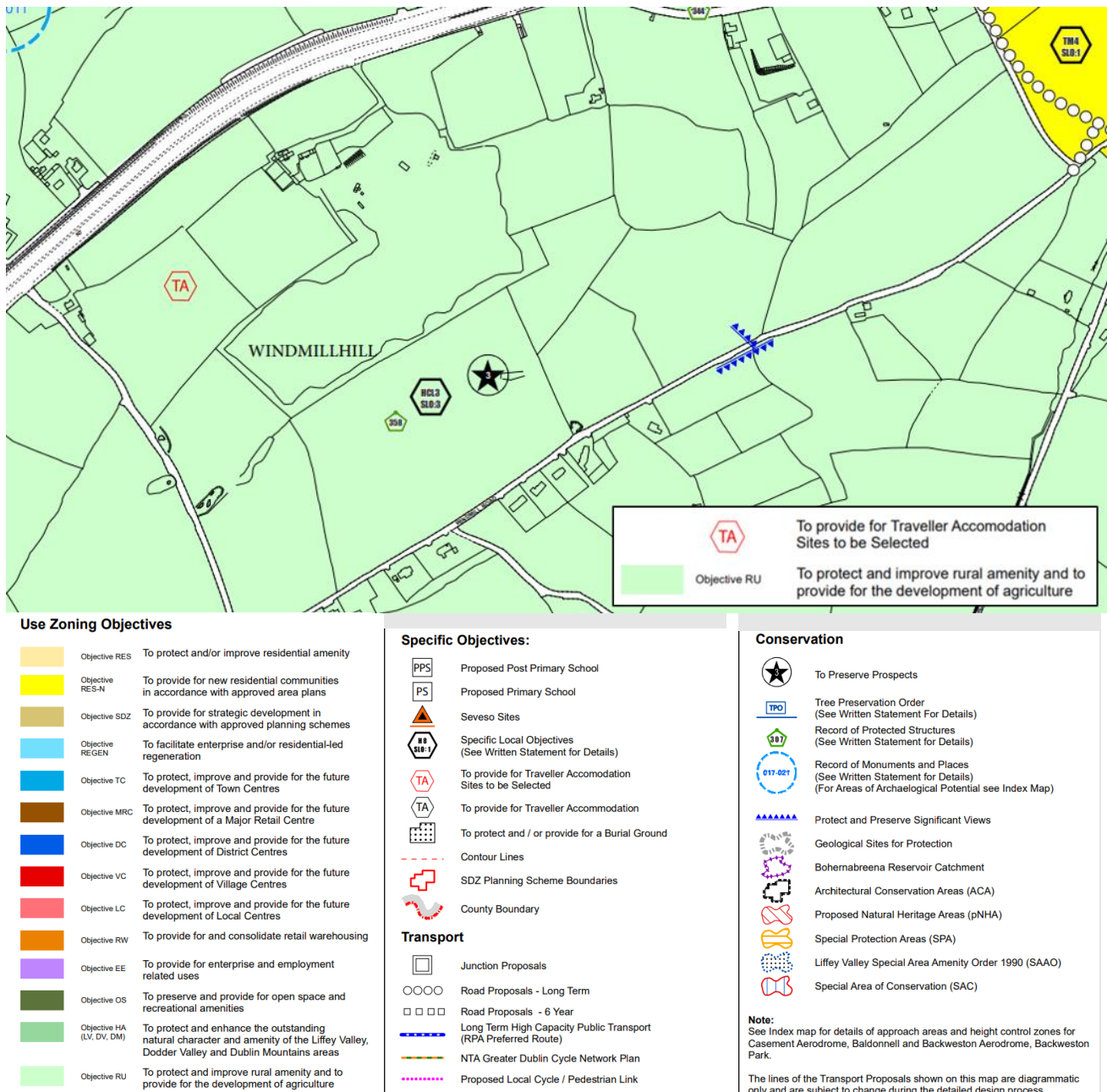








Figure 3.2: Indicative location for Traveller Accommodation, within the north-west area of the Site. Figure adapted from Map 7 of the SDCC County Development Plan 2016-2022, and includes approximate EIAR boundary.

Table 3.7: Mapped objectives of 2016 – 2022 South County Dublin Development Plan at the Site.

Mapped Objectives Category	Objective
Land Use Zoning	 'RU' To protect and improve rural amenity and to provide for the development of agriculture
Specific	 Specific Local Objective HCL3 SLO:3 To secure the preservation of Windmill Hill, Rathcoole (RPS Ref. 358).  To provide for Traveller Accommodation Sites to be Selected
Transport	n/a
Conservation	 To Preserve Prospects  Record of Protected Structures No. 358. Map ref. 358. RPS Ref. 358. Address / Location: Windmill House Rathcoole. Description: Stone Mill (Ruin) (Former Paper Mill)  Protect and Preserve Significant Views

The current Development Plan is scheduled for review in order it be replaced for the period 2022 -2028. That review is statutorily prescribed consisting of 3 no. public consultation periods ahead of final adoption: pre-draft, draft Plan, and material amendments to that Plan. The pre-draft phase of the new Plan has passed and the Draft Plan expected for public consultation in July 2021. The Pre-Draft stage was informed by local authority issues papers that do not specifically refer to the Site or the proposed quarrying land use. Pre-Draft Plan issues papers, in common with the Plan itself, defers to higher order policy documents. The Site is not identified for large-scale redevelopment in the higher order spatial planning policies primarily consisting of the National Planning Framework (NPF) and the Regional Spatial and Economic Strategy (RSES) for the Eastern and Midland Region.

3.2.6.1 Superseded Planning and Development Objectives

As noted, the rEIAR is retrospective in description of development and context and therefore a review of previous Development Plans from baseline has been undertaken.

At table 2.1 it is noted that South Dublin County Council was formed in 1994 upon abolishment of Dublin County Council. Since that time, and in accordance with the Planning and Development Act, 2000 as amended the Development Plan for the South Dublin County administrative area has been updated every 6 no. years. Therefore, at and since baseline the following Development Plans have set the development context for the Site:

- Dublin County Development Plan 1983;
- Dublin County Development Plan 1993;
- South County Dublin County Council Development Plan 1998 – 2004;
- South County Dublin County Council Development Plan 2004 -2010;
- South County Dublin County Council Development Plan 2010 – 2016; and

■ South County Dublin County Council Development Plan 2016 – 2022.

The inaugural Dublin County Development Plan was 1972 and was replaced by the 1983 Plan. Over time, the Plans have become more detailed in policy and objective setting in accordance with statutory requirements and more sophisticated in respect of mapping.

In order to present an assessment of predicted and intended development for the project area, Table 3.8 has been prepared that records today's mapped objectives for the site against those from previous plans to the 1998 Plan as that of 1993 did not ascribe land use zoning to the Site.

Each of these plans recognises the existence and importance of extractive industry to the economy of the county subject to environmental protection under specific policies for that land use that have expanded over time:

1998 Plan: Policy E15: Extractive Industry. *"It is the policy of the Council to facilitate the operation of extractive industry in suitable locations subject to the protection of amenity and maintenance of environmental quality."*

2.4.15.i. *"The Council recognises the importance of the extractive industry and will facilitate its operation in suitable locations. However such industry can have severely damaging environmental effects and permission will only be granted where the Council is satisfied that environmental quality and amenity will be fully protected. In addition the proposal must make appropriate provision for the reinstatement of the landscape. Details of proposed reinstatement should accompany planning applications for extractive developments."*

2004 Plan: 2.3.17 Policy EE17 Extractive Industry 2.3.17.i *It is the policy of the Council to facilitate the operation of the extractive industry in suitable locations subject to the protection of amenity and maintenance of environmental quality.*

2.3.17.ii *The Council recognises the importance of the extractive industry in providing the aggregates and building materials required for all forms of construction, and will facilitate its operation in suitable locations, having taken into account the continued reduction in demand with the increased re-cycling of construction and demolition waste. However such industry can have severely damaging environmental effects and permission will only be granted where the Council is satisfied that residential and natural amenities will be protected, pollution will be prevented, and aquifers and ground water will be safeguarded. In addition all development proposals must make appropriate provision for the reinstatement of the landscape. Details of proposed reinstatement should accompany planning applications for extractive developments.*

2.3.17.iii *The Council will seek to ensure that significant aggregate resources in the County are appropriately protected and in this regard will restrict the siting of incompatible developments that would interfere with the efficient development of such resources.*

2.3.17.iv *It is an objective to carry out a comprehensive study of aggregate resources in the County with a view to the preparation of a strategy for their sustainable exploitation, having regard to relevant legislation and guidelines, and to the views of all interested parties."*

2010 Plan: 3.2.21.i Policy EE36: Operation of Extractive Industries. *"It is the policy of the Council to facilitate the operation of the extractive industry in suitable locations subject to the protection of amenity and maintenance of environmental quality."*

3.2.21.ii Policy EE37: Proposals for New Extractive Industries. *"It is the policy of the Council that in the assessment of applications for new development, intensification of use or diversification of activity, the Council will have regard to the nature of the proposal, the scale of activity proposed, the impact on the adjoining road network and its effect on the environment"*

3.2.21.iii Policy EE38: EIA and Landscape Plan Requirements for Extractive Industries. *“It is the policy of the Council that it is a requirement that applications for development within this category will be accompanied by an Environmental Impact Statement, as appropriate and a detailed landscaping plan. The plan should indicate proposed screening for the operational life of the site and set out a programme for the reinstatement of the landscape. The predominant use of native plant species in landscaping plans is encouraged.”*

“The Council will have regard to the Quarries and Ancillary Activities Guidelines for Planning Authorities (2004) or as may be amended from time to time.”

Table 3.8: Mapped objectives preceding Development Plans at the Site.

