10.0 LANDSCAPE AND VISUAL

10.1 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 remedial Landscape and Visual Impact Assessment (LVIA) was prepared by Cunnane Stratton Reynolds.

This LVIA was carried out by Evelyn Sikora, BA, MA, MILI. Evelyn has over six years' experience in LVIA and has worked on the Landscape and Visual assessment for a range of developments throughout Ireland, including wind and solar energy, infrastructure, quarry developments, flood relief, residential and recreation projects. She has also carried out a number of LVIAs for remedial EIAR projects. Contributions to the rEIAR were also made by Ronan Finnegan, BSc PGDipLA CMLI. Oversight of the chapter was provided by Declan O' Leary, CMLI, MILI, Managing Director of Cunnane Stratton Reynolds.

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.

Where the site is referred to, this is the EIA project boundary as identified in Figure 10.1. This section of the rEIAR considers and assesses potential significant effects resulting from quarrying related activities that have been carried out on the site and on its surrounding environment. It also records remedial mitigation measures undertaken or proposed to be undertaken.

The main elements relevant to this LVIA of the quarry development that has taken place include the quarrying process which involves the removal of vegetation, soil and rock from the landscape, resulting from an increase in size of the quarry between 1990-2021 which would have been visible from certain locations.

10.2 Methodology

10.2.1 Guidance Documents

Landscape and Visual Impact Assessment (LVIA) is a tool used to identify and assess the effects of change and the significance of these effects, resulting from development on both the landscape and on people's views and visual amenity.

The methodology for remedial assessment of the landscape and visual effects is informed by the following key guidance documents for LVIA and EIAR, namely:

- *Guidelines for Landscape and Visual Impact Assessment*, 3rd Edition 2013, (UK Landscape Institute and Institute of Environmental Management and Assessment) - hereafter referred to as the GLVIA.
- *Guidelines for Information to be Contained in Environmental Impact Assessment Reports* (EPA, 2017 Draft)
- South County Dublin Development Plan 2016-2022
- Kildare County Development Plan 2017-2023

References are also made to the '*Landscape and Landscape Assessment – Consultation Draft of Guidelines for Planning Authorities'* document, published in 2000 by the Department of Environment, Heritage and Local Government.

It should, however, be noted that there is no specific guidance in relation to Remedial EIAR or LVIA reports. This is specifically addressed in Section 10.2.2.

10.2.1.1 Definitions in LVIA

A key distinction to make in a LVIA is that between landscape effects and the visual effects of development. These are related but assessed separately.

'Landscape' results from the interplay between the physical, natural and cultural components of our surroundings. Different combinations of these elements and their spatial distribution create distinctive character of landscape in different places. The effects on the landscape as a resource, and on the physical fabric and character of the landscape are assessed. Character is not just about the physical elements and features that make up a landscape, but also embraces the aesthetic, perceptual and experiential aspects of landscape that make a place distinctive.

Views and 'visual amenity' refer to the interrelationship between people and the landscape. The GLVIA prescribes those effects on views and visual amenity should be assessed separately from landscape, although the two topics are inherently linked. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

The GLVIA also advises that the terms 'impact' and effect' should be clearly distinguished and consistently used in the preparation of an LVIA. This is consistent with the EPA (2017) draft guidelines.

'*Impact*' is defined as the action being taken. In this case, the impact would be the development on the quarry site from 1990 to the present day.

'Effect' is defined as the change or changes resulting from those actions, e.g., a change in landscape character, or changes to the composition, character and quality of views in the receiving environment. This chapter therefore focusses on these effects.

10.2.1.2 European Landscape Convention and GLVIA

Ireland is a signatory to the European Landscape Convention (ELC). The ELC defines landscape as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'. This definition is important in that it expands beyond the idea that landscape is only a matter of aesthetics and visual amenity. It encourages a focus on landscape as a resource in its own right - a shared resource providing a complex range of cultural, environmental and economic benefits to individuals and society.

The Guidelines for Landscape and Visual Impact Assessment (GLVIA) notes that as a cultural resource, the landscape functions as the setting for our day-to-day lives, also providing opportunities for recreation and aesthetic enjoyment and inspiration. It contributes to the sense of place experienced by individuals and communities and provides a link to the past as a record of historic socio-economic and environmental conditions. As an environmental resource, the landscape provides habitat for fauna and flora. It receives, stores, conveys and cleans water, and vegetation in the landscape stores carbon and produces oxygen. As an economic resource, the landscape provides the raw materials and space for the production of food, materials (e.g., timber, aggregates) and energy (e.g., carbon-based fuels, wind, solar), living space and for recreation and tourism activities.