Mapped Objectives Category	2016 – 2022 (Map 7)	2010 – 2016 (Map 3)	2004 – 2010 (Map 3)	1998 – 2004
Land Use Zoning	<i>'RU' To protect and improve rural amenity and to provide for the development of agriculture</i>	<i>'B' To protect and improve Rural Amenity and to provide for the development of Agriculture</i>	<i>'B' To protect and improve Rural Amenity and to provide for the development of Agriculture</i>	Rural
Specific	<i>Specific Local Objective HCL3 SLO:3 To secure the preservation of Windmill Hill, Rathcoole (RPS Ref. 358).</i>			
	<i>To provide for Traveller Accommodation Sites to be Selected</i>	<i>To provide for Traveller Accommodation (Site to be selected)</i>	<i>To provide for Traveller Accommodation (Site yet to be selected)</i>	
Transport	<i>Roads Proposal – Long Term (indicated north east of the Site as a bypass of Rathcoole)</i>		<i>Roads Proposal – Long Term (north east of the Site as a bypass of Rathcoole)</i>	
			<i>Roads Proposals - 6 year (along N/M7 alignment)</i>	<i>Roads Proposals - 6 year (along N/M7 alignment)</i>
Conservation	<i>To Preserve Prospects</i>			
	<i>Record of Protected Structures No. 358. Map ref. 358.</i>	<i>Record of Protected Structures No. 358. Same location & description.</i>	<i>Record of Protected Structures No. 358. Same location & description.</i>	<i>No. 50 on List no. 1 (Recorded Monuments under Section 12 of the National Monuments (Amendment) Act, 1994) Address: Windmillhill. Description: Stone Windmill [Ruin]</i>
	<i>Protect and Preserve Significant Views</i>	<i>Protect and Preserve Significant Views</i>		

3.3 Baseline

3.3.1 Surrounding Environment

The Site is located in the south of County Dublin, east of the border with Co. Kildare and within the administrative area of South Dublin County Council. The Site is located within the townland of Windmillhill and located directly south of the N7 Dublin to Limerick road, ca. 2 km of the southwest of Rathcoole. As noted, the Site is located with Rathcoole ED, the boundary of which has been provided in Figure 3.1.

The lands surrounding the Site to the north, west and south can be characterised as rural in nature, with land uses in the area being agricultural and single-house residential. Dry cattle, sheep rearing and grazing of horses are the main activities in the area, with further arable activities to the south-west. Suburban development has extended from more built up areas of Rathcoole along the N7 towards the east of the Site. The nearest school and church to the site is located within Rathcoole ca. 2 km to the east of the site.

The rural nature of the surrounding area with suburban influences to the east was relatively consistent from the period of 1990 to the present. In the latter part of that period residential development towards the east in Rathcoole has increased.

The number of local residential and non-residential receptors surrounding the Site over the assessment period have been identified in Table 3.9. These have also been displayed in Figure 3.4 to Figure 3.10, with the legend for maps provided in Figure 3.3. The area imaged in the 1991 aerial was constrained to the immediate area surrounding the Development, and therefore this assessment assumes the number of receptors surrounding the Development in 1991 was the same as that in 1994. Furthermore, it is assumed that the receptors which are identified in 1991 were also present at the start of the rEIA assessment period (1990).

Three properties owned by the Applicant and located within their land holding have been identified. The number of both residential dwellings and non-residential commercial/industrial premises within 500 m of the Site was found to have increased over the assessment period.

Table 3.9: Third-party local residential and non-residential receptors surrounding the Site from 1991 to 2020.

Year	0 - 250 m Residential	0 - 250 m Non-Residential	250 - 500 m Residential	250 - 500 m Non-Residential
1991	13	5	21	5
1994	13	5	21	5
2000	13	6	22	5
2004	15	6	22	5
2012	16	7	23	5
2016	16	7	23	5
2020	16	8	23	5

Legend

- LBAR Properties
- Residential Receptors Within 250 m of EIA Boundary
- ▲ Non-Residential Receptors Within 250 m of EIA Boundary
- Residential Receptors Within 500 m of EIA Boundary
- ▲ Non-Residential Receptors Within 500 m of EIA Boundary
- EIA Boundary
- 250 m offset from EIA Boundary
- 500 m offset from EIA Boundary

Figure 3.3: Legend for Figures of residential and non-residential premises within 500 m of the EIA boundary.

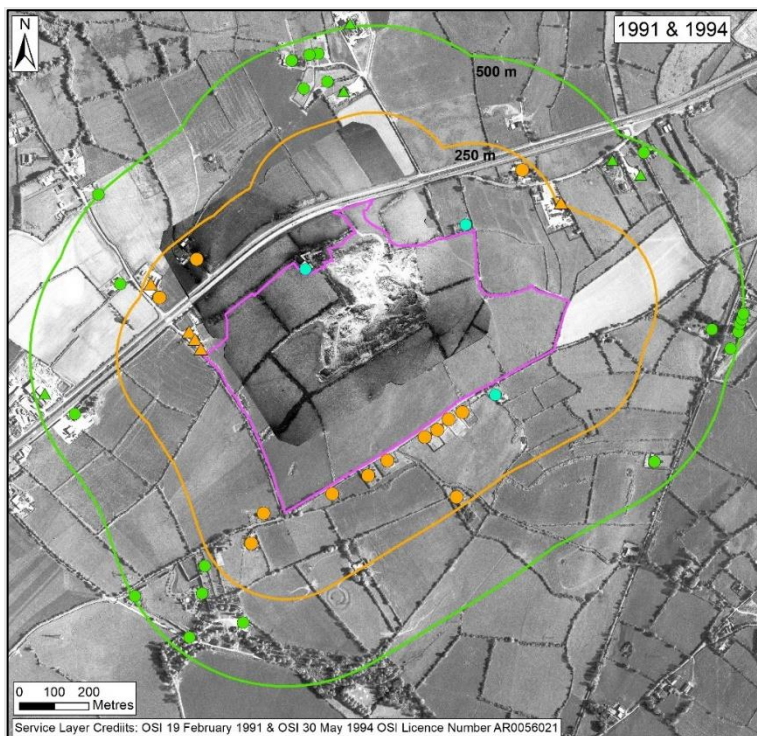


Figure 3.4: rEIAR boundary with 1991 aerial image (underlying the Site), 1994 aerial image (underlying the surrounding environment), and receptors within 250 m and 500m.

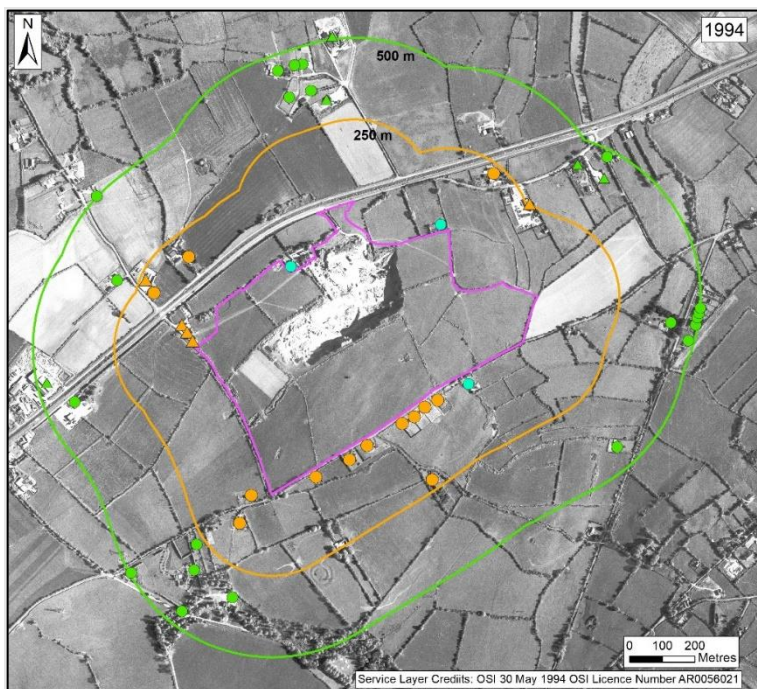


Figure 3.5: rEIAR boundary with 1994 aerial image, and receptors within 250 m and 500m.

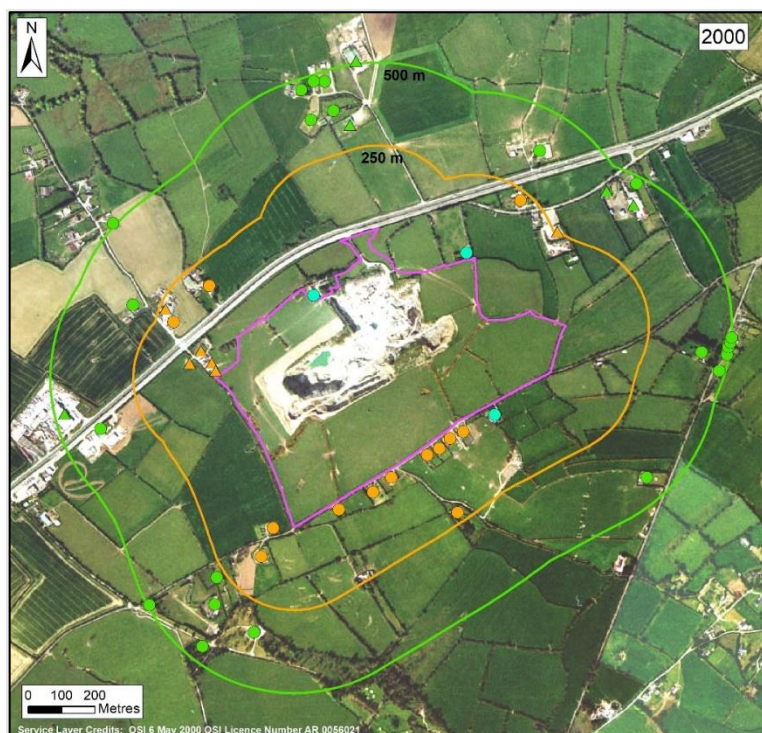


Figure 3.6: rEIAR boundary with 2000 aerial image, and receptors within 250 m and 500m.

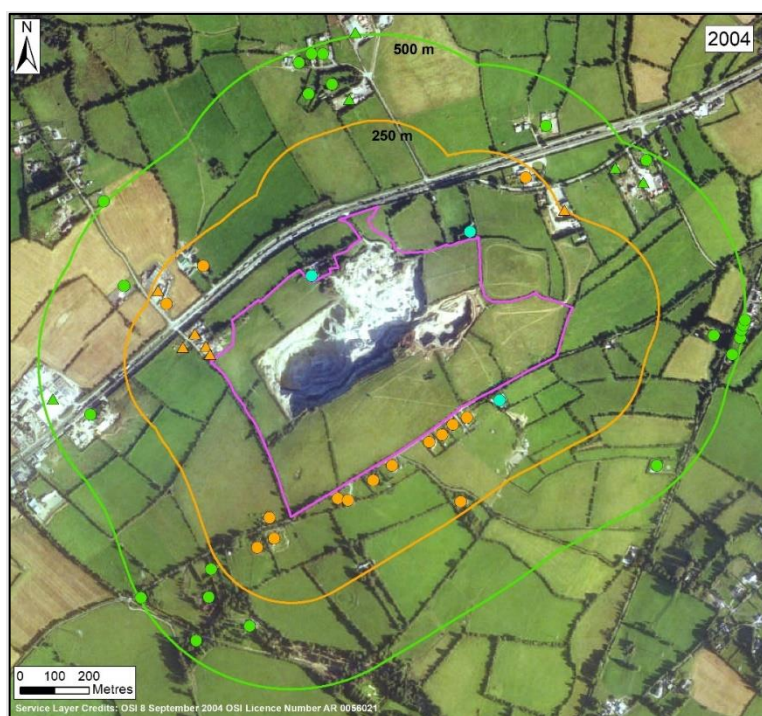


Figure 3.7: rEIAR boundary with 2004 aerial image, and receptors within 250 m and 500m.

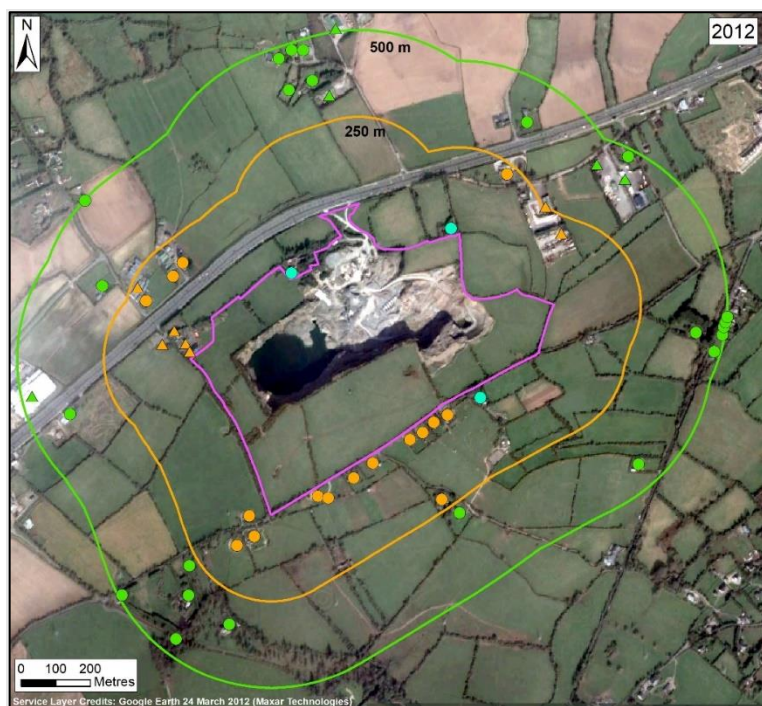


Figure 3.8: rEIAR boundary with 2012 aerial image, and receptors within 250 m and 500m.



Figure 3.9: rEIAR boundary with 2016 aerial image, and receptors within 250 m and 500m.



Figure 3.10: rEIAR boundary with 2020 aerial image, and receptors within 250 m and 500m.

3.3.2 Population

The lands subject to this rEIAR do not hold a resident population. Three properties owned by the Applicant have been identified within 250 m of the Site, (which are within the Applicant's overall land holding). The lands hold a sessional population in the form of workers at the Site. Impacts to such have been described in Section 3.3.3, Employment.

The Site is located within the ED of Rathcoole, (CSO Area Code ED 03021), which has an area of 15.6 km².

Table 3.10 summarises population statistics for the State, Leinster, South Dublin and the Rathcoole Electoral Division (ED). The percentage population increase has been calculated between the Census periods of 1991, 1996, 2002, 2006, 2011 and 2016.

Generally consistent increases in population were observed in the State, Leinster and Co. Dublin over the Census periods. Subsequent lower rates of population increase were observed in the period of 2011 to 2016.

The population of Rathcoole ED decreased over the Census periods of 1991 to 2002. During these periods, the population increased in the county, regionally and nationally. Between 2002 and 2011 the population of Rathcoole ED increased by greater proportions than was observed in the county, regionally and nationally. An increase in population was observed between 2011 and 2016 within the Rathcoole ED which was consistent with increases in South Dublin, Dublin and Leinster for that period.

The higher rates of population increase observed between 2002 and 2011 can be attributed to the economic growth of the mid 2000s and the development within the surrounds of Rathcoole during that period.

Population data subsequent to 2016 is not available for the Rathcoole ED; however, it is anticipated that large increases of the local population have taken place due to the development of housing estates between the Site and Rathcoole Village.

Table 3.10: Populations recorded during the 1991 to 2016 census period, (Central Statistics Office).

Area	1991	1996	2002	2006	2011	2016
State	3,525,719	3,626,087	3,917,203	4,239,848	4,588,252	4,761,865
Leinster	1,860,949	1,924,702	2,105,579	2,295,123	2,504,814	2,634,403
Dublin	1,025,304	1,058,264	1,122,821	1,187,176	1,273,069	1,347,359
South Dublin	208,739	218,728	238,835	246,935	265,205	278,767
Rathcoole ED	3,575	3,448	3,204	3,614	4,740	5,009

Table 3.11: Population dynamics (% change) from 1991 to 2016, (Central Statistics Office).

Area	1991 to 1996	1996 to 2002	2002 to 2006	2006 to 2011	2011 to 2016
State	2.85	8.03	8.24	8.22	3.78
Leinster	3.43	9.40	9.00	9.14	5.17
Dublin	3.21	6.10	5.73	7.24	5.84
South Dublin	4.79	9.19	3.39	7.40	5.11
Rathcoole ED	-3.55	-7.08	12.80	31.16	5.68

A total of 39 No. existing third-party residential dwellings are found to be currently within 500 m of the Site boundary, of these 16 No. receptors are located within 250 m of the Site boundary. The number of residences is based on a field survey, a review of aerial photography during the assessment period, DCCAE Eircode mapping and a local authority planning permission search.

In comparison to the 1991/1994 aerial, 34 No. third-party residential dwellings were found to be within 500 m of the Site boundary, (Table 3.9). Over the study period there have been 5 residential receptors developed in the area surrounding the Site.

Population Age Distribution

Table 3.12 summarises the percentage population distribution by age for the State, South Dublin and Rathcoole ED. The population age distribution percentages have been calculated for the available Census periods for the relevant population areas.

From a comparison of the increases in the age 0-14 and 30-44 demographics between 2006 and 2016 it is indicated that there was an increase in younger families within the area.

The size of the over 65 age group within the Rathcoole ED increased proportionally with those groups in the South Dublin area and the State as a whole for the same period. Decreases in the proportional size of the 15-29 age group were also evident across the Rathcoole ED, South Dublin and the State for the same period.

Table 3.12: Population Age Distribution, (Central Statistics Office)

Year	Area	% Aged 0-14	% Aged 15-29	% Aged 30-44	% Aged 45-64	% Aged 65+
2016	State	21.1	18.4	23.3	23.8	13.4
2011	State	21.3	20.5	23.7	22.7	11.7
2006	State	20.4	23.7	22.9	21.9	11.0
2002	State	21.1	24.4	22.1	21.2	11.1
1996	State	23.7	24.6	20.9	19.4	11.4
1991	State	26.7	24.0	20.2	17.6	11.4
2016	South Dublin	23.0	18.7	24.9	22.3	11.1

2011	South Dublin	23.1	21.8	24.3	22.1	8.7
2006	South Dublin	21.7	26.4	23.0	21.6	7.2
2002	South Dublin	22.5	27.8	22.9	20.6	6.3
1996	South Dublin	27.1	26.8	23.1	17.8	5.2
2016	Rathcoole ED	22.7	14.1	31.0	17.0	15.2
2011	Rathcoole ED	17.0	21.1	24.9	23.5	13.5
2006	Rathcoole ED	14.4	27.1	20.4	28.2	10

Population Density

Table 3.13 summarises population densities for the State, Leinster, Co. Dublin, South Dublin and the Rathcoole ED. The population densities have been calculated between the Census periods of 1991, 1996, 2002, 2006, 2011 and 2016.

As expected from the increased populations, the population densities also increased in the State, province and county areas of the Census periods. Proportionally larger increases were evident in Dublin, South Dublin and the Rathcoole ED owing to the influence of development in the greater Dublin area during this period.

The population density of the Rathcoole ED is still much higher than that observed in the state and Province and lower than Dublin County which reflects the semi rural and semi suburban nature of the area as it is located on the outskirts of Dublin City.

Table 3.13: Population Density (persons per square kilometre) from 1991 to 2016, (Central Statistics Office)

Area	Size km ²	1991	1996	2002	2006	2011	2016
State	70,273	50.2	51.6	55.7	60.3	65.3	67.8
Leinster	19,800	94.0	97.2	106.3	115.9	126.5	133.1
Dublin	922.3	1,111.7	1,147.4	1,217.4	1,287.2	1,380.3	1,460.9
South Dublin	223.6	933.5	978.2	1,068.1	1,104.4	1,186.1	1,246.7
Rathcoole ED	15.8	226.3	218.2	202.8	228.7	300.0	317.0

Households

Table 3.14 summarises the number of households and persons per household for the State, South Dublin and the Rathcoole ED. The statistics have been calculated for the available Census periods of 2006 and 2016.

It can be noted that the increases and decreases in the average size of households are relatively consistent for the Rathcoole ED, South Dublin, and the State for the same periods.

Table 3.14: Households from 2006 to 2016, (Central Statistics Office)

Area	2006			2011			2016		
	Household	People	Avg. No. Persons per Household	Household	People	Avg. No. Persons per Household	Household	People	Avg. No. Persons per Household
State	1,469,521	4,123,318	2.81	1,654,208	4,510,409	2.73	1,702,289	4,676,648	2.75
South Dublin	80,631	244,462	3.03	90,019	263,723	2.93	92,523	277,168	3.00
Rathcoole ED	1,251	3,569	2.85	1,578	4,228	2.68	1,766	4,976	2.82

3.3.3 Employment / Local Economies

Employment at the Site

There is no consolidated methodology or practice for assessing the impact on employment in EPA guidance. The impacts of the Site on employment have therefore been assessed qualitatively based on the number of jobs which the Site has created. The Site has provided direct and indirect employment. Direct jobs include the workforce employed by the Applicant directly at the site during the assessment period. Indirect employment includes those created in the supply chain to provide input (e.g. fuels), specialist labour (e.g. contract drivers) and services (e.g. equipment maintenance) for the site and workforce.

The numbers of employees which the Site has directly employed over the assessment period has varied due to increases and decreases of demand for aggregate products from the construction industry. However, the Site has provided consistent employment for approximately 40 staff.

Principal Status

Table 3.15 summarises the employment status of the persons aged 15 years or older in South Dublin and the Rathcoole ED. As identified in Table 3.12 this equates to 77.0% (2016), 76.9% (2011) and 78.3% (2006) in South Dublin and 78.3% (2016), 83.0% (2011) and 85.6% (2006) in the Rathcoole ED. Similar and directly comparable data was unavailable for the period of 1990 to 2006, however it is considered that the cumulative employment status of the persons aged 15 years or older would be less than 2006 with a gradual rise exhibited in the data from 1990. The rise in the principal economic status would be owing to the economic growth up to that period and its peak in 2006/2007 prior to the economic downturn.

Between the periods of 2011 and 2016 it is evident that the percentage of those 'Unemployed having lost or given up previous job' has decreased within the respective populations, (Table 3.15). This is attributed to the rebound in the national economy following the banking crisis and recession prior to 2011.

Table 3.15: Principal Status of Persons 15 years and older in South Dublin and Rathcoole ED, in 2006, 2011 and 2016, (Central Statistics Office)

Status	South Dublin 2006 (%)	South Dublin 2011 (%)	South Dublin 2016 (%)	Rathcoole ED 2006 (%)	Rathcoole ED 2011 (%)	Rathcoole ED 2016 (%)
At work	61.7	52.2	55.5	65.0	54.2	59.9
Looking for first regular job	0.9	1.2	0.9	0.7	0.5	0.6
Unemployed having lost or given up previous job	5.2	11.6	7.6	3.6	10.2	4.8
Student	10.3	10.9	11.1	7.8	7.8	7.1
Looking after home/family	10.0	9.4	8.0	9.5	10.2	7.8
Retired	7.9	10.1	12.7	10.1	13.5	16.5
Unable to work due to permanent sickness or disability	3.8	4.3	3.9	3.1	3.3	3.0
Other	0.3	0.2	0.3	0.3	0.3	0.3

Employment Industry

Table 3.16, Table 3.17 and Table 3.18 summarise the percentage of persons aged 15 years or older per employment industry in the State, South Dublin and the Rathcoole ED. Given that South Dublin and the Rathcoole ED are suburban in the Greater Dublin Area it is expected that the percentage of the population involved in the 'agriculture, forestry and fishing' Census industry would be less than the national averages.

Employment industries where the percentage of persons in Rathcoole ED are above the national average and that for South Dublin include; 'building and construction' within which the quarry land use would fall. Besides 'commerce and trade', and 'transportation and communications', which are also slightly higher than the national average, the identified employment industries are in line with the national averages.

Similar and directly comparable data was unavailable for the period of 1990 to 2006 as employment categories and methods of recording same altered between censuses, however South Dublin County Development Board commissioned an Economic Audit for the county in 2004 to meet an objective in the County Strategy 2002-2012 that provides some insight into employment trends since baseline. This audit records the observed changing nature of work over the period 1996 – 2002 to a greater proportion of people employed in the services industries within the administrative area reflecting the development of business parks within the county, its proximity to Dublin City and the increasing urbanisation of the county. At 2002 the study shows a greater number of people proportionately employed in 'mining, quarrying and turf production' in South Dublin than other authorities within the Dublin metropolitan area albeit this was the subcategory of employment type with the lowest number of employees, Figure 3.11.

Table 3.16: Percentage persons in work by industry, 2016, (Central Statistics Office)

Industry	State (%)	South Dublin (%)	Rathcoole ED (%)
Agriculture, forestry and fishing	4.4	0.2	0.5
Building and construction	5.1	5.1	7.0
Manufacturing industries	11.4	8.8	11.0
Commerce and trade	23.9	27.9	28.8
Transport and communications	8.5	10.6	11.4
Public administration	5.3	5.8	5.1
Professional services	23.5	23.1	22.9
Other	17.8	18.5	13.3

Table 3.17: Percentage persons in work by industry, 2011, (Central Statistics Office)

Industry	State (%)	South Dublin (%)	Rathcoole ED (%)
Agriculture, forestry and fishing	5.1	0.2	0.8
Building and construction	4.8	4.6	5.5
Manufacturing industries	11.6	9.5	9.8
Commerce and trade	25.2	29.8	24.9
Transport and communications	8.1	10.6	9.3
Public administration	6.3	7.0	5.8
Professional services	23.5	23.6	19.6
Other	15.3	14.6	24.4

Table 3.18: Percentage persons in work by industry, 2006, (Central Statistics Office)

Industry	State (%)	South Dublin (%)	Rathcoole ED (%)
Agriculture, forestry and fishing	4.6	0.4	0.8
Building and construction	11.1	9.4	14.1
Manufacturing industries	13.6	11.3	13.7

Industry	State (%)	South Dublin (%)	Rathcoole ED (%)
Commerce and trade	27.1	33.5	27.9
Transport and communications	5.5	7.2	8.2
Public administration	5.2	6.2	5.3
Professional services	16.5	14.7	14.3
Other	16.3	17.3	15.7

Number of Persons at work by sector, South Dublin County and Dublin Metropolitan Area

Industry Sector	Dublin Metropolitan Area		South Dublin	
	Employment	% Total Employment	Employment	% Total Employment
Wholesale and retail trade	68,262	13.44%	18,999	17.26%
Manufacturing industries	54,412	10.71%	14,390	13.07%
Real estate, renting and business activities	71,977	14.17%	12,162	11.05%
Construction	32,334	6.36%	9,094	8.26%
Health and social work	43,380	8.54%	8,741	7.94%
Transport, storage and communications	41,260	8.12%	8,738	7.94%
Public administration and defence	32,056	6.31%	7,138	6.48%
Banking and financial services	37,604	7.40%	6,620	6.01%
Education	32,885	6.47%	6,252	5.68%
Other community, social and personal service activities	24,031	4.73%	4,757	4.32%
Hotels and restaurants	22,631	4.45%	4,512	4.10%
Electricity, gas and water supply	3,465	0.68%	755	0.69%
Agriculture, forestry and fishing	2,711	0.53%	411	0.37%
Mining, quarrying and turf production	349	0.07%	113	0.10%
Industry Not Stated	40,673	8.01%	7,419	6.74%
Total	508,030	100%	110,101	100%

Number of Persons at work by sector, South Dublin 1996 and 2002

Industry Sector	South Dublin 1996	South Dublin 2002	Change 1996 – 2002
Commerce, Insurance & Finance	27.19%	38.41%	+11.23%
Wholesale and retail trade			
Hotels and restaurants			
Transport, storage and communications			
Banking and financial services			
Professional Services	17.00%	17.94%	+0.94%
Education			
Health and social work			
Other community, social and personal service activities			
Manufacturing industries	19.47%	13.07%	-6.40%
Construction	6.97%	8.26%	+1.29%
Transport, storage and communications	8.03%	7.94%	-0.09%
Public administration and defence	7.45%	6.48%	-0.97%
Electricity, gas and water supply	0.97%	0.69%	-0.29%
Agriculture, forestry and fishing	0.44%	0.37%	-0.07%
Mining, quarrying and turf production	0.15%	0.10%	-0.05%
Industry not stated	12.33%	6.74%	-5.60%
Total employed	82,978	110,101	

Figure 3.11: Copies of Table 5.1 Number of Persons at work by sector, South Dublin County and Dublin Metropolitan Area, 2002, and Table 5.2 Number of Persons at work by sector, South Dublin 1996 and 2002 from An Economic Audit of South Dublin County 2004

Local Employment Centres

As previously described, the Site is situated close to the Kildare-Dublin border, just south of the N7 national road. The Site is in close proximity to the town of Rathcoole and due to the proximity to the N7 it is within short commuting distance to Dublin City.

Public transport routes and the N7 road provide vital linkages and strengthen the area's status as a centre for economic investment and activity, and as a commuter zone. Using the N7 road, Dublin city centre is approximately 30 minutes away by car, while Naas can be reached in less than 15 minutes. These infrastructure linkages have been well established in the area since 1990, however significant improvements have been made in the more recent years.

The Site is well positioned to serve the greater Dublin area and its location in a regional context has continued influence on the economic activity of the area. Such ease of access increases the attractiveness of the Site as a source of high value aggregate to meet the demands of the region. The ease of access also makes the area an ideal location for commuters. This is evident with the increases in population observed from 1990 to present.

There are a total of 8 No. existing non-residential industrial/commercial premises found to be currently within 250 m of the Site boundary. In addition, 5 commercial premisses were identified between 250 m and 500 m of the Site boundary. The number of these business premises are based on a field survey, a review of aerial photography during the assessment period, DCCA Eircode mapping and a local authority planning permission search.

In comparison to the 1991/1994 aerial, 10 No. industrial/commercial premises were found to be within 500 m of the Site boundary, (Table 3.9). Over the study period there have been 3 industrial/commercial premises established within 500 m of the Site. It is considered that given the nature of these businesses they could continue to operate without substantial harm if they were affected by a disruption from the Development.

3.3.4 Amenity

The subject lands do not offer amenity opportunities for the public being a private commercial enterprise. Please refer to Chapter 12.0 Landscape & Visual assessment for a rendition of the effect of the land use on the landscape of the area.

There are no community amenity lands or facilities within 500 m of the Site.

Infrastructure to the benefit of a wider population in the form of an upgraded N7 has been in place since approximately 2006 and is described in Chapter 11 (Traffic).

Beech Park Golf Club is located ca. 600 m to the south of the Site while Slade Valley Golf Club is located ca. 2.0 km to the south east, and Castlewarden Golf Club is located 2.1 km to the west.

Beech Park Golf Club was founded as a temporary course of nine holes in July of 1983, and as a full course which was opened in the summer of 1985, while Slade Valley Golf Club was founded in 1970 and the original design of Castlewarden Golf Club was created in 1990.

Other amenity areas surrounding the Site include the Slade Valley and Slievethoul walking trails located ca. 2.5 km to the south-east. Such trails have been in place and enjoyed since 1990. A number of public open spaces, parks and sport pitches within the towns of Rathcoole and Saggart to the east (ca. 1.5 – 3.5 km from the Site). These areas have been developed and improved as the wider development of Rathcoole and Saggart has progressed.

Local clubs and amenity areas presented above are utilised by the wider South Dublin and east Kildare communities and not just limited to the local population of the surrounding area.

There are no religious centres in the vicinity of the Site, (1 km).

3.3.5 Land Use and Development Patterns

The rEIA boundary for the Site is approximately 46.14 ha in area. This comprises lands which are currently used for quarrying activities and agricultural lands to the south. The Corine Landcover classification for the area bears the same Level 3 classification as the adjacent N7 (Road and Rail Network; Figure 3.12), however it is more appropriate to consider the area of land classified as 'Mineral Extraction Sites' which is typical of such rock quarries. The lands to the south, east and west are defined as 'Pastures'.

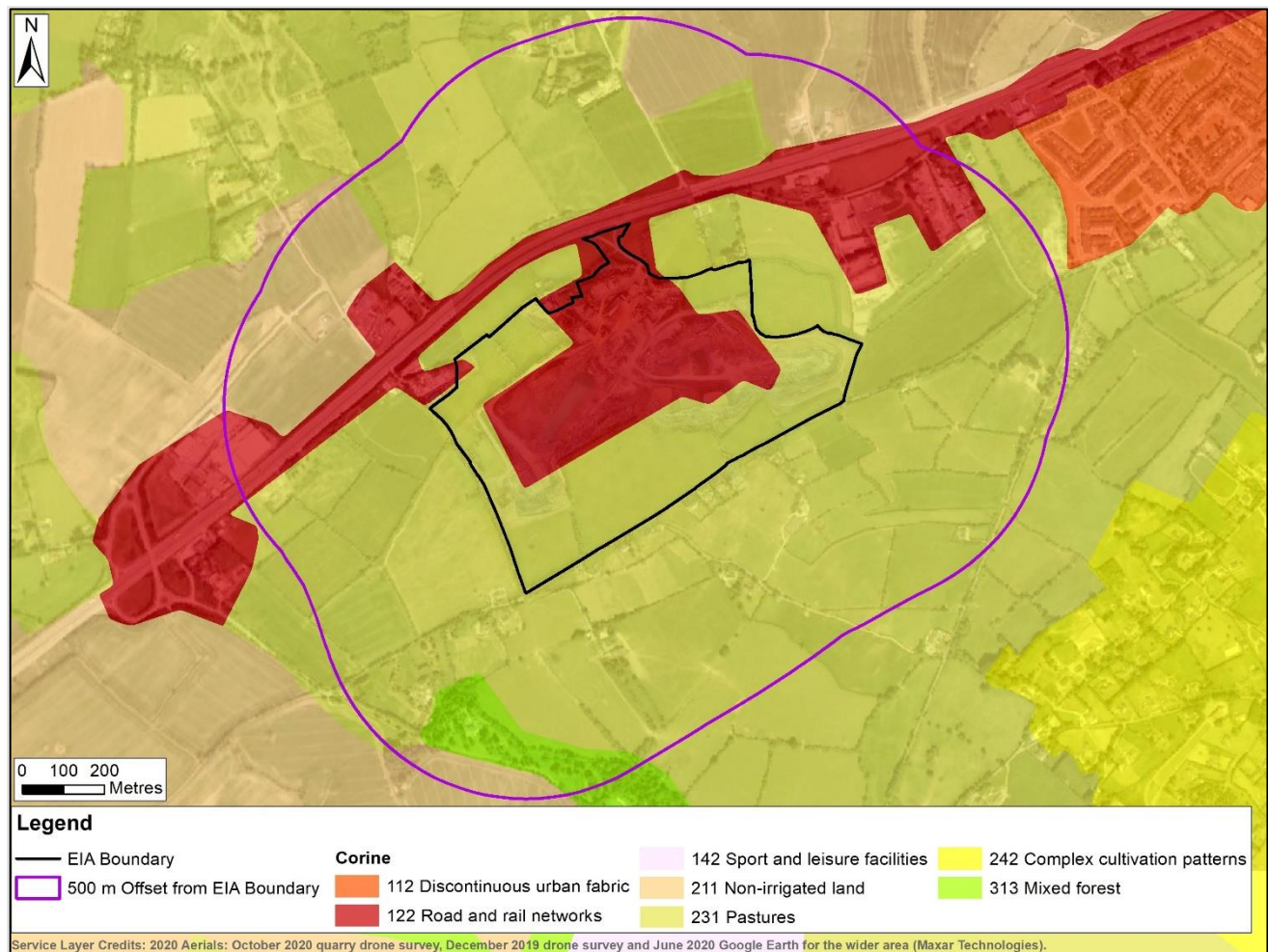


Figure 3.12: Corine Landcover classification for the Site.

The lands surrounding the Site to the north, west and south can be characterised as rural in nature, with land uses in the area being agricultural and single-house residential. Dry cattle sheep rearing and grazing of horses are the main activities in the area, with further arable activities to the south-west. Suburban development has extended from more built up areas of Rathcoole along the N7 towards the east of the Site. The nearest school and church to the site is located within Rathcoole ca. 2 km to the east of the site.

The rural nature of the surrounding area with suburban influences to the east was relatively consistent from the period of 1990 to the present. In the latter part of that period residential development towards the east in Rathcoole has increased.

There are no waste licenced or IE/IPC Licenced facilities within 1 km of the Site. Within 5 km of the Site, there are 6 No. EPA regulated activities;

- Saint Gobain Building Distribution (ROI) Limited (EPA Licence No. P0325-02), ca. 3.3 km to the south-west. Original Application made in October 1997;
- Brittas Plastics Ltd (EPA Licence No. P0150-01), ca. 3.3 km to the east. Original Application made in May 1996;
- BBALP Limited (EPA Licence No. P0275-01), ca. 4.5 km north-east. Original Application made in June 1997;
- Starrus Eco Holdings Limited (Greenogue) (EPA Licence No. W0188-01), ca. 3.0 km north-east. Original Application made in June 2003;
- Rilta Environmental Limited (EPA Licence No. W0192-03), ca. 3.0 km north-east. Original Application made in September 2003; and
- Rilta Environmental Limited (EPA Licence No. W0185-03), ca. 3.2 km north-east. Original Application made in April 2003.

Within 5 km of the Site, there are 4 No. consented Section 4 discharges:

- Johnston Haulage Co. Ltd, WPW/11/16, ca. 600 m west;
- Castlewarden Golf & Country Club, S4008-14, ca. 2.6 km west;
- Teehill Management Company Ltd, WP218/05, ca. 3.7 km south;
- Callighstown Enterprises, WPW/498/025, ca. 2.3 km south;
- Cathal Declan & Shane Ryan, S4009-15, ca. 4 km north-west;
- Concast Building Ltd, WPW/434/018, ca. 4.6 km north; and
- H.S.E., St Brigid's Nursing Home, WPW/504/026, ca. 3.9 km south-east.

There are two SEVESO sites within 5 km of the Site, one upper tier and one lower tier site. The closest SEVESO site is Dascher Ireland Limited (formerly Johnston Logistics Ltd), which is an upper tier SEVESO site and is located approximately 600 m to the west of the site. Brenntag Chemical Distribution (IRE) Limited, which is a lower tier site, is located within Greenogue Business Park approximately 3.1 km to the north-east of the site. These sites have been registered since ca. 2015 with the implementation of the Seveso III Directive (2012/18/EU) through the Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015), (the "COMAH Regulations").

3.3.6 Human Health

Table 3.19 summarises the general health of persons by percentage for the State, South Dublin and the Rathcoole ED for the 2016 and 2011 census periods. Similar and directly comparable data was unavailable for the period of 1990 to 2006 which presents as a difficulty in comparing Human Health earlier in the assessment period.

In the 2016 Census there was a greater percentage of persons in the Rathcoole ED (89.2 %) who classified themselves as being in 'Good' or 'Very Good' health in comparison with the average for the State (87.0%), or South Dublin (87.4 %). In 2011, this figure was comparatively lower in the Rathcoole ED, however it should be noted that the General Health was not disclosed by a greater percentage of the Rathcoole ED population (11.4 % 'Not stated').

The percentage of persons who classified themselves as being in 'Bad' or 'Very Bad' health in the Rathcoole ED in 2016 (0.9 %) was lower in comparison with the average for the State, or South Dublin (both 1.6 %). This figure was on par for the State, South Dublin and the Rathcoole ED for the 2011 census period, (all from 1.4 – 1.5 %).

Table 3.19: General Health percentage of the population, (Central Statistics Office)

General Health	2016 State (%)	2016 South Dublin (%)	2016 Rathcoole ED (%)
Very good	59.4	60.1	60.8
Good	27.6	27.2	28.4
Fair	8.0	7.4	7.2
Bad	1.3	1.3	0.9
Very bad	0.3	0.3	0.2
Not stated	3.3	3.7	2.5
General Health	2011 State (%)	2011 South Dublin (%)	2011 Rathcoole ED (%)
Very good	60.3	61.8	54.1
Good	28.0	27.3	26.1
Fair	8.0	7.1	7.0
Bad	1.2	1.2	1.3
Very bad	0.3	0.3	0.1
Not stated	2.2	2.4	11.4

3.3.7 Health and Safety

L. Behan Aggregates and Recycling Ltd. are committed to health and safety at their operations. The Site Manager is and has been responsible for safety management on the Site, and this has been the management process for the assessment period. The Manager is also responsible for the working environment, traffic management, emergency procedures, first-aid arrangements and safe systems of work.

The Site is required to meet conditions of existing consents and certain statutes. In particular, the relevant Health & Safety legislation (Safety, Health & Welfare at Work Act, 2005, the Mines and Quarries Act, 1965) and subsequent Health and Safety Regulations and Quarries Regulations relating to safety health and safety, training, appropriate site management.

The Site has operated in accordance with a site specific safety statement and associated risk assessments, (L. Behan Aggregates and Recycling Ltd, Safety Statement, Revision 08 January 2020)

The Site is fully fenced with any agricultural entrance permanently closed and locked. Boundaries have been inspected at regular intervals over the life of the quarry and the quarry manager would action repairs as appropriate.

The only vehicular entrances in operation is that from the N7. The lands are remotely secured via CCTV cameras with 24-hour monitoring. The site has alarm systems installed on the office, laboratory, workshop and other enclosed buildings. The entrance to the Site is secured by an electric gate. There is no requirement for lighting outside of the subject lands but within the lands, certain working hours (after dark in winter periods) necessitate lighting that is extinguished when the site is closed thus causing no external light pollution.

3.4 Characteristics of the Development

The lands the subject of this rEIAR extend to approximately 46.14 ha. at the centre of a landholding in the control of the applicant of approximately 73 ha. This Remedial Environmental Impact Assessment Report (rEIAR) has been prepared to accompany a substitute consent application for an existing quarry at Windmillhill, Rathcoole, Co. Dublin.

The substitute consent application is to be made concurrent with an application for further development of the quarry for extraction to be made under S.37L of the Planning and Development Act, 2000 as amended that is accompanied by an EIAR.

As stated above, the lands the subject of this rEIAR extend to 46.14 ha. that reflect historic operational site information including the extractable area declared under S.261 quarry registration in 2005. The quarry area that makes up the application for substitute consent planning unit currently extends to approximately 28.8 ha. at the centre of the EIA project area that is generally bounded by the N/M7 to the north and the local Windmillhill Road to the south. The eastern and western EIA project boundaries are demarcated by the Windmillhill townland boundary that consist of field boundaries and the entrance to a dwelling called 'Four Winds' that is within the ownership of the developer to the east; and the former local Athgoe Road to the west.

The current quarry site is accessed toward the centre of its northern boundary from the N/M7 and has been accessed from that road since grant of planning permission for stone quarrying on site in 1968 (under Reg. Ref. 11547). The current quarry void is centrally located within the EIA unit and roughly rectangular in shape with an east – west orientation, parallel to the N/M7 and local Windmillhill Road. At the centre of the current quarry area is the existing administration and processing plant area over approximately 3.06 ha.

At baseline in 1990 the quarried area has been determined in the Land, Soils and Geology Section of this rEIAR to extend to 10.1 ha. and at 2021 to have expanded laterally to 28.87 ha. with a current average working depth of 173 mAOD.

3.4.1 Embedded Mitigation

The initial assessment of the significance of potential effects resulting from the Development takes into consideration any embedded design and implemented Site management practices undertaken during the assessment period of 1990 to 2021. These elements of the 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 safety health and safety, training, appropriate site management;
- Fencing is actively maintained at the Site to ensure that the risk of injury to civilians and livestock is minimised. The entrance gate is locked and controlled by the sites' management;
- Exposed edges in the quarry are fenced or protected with safety berms;
- Blasting takes place at the Site using licenced and experienced operators.
- The implementation of Site management practices to mitigate the impact to air quality, as identified in Chapter 7 of this rEIAR, including:
 - Use of wet suppression of dust during dry period, and the maintenance of physical screening of activities.

- The design and nature of the Development is such that the floor of the quarry has gradually lowered during the assessment period which has resulted in the quarry face and benches providing natural screening;
- Use of wheel wash to minimise dust transmission from HGVs, and the covering of loads during drier periods
- The implementation of Site management practices to mitigate the impact to noise, as identified in Chapter 8 of this rEIAR, 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 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.
- The implementation of Site management practices to mitigate the impact to the water environment, as identified in Chapter 6 of this rEIAR, including:
 - Safe storage and handling of hazardous substances;
 - Maintenance of equipment and plan to ensure there are no leakages of fuels, oils and potentially contaminating substances;
- The removal of soils was conducted in phases and remain on site as formed berms over the period of 1990 to 2021 to reduce the overall potential impact on the land use and underlying groundwater;
- The Site's traffic routes have been linked directly onto the N7 during the assessment period which mitigates the impacts on non-motorised road users as there is no need for HGVs and other vehicles to traverse local roads surrounding the Site, e.g. the L6065 to the south of the Site.

3.5 Potential Effects

The main potential impacts and associated effects that will be considered in the assessment relate to the following:

- Activities or events that might impact size, density and composition of the local population or community;
- Activities or events which may impact or disrupt local employment and businesses surrounding the Site;
- Activities or events which may impact local amenity including: tourism attractions, local sport and recreation areas, designated and undesignated community lands, and religious centres;
- Activities or events which could impact local land use including agriculture and other industry;
- Activities or events which could impact local populations or at-risk members of the local community. As identified in guidance documents from the European Commission and the Department of Housing, Planning and Local Government (DHPLG) the assessment of impacts on population and human health should focus on health issues and environmental hazards resulting from other environmental factors (those

identified in Article 3(1) of the EIA Directive (2014/52/EU)), and does not require a wider consideration of human health effects which do not relate to those factors. The EPA's 2017 draft 'Guidelines on the information to be contained in environmental impact assessment reports' also identify that *'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'*;

- Activities or events which could impact persons employed at the site (direct staff and contractors) and members of the community, including non-motorised road users.

These potential impacts during the assessment period of 1990 to 2021 are considered and assessed in the following sections.

Given the nature of the rEIAR and the Substitute Consent process the potential impacts of a 'Do Nothing' scenario if the development were not operating during this period has not been considered.

The occurrence of major accidents and disasters has been considered in Chapter 3 (Project Description) of this rEIAR.

3.5.1 Population

Potential impacts from the Site which may have affected local populations during the assessment period include nuisance from noise, vibration, dusts, landscape and visuals impacts, and impacts to groundwater. The potential extent of these will be limited to the local community surrounding the Site. As identified in Section 3.2.5, the geographical study area for the assessment covers the development area and a buffer zone of 500 m from the rEIAR study boundary. Assessment of potential impacts to the population of this local community will be based on residents living closest to the Site and within this 500 m buffer area. These potential impacts have been assessed in the respective chapters of: Soils and Geology (Chapter 5), Water (Chapter 6), Air Quality and Climate (Chapter 7), Noise and Vibration (Chapter 8); and Landscape and Visual (Chapter 10).

A total of 39 No. existing residential dwellings are found to be currently within 500 m of the Site boundary, compared with 34 No. dwellings on the 1994 aerial for the Site. Of those identified in 2020, 16 No. residential receptors are located within 250 m of the Site boundary, whilst 13 No. were identified in 1994. It is noted that residential development and population increase in the Rathcoole ED has increased during the assessment period, and in the latter years this has increased at faster rates than those seen regionally or in the State.

These receptors are valued with a 'High' sensitivity. Based on the assessment of environmental impacts (identified above) in other chapters of this rEIAR it is considered that the magnitude of impact on the population dynamics of the local community has been **'Low' and 'Adverse'**.

The populations within the surrounding area have increased during the assessment period and it is considered that the Site has had a **negligible (adverse)** direct or indirect impact on the population size, age distribution, density and household composition in the study area or in the Rathcoole ED during the same period.

Employment levels at the Site have increased during the assessment period, however the potential direct impact on local population growth due to workers migrating to the area was **negligible and adverse**.

3.5.2 Employment

Employment at the Site

The receptor which has potential to experience employment effects is the workforce at the Site and the surrounding area. This includes the construction industry and the local supply chain. No sensitivity values are assigned to receptors with potential to experience employment effects.

The numbers of employees which the Site has directly employed over the assessment period has varied due to increases and decrease of demand for aggregate products from the construction industry. In 1990 there were approximately 42 people employed directly and indirectly at the Site. Through the assessment period the Site has provided consistent employment for staff and during years of economic prosperity and this figure increased in line with strategic demand. Currently the Site continues to support approximately 40 employees direct and indirect, including direct, staff, contractors and truck drivers.

There is also indirect employment in the supply chain to provide material, specialist labour and services for the workforce. Based on the information available at present, it is not possible to quantify the extent of the indirect employment created, however, during the assessment period it is expected to have been in the order of 25 to 33% of direct employment, based on estimated additional jobs created in similar projects. In conclusion, given the size, nature and duration of the Site during the assessment period, and the creation of long-term employment in the surrounding area. The Site is considered to have a **low and beneficial** impact on employment.

Local Businesses

A total of 13 commercial premisses were identified within 500 m of the Site boundary in 2020. In comparison to the 1994 aerial, 10 No. commercial premisses were identified.

The commercial enterprises identified in the current surrounds of the Site include:

- Dascher Ireland Ltd;
- Hardware Association Ireland;
- A number of car service and repair business at Windmill View (west of the Site);
- MCD Landscapes;
- Barlett Tree Experts;
- Max Pallet Services;
- Blue Cat AdBlue Solutions; and
- Stanley Asphalt Ltd.

The commercial enterprises identified in the surrounds of the Site in the 1991/1994 aerial would have been likely to be present at the beginning of the assessment period 1990.

The difficulty in compiling an accurate list of businesses in the locality of the Site over the assessment period should be noted, however given the more rural nature of the site surrounds earlier in the assessment period it is considered that more businesses exist currently. Given that there are more local businesses now, and that production on site is greater currently than earlier in the assessment period, it is considered that it is a more conservative assessment to consider the current impacts to local businesses.

Given the distance from the Site and the nature of the small number of local businesses within the surrounding study area, it is considered that these businesses could continue to operate without substantial harm if affected by a disruption, thereby classifying them with a 'Low' environmental sensitivity value. During the assessment period it is considered that the magnitude of impact from the Site on these local businesses has been **negligible and adverse**.

Rural Enterprise

As there is no prescriptive guidance, a qualitative assessment of the potential impact of the Site on rural enterprises has been undertaken using professional judgement. The area is designated for rural development

under its land use zoning objective. Several agricultural land holdings that operate as rural enterprises have been identified within the study area. The main potential impact is likely to be from noise, vibration and dust and potential disruption of field drainage systems. It is considered that these practices have a low sensitivity and are of a nature which could continue to operate without substantial harm if affected by disruption from the Development.

The Site has not created permanent changes to the spatial relationship of rural enterprises to any key infrastructure which could have resulted in damage to the enterprises and compromised its viability, therefore it is considered that the Development has had a **negligible and adverse** impact during the assessment period of 1990 to 2021.

3.5.3 Amenity

As noted, factors such as air quality, noise nuisance, vibration, traffic and landscape and visual impacts can impact the amenity of an area. These issues have been assessed separately in the respective chapters of this rEIAR. Specific impacts on surrounding Material Assets have also been assessed in a dedicated chapter.

There are no community amenity lands or facilities within 500 m of the Site. Community and amenity areas have been identified outside the study area. These lands include a number of golf clubs, public open spaces, parks and sport pitches. Some of these areas have been enjoyed prior to the assessment period (pre-1990) while others have been developed and improved as the wider development of Rathcoole and Saggart has progressed between 1990 and 2021.

These areas (which include local designated green space / community facilities) are considered valuable to the local communities and have been valued with a high environmental sensitivity. Given the distance of the amenity areas from the Site it is considered that they would have perceived a **negligible and adverse** magnitude of impact during the assessment period.

3.5.4 Land Use and Development Patterns

The subject quarry at Windmill Hill was first developed in the 18th century and expanded in the 1960's when the Naas - Dublin dual carriageway construction work commenced. Quarrying activities at the Site have gradually increased in the subsequent years. With respect to social considerations, there has been little or no change to local activities in the vicinity of the Site during the assessment period as a result of quarrying activities, with the mainstay of local activities being agriculturally based.

It is important to acknowledge that aggregate resources can only be worked where they naturally occur. The operation of the Site incorporated land take from surrounding agricultural lands for extractive use. The CSO's Census of Agriculture 2020 identifies that the Utilised Agricultural Area (UAA) in the county of Dublin (excluding commonage) was ca. 37,963 ha. Given that the surrounding agricultural lands transcend the border of Dublin and Kildare the UAA in 2020 for Kildare was noted to be ca. 113,765 ha., (excluding commonage). The extension of the Site into adjacent grassland and agricultural lands encompassed ca. 18.0 ha during the assessment period.

These adjacent farmlands were compatible with arable crop production and grazing of livestock for dairy practices, thereby having a 'Medium' environmental sensitivity. The loss of ca. 18.0 ha of agricultural lands represents less than ca. 0.0004 % of the UAA in Dublin, and 0.0002 % of the UAA in Kildare based on 2020 figures. This qualitative assessment of land-use impacts has been undertaken using professional judgement. Given the size of lands exploited for extraction during the period of 1990 to 2021 and the wide availability of such lands in the locality it is considered that the magnitude of this impact would affect a small number of rural enterprises and would have little damage to these enterprises. The magnitude of impact has been classified as **negligible and adverse**.

The intended development pattern for the Site and surrounding area is set out in the Development Plan for South Dublin County 2016 -2022, described at Section 3.2.6 and Figure 3.2, that indicate the current underlying land use zoning objective as 'RU' (rural) with:

- A specific objectives for; Traveller Accommodation 'sites to be selected', and the preservation of the identified Windmill Hill Record Protected Structure (RPS) No. 358; and
- Conservation objectives for Windmill Hill RPS No. 358, a Prospect at Windmill Hill, and protection of View on Windmill Hill Road.

A record of the historic Development Plan objectives for the Site are also in Section 3.2.6. Current development objectives are more numerate than in the past, however the underlying land use objective considered appropriate for the Site has remained generally rural since baseline with extractive industry recognised as occurring within the rural area. In this way, the predominate Site quarrying land use has not been at odds in principle with the development objectives of the relevant Development Plans since baseline. Ancillary plant and welfare facilities installed on site service arise from this quarrying use and are subsidiary to it.

As is evident in Table 2.1 (Chapter 2), since baseline, from 2005 to 2017, the Site held waste permits or certificates of registration issued under the Waste Management Act, 1996 and associated Regulations. These related to the recovery of inert C&D material within the site. Over 2005 to 2012 a maximum of 5,000 tonnes per year of recycled asphalt plainings (RAP) was imported to be used as fill for haul roads. From 2013 to 2018 a maximum of 10,000 tonnes per year of RAP was imported for reuse as an input in asphalt production. In this way a maximum of 35,000 tonnes of recycled bituminous material used for haul road fill was recovered on the site. The volume and type of material imported is ancillary to the primary quarrying land use. In addition, an application for waste recovery was lodged on Site lands in 2008. This was ultimately refused permission in 2009 and did not proceed.

Given the land use development objectives of succeeding Development Plans, and the extent and location of the Development, it is considered that these lands have a low sensitivity. It is considered that the magnitude of impact is **low and adverse**.

3.5.5 Human Health, and Health and Safety

Human Health

Potential impacts to human health from the effects of the Site relating to the water 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 affect the users of such water supplies.

Potential impacts to human health with regards to air quality include dust generating activities on the Site. Other impacts include increased concentrations of airborne particles and combustion emissions due to the asphalt plant and exhaust emissions from diesel powered vehicles/equipment used on-site and other vehicles accessing the Site.

Impacts to human health from excess noise and vibration on-site may result in; hearing loss and various vibration syndromes of workers from high level occupational exposure. Off-site impacts include the annoyance and effects on mental health in the surrounding residential receptors.

The companion chapters of this rEIAR define and assess the predicted impact of the development and set out mitigation measures from the perspective of discrete environmental factors. These chapters have determined that the assimilative capacities of those environmental factors are sufficient, with mitigation measures, to accommodate the Development without significant negative impacts it is considered that the human health has

been protected. However, for this assumption to be drawn the mitigation measures set out in each chapter of the rEIAR must be implemented.

Air Quality

Potential air quality impacts to human health from the Development have been assessed in Chapter 7 (Air Quality and Climate) of the rEIAR. The factors relevant to human health considered in the assessment are the generation of fugitive and combustion emissions (dust, PM₁₀, PM_{2.5}, NO₂ and SO₂) from site activities.

Fine particulates such as PM_{2.5} and PM₁₀ have a potential for negative effects on human health and may arise primarily from vehicle emissions and may have arisen during the operation of the quarry. Of these finer particulates, the IAQM (2016)¹ guidance states that quarries are more likely to experience suspended dust in the sub-coarse fraction (PM₁₀-PM_{2.5}) as opposed to the fine (PM_{2.5}) fraction. The suspension of fine particulates has been managed through the same mitigation measures employed for the management of deposited dust during the assessment period.

The assessment of traffic impacts predicted that vehicle movements associated with the historical operation of the Site has had an impact on air quality but has not significantly changed the pollutant concentrations in the area. In all cases the predicted change in air quality concentrations is considered negligible.

The impact of the previous operation of the asphalt manufacturing plant on the surrounding area is predicted to have likely been Not Significant, as the maximum predicted off-Site concentrations for hourly SO₂, hourly NO₂, annual NO₂, 24-hourly PM₁₀, annual PM₁₀, and annual PM_{2.5} are all below the relevant AQS limit values. This means that there has been no unacceptable impact at any off-Site location within the modelled domain as a result of the operation of the plant between 1990 and 2021. An exceedance of the 24-hour SO₂ AQS was predicted, however given both the conservative nature of the model assessment and the inaccessible locations at which these higher concentrations were predicted, it is considered unlikely that any unacceptable impact has resulted in the affected areas.

When considering all of the emissions to air associated with the historical operation of the Site, the historical impacts on the surrounding human health are considered to be Not Significant.

Water

A total of four groundwater monitoring wells are used to monitor groundwater quality and levels across the Site. Water quality monitoring undertaken in 2020 is provided in Chapter 6 (Water).

The results of the groundwater quality analysis at the Site were compared with the European Communities Environmental Objectives (Groundwater) Regulations regarding groundwater status, S.I. No.9/2010, including amendment S.I. No.366/2016; where a screening value does not exist, the EPA Interim Guideline Values for Groundwater Protection is applied.

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.

Whilst some parameters show elevated concentrations in the samples taken, there is no evidence of migration of contaminants from the Site in groundwater and therefore there is no perceived degradation of off-Site groundwater quality due to the activities at the Site. It is also noted that hydrocarbons were not detected in any of the 2020-2021 samples indicating good practices with regards to fuel management and vehicle maintenance

¹ IAQM; Guidance on the Assessment of Mineral Dust Impacts for Planning, 2016;

at the Site. It is therefore considered that there has been no significant risk of water related impacts from the Site on the surrounding human health.

Noise and Vibration

The impact of the proposed development in terms of noise and vibration is assessed in Chapter 8 of this rEIAR. 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 and extraction activities take place in the existing quarry void. Monitoring takes place to the south of the extraction area along the eastern and western boundaries. 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. Extraction activities have worked in a southerly direction and have therefore taken place closest to the residential receptors in the more recent years of the Development. Monitoring records for 2019 to 2021 show compliance with industry standards. The maximum PPV recorded was 10.6 mm/sec, which complies with the vibration limit. The maximum air-overpressure recorded was 124.8 dB(lin) and therefore complies with the vibration limit. It is considered that there has been no significant impact of vibration on human health surrounding the Site during the assessment period of the rEIAR.

The World Health Organisation's (WHO) 'Guidelines for Community Noise'² documents details that protect the majority of people from being seriously annoyed during the daytime, with the outdoor sound level from steady, continuous noise not to exceed 55 dB L_{Aeq} in outdoor living areas. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50 dB L_{Aeq}.

In Chapter 8 (Noise and Vibration), a conservative worst-case scenario noise prediction was carried out for four noise scenarios which would be typical of both 1990/1991 and 2020/2021 site operations. These are identified below.

- Scenario 1 – Baseline 1990 / 1991, excavation and processing of material;
- Scenario 2 – Baseline 1990 / 1991, loading and moving trucks;
- Scenario 3 – Current 2020 / 2021, excavation and processing of material; and
- Scenario 4 – Current 2020 / 2021, loading and moving trucks.

The scenarios of excavating and processing materials are the typical daytime operations at the site for that given period. The loading and moving trucks scenarios are those activities which may take place earlier on the morning or after the main excavation activities have ceased for the day.

For Scenario 1, the predicted noise levels at all third-party receptors were identified to be substantially below the daytime target level (55 dB(A) L_{Aeq}) during this conservatively predicted scenario for operations at the quarry in 1990 / 1991. Predicted noise levels at one property owned by the Applicant were noted to exceed the target level. Despite the exceedance in the target level, any significant noise effects experienced at that property would likely have been of short duration as the topography of the quarry changed significantly post 1991 such that the quarry wall would have provided greater screening. To note, the noise model has also made a number

² World Health Organisation (WHO), 1994, Berglund, B., Lindvall, T., and Schwela, D.H., Guidelines for Community Noise'.

of conservative assumptions (see Chapter 8 Noise and Vibration) and actual noise levels from quarry operations were likely lower.

It is considered that the noise effects at the closest sensitive receptors to the south of the Site would be more pronounced in the later years as the operations have progressed in that direction (south). For Scenario 2, Scenario 3 and Scenario 4, the predicted noise complied with the target level and therefore the noise impacts were evaluated as being of 'neutral' significance and are therefore 'not significant'.

In relation to the surrounding noise environment, it is important to note that this is dominated by road traffic noise from the N7 National Road due to its close proximity to the Site.

Health and Safety

The Applicant and business owner has been ultimately responsible for the health and safety management of the Site. The predominant health and safety concerns for the human environment surrounding the Site relate to the possibility of humans and livestock straying into the quarry area and from blast related activity at the Site.

With regard to the health and safety of workers on the Site, Health & Safety legislation in the form of the Safety, Health & Welfare at Work Act, (2005, as amended) was enacted during the assessment period, along with the secondary legislation or statutory instruments under the Act, such as the Safety, Health and Welfare at Work (General Application) Regulations 2007- 2020, and the Safety, Health and Welfare at Work (Quarries) Regulations 2008.

The applicant is committed to providing appropriate information, training and supervision to employees who will be operating at the Application Site, and their Safety Statement is reviewed annually at the Site.

The Site has confirmed that there have been no serious injuries or fatalities to employees, contractors or third-parties/members of the public during the assessment period of 1990 to present. The Site noted that the HSA have conducted two recent Site visits/inspections in December 2016 and February 2017 following an incident with a sub-contractor which was reported to them. The subcontractor complied with the recommendations of the HSA investigation to resolve the matter and reduce risk of further incidents.

A third visit was carried out by the HSA on 08 March 2021 which raised four items. These items were with regards to: work at heights, undertaking a geotechnical assessment of the quarry, providing an internal traffic management plan to the HSA, and including signage in certain areas to remind drivers to remain in cabs during loading. The Applicant has commissioned work to address these site-visit findings and is compiling a response to the HSA. With regards to geotechnical appraisals, it has been recommended for the emplacement of a catch-berm in a section to the south of the quarry where a face is structurally complex and has a number of intersecting discontinuities. Other areas in the north east require attention due to loose slopes and the lagoon requires attention to avoid possible weakening.

All site employees, contractors and subcontractors have been 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 has been used at the Application Site includes, safety glasses/goggles, hard hats, gloves and hearing protection.

The Proposed Development is well located and can be easily served by emergency services if required. The closest Accident and Emergency unit operates out of Tallaght University Hospital, Dublin 24. Fire emergency services for the Site operate from the relevant on call units in the Rathcoole and Tallaght area.

These staff and local populations are both valued with a 'High' sensitivity receptors. Based on the assessment of impacts (identified above) and embedded management measures employed at the Site it is considered that the Site has had a **negligible (adverse)** direct or indirect impact on health and safety.

Table 3.20: Evaluation of Initial Impacts and their Effect Significance

Receptor	Sensitivity	Source of Impact/Description of Change*	Impact Magnitude*	Level of Effect *
Local Populations / Communities	High	Change in local population community size, age distribution, density and household composition due to nuisance environmental emissions from the Site.	Negligible (adverse)	Slight
Local Populations / Communities	High	Change in local population community size, age distribution, density and household composition due to quarry workers migrating to the area.	Negligible (adverse)	Slight
Local Employment	High	Provision of continuing employment at the Site over the period of 1990 - 2021	Low (beneficial)	Slight
Local Businesses	Low	Change and disruption to trading conditions for local commercial and industrial businesses.	Negligible (adverse)	Imperceptible
Rural Economies	Low	Impacts to rural enterprise from nuisance, changes in spatial relationship of such enterprises.	Negligible (adverse)	Imperceptible
Land Use and Development	Medium	Land take from rural agricultural enterprises.	Negligible (adverse)	Imperceptible
Land Use and Development	Low	Land take from indicative Traveller Accommodation identification.	Low (adverse)	Slight
Amenity	Low	Nuisance impacts from factors such as air quality, noise, vibration, traffic and landscape and visual on community lands, sports and recreation areas, tourism and religious centres.	Low (adverse)	Slight
Employees / Contractors	High	Health and safety management practices which may impact direct employees and sub-contractors on site.	Negligible (adverse)	Moderate

Receptor	Sensitivity	Source of Impact/Description of Change*	Impact Magnitude*	Level of Effect *
Local Populations / Communities / Non-motorised Road Users	High	Health and safety management practices which may impact members of the public including non-motorised road users.	Negligible (adverse)	Slight
Human Health	High	Discharges and the introduction of contamination to the underlying groundwater thereby changing water quality.	Negligible (adverse)	Slight
Human Health	High	The generation of fugitive and combustion emissions (dust, PM ₁₀ , PM _{2.5} , NO ₂ and SO ₂) from site activities thereby changing air quality.	Low (adverse)	Slight
Human Health	High	Noise and vibration from Site activities impacting surrounding residential receptors through annoyance and effects on mental health.	Low (adverse)	Slight
Health and Safety - Employees / Contractors	High	Health and safety management practices which may impact direct employees and sub-contractors on site.	Low (adverse)	Slight

* Taking account of embedded mitigation

3.6 Cumulative Impacts

There are no similar extractive industries in the surrounds of the Site which may contribute to cumulative impacts.

Given the nature and scale of the N7 National Road it is considered that this dominates the baseline environment surrounding the Site. It is considered that the Site provides a contribution of effects to those of the roadway however it is considered that the potential cumulative air, noise and water effects on human health surrounding the Site are not significant.

As there were no other relevant plans or projects in the vicinity of the Site during the assessment period of 1990 to present, it is considered that in-combination effects as a result of the historical works with regard to other plans or projects is not significant.

3.7 Remedial Mitigation

No remedial measures other than those detailed in the below chapters of this rEIAR are required:

- Chapter 5 – Land, Soils and Geology, which include the implementation of recommendations from geotechnical appraisals;
- Chapter 6 – Water;
- Chapter 7 – Air Quality and Climate;
- Chapter 8 – Noise and Vibration;
- Chapter 10 – Landscape and Visual Impact; and
- Chapter 11 – Traffic.

3.8 Monitoring

The chapters identified in the above Section 3.7 have included monitoring measures as appropriate (including water, air, noise, and vibration). On this basis, no specific monitoring was required in relation to population and human health during the assessment period of 1990 to present.

3.9 Residual Effects

The assessment concludes that the existing development did not give rise to significant adverse effects on human environment surrounding the Site during the assessment period of 1990 to 2021. In all cases the residual effect is **Not Significant and not greater than Moderate**.

3.10 Difficulties Encountered

The identification of surrounding receptors was based on available aerial imagery of the area. The area imaged in the February 1991 aerial was constrained to the lands immediately surrounding the Development. The aerial acquired for 1994 provided a wider view of the surrounding area. This assessment therefore assumes the number of receptors in the wider area surrounding the Development in 1991 was the same as that in 1994. As no aerial is available for 1990, the assessment also assumes that the receptors which are identified in 1991 were also present at the start of the rEIAR assessment period. There was a similar difficulty in identifying non-residential receptors surrounding the Site earlier in the assessment period.

With regard to the human health of the Rathcoole ED, similar and directly comparable census data was unavailable for the period of 1990 to 2006 which presents as a difficulty in comparing Human Health earlier in the assessment period to more recent trends.

There is an absence of census data from the interim period of 2016 to the present.

No other particular difficulties were encountered in the preparation of this chapter of the rEIAR.

3.11 References

Environmental Impact Assessments of Projects Guidance on the Preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU). European Commission 2018.

EU Environmental Impact Assessment Directive (Council Directive 2014/52/EU).

Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, Department of Environment, Community and Local Government, 2018.

Central Statistics Office, Census of Agriculture 2010 – Preliminary Results, February 2010.

Department of the Environment, Quarries and Ancillary Activities, Guidelines for Planning Authorities 2004.

Environmental Management in the Extractive Industry: Guidelines for Regulators 2006.

HSA's 'Guidelines to the Safety, Health and Welfare at Work (Quarries) Regulations 2008.

South Dublin County Development Plan 2016 – 2022.

Geological Heritage Guidelines for the Extractive Industry (Irish Concrete Federation, 2008).

Environmental Code (Irish Concrete Federation, 2005).

Environmental Management in the Extractive Industry (Non Scheduled Minerals) (Environmental Protection Agency, 2002).

Draft Guidelines on the information to be contained in environmental impact assessment reports.

Environmental Protection Agency, Johnstown Castle Estate, Co. Wexford, Ireland. EPA. 2017.

Draft Advice Notes for preparing Environmental Impact Statements. Environmental Protection Agency, Johnstown Castle Estate, Co. Wexford, Ireland. EPA. 2015.

Safety, Health and Welfare at Work (Quarries) Regulations 2008, S.I. 28 of 2008.

Safety, Health and Welfare at Work General Application 2016, S.I. 36 of 2016.

L. Behan Aggregates and Recycling Ltd, Safety Statement and associated Site Specific Risk Assessments, Revision 08 January 2020

Central Statistics Office. Census Returns 1991, 1996, 2002, 2006, 2011 and 2016.
<http://www.cso.ie/en/census/>, accessed 11 December 2019.

Health and Safety Authority. Notifies Seveso Establishments.
https://www.hsa.ie/eng/your_industry/chemicals/legislation_enforcement/comah/list_of_establishments/,
accessed 05 November 2020.

An Economic Audit of South Dublin County 2004, Prepared for South Dublin County Development Board, Institute of Technology, Tallaght (Dr. Phil Mulvaney and Mr. Nigel Donnelly)