The GLVIA also notes that landscape is not unchanging. Many different pressures have progressively altered familiar landscapes over time and will continue to do so in the future, creating new landscapes. For example, within the receiving environment, the environs of the Development have altered over the last thousand years, from wilderness to agriculture, forestry and settlement.

Many of the drivers for change arise from the requirement for development to meet the needs of a growing population and economy. The concept of sustainable development recognises that change must and will occur to meet the needs of the present, but that it should not compromise the ability of future generations to meet their

needs. This involves finding an appropriate balance between economic, social and environmental forces and values.

The reversibility of change is an important consideration. If change must occur to meet a current need, can it be reversed to return the resource (in this case, the landscape) to its previous state to allow for development or management for future needs.

Climate change is one of the major factors likely to bring about future change in the landscape, and it is accepted to be the most serious long-term threat to the natural environment, as well as economic activity (particularly primary production) and society. The need for climate change mitigation and adaptation, which includes the management of water and more extreme weather and rainfall patterns, is part of this.

10.2.2 Assessment process for Remedial LVIA

A typical LVIA will assess the landscape and visual effects of a *proposed* development, on the *existing* receiving environment, or baseline. This *remedial* LVIA assesses the effects of the Development *which have occurred* (from 1990 to the present), and any that are *still occurring*. For this remedial LVIA, the assessment of landscape and visual effects is carried out on the previously existing receiving environment – in this case, a baseline date of ca.1990 is used.

This baseline information comprised a desktop stage prior to a site visit. The desktop exercise is based on historic data, including aerial imagery, land cover mapping, and available documentation. Previous development plans were not obtained and so are not referred to. A site visit was carried out following the desk study, to confirm the findings and to photograph and describe the *present-day* landscape character and to establish viewpoints, (due to Covid-19 restrictions this site visit was delayed to June 2021, as set out in Section 10.2.6 Limitations).

Landscape values and visual receptor sensitivity are established during the baseline stage. The effects which are then judged to result from this development 1990-2021 on the landscape and visual receptors are then assessed. The methodology is set out below.

In the assessment of visual effects, a number of viewpoints are used. It should be noted that these views are based on recent or present-day sources, and therefore a number of elements are likely to have changed over the period 1990-2021. Where possible, the description of the viewpoints will identify elements that were and were not present ca.1990 however this is an estimate and is not an exact description of each view as it was at this time.

10.2.3 Methodology for Landscape Assessment

In Section 10.5 of this chapter the landscape effects of the Development are assessed. Landscape assessment considers the likely nature and scale of changes which have taken place to the main landscape elements and characteristics, and the consequential effect on landscape character and on the landscape fabric. Existing trends of change in the landscape are taken into account. The landscape effect is assessed based on measurement of the landscape sensitivity against the magnitude of change which has taken place.

10.2.3.1 Sensitivity of the Landscape Resource

Landscape sensitivity is a function of its land use, landscape patterns and scale, visual enclosure and distribution of visual receptors, scope for mitigation, and the value placed on the landscape. It also relates to the nature and scale of a proposed development. It includes consideration of landscape values as well as the susceptibility of the landscape to the proposed change.

Landscape values can be identified during the desk study, by the presence of landscape designations or policies which indicate particular values, either on a national or local level. In addition, a number of criteria are used to assess the value of a landscape. These are described further in below.

Landscape susceptibility is defined in the GLVIA as the ability of the landscape receptor to accommodate a development without undue consequences for the maintenance of the baseline scenario and/or the achievement of landscape planning policies and strategies.

Susceptibility also relates to the type of development – a landscape may be highly susceptible to certain types of development but have a low susceptibility to other types of development. Landscape susceptibility in relation to quarry developments can include consideration of:

- Topography and skyline;
- Landscape pattern and landcover; and
- Settlement pattern.

For the purpose of assessment, five categories are used to classify the landscape sensitivity of the receiving environment. These are set out in Table 10.1 below:

Table 10.1: Categories of Landscape Sensitivity

Sensitivity	Description
Very High	Areas where the landscape exhibits a very strong, positive character with valued elements, features and characteristics that combine to give an experience of unity, richness and harmony. The character of the landscape is such that its capacity for accommodating change in the form of development is very low. These attributes are recognised in landscape policy or designations as being of national or international value and the principal management objective for the area is protection of the existing character from change
High	Areas where the landscape exhibits strong, positive character with valued elements, features and characteristics. The character of the landscape is such that it has limited/low capacity for accommodating change in the form of development. These attributes are recognised in landscape policy or designations as being of national, regional or county value and the principal management objective for the area is conservation of the existing character.
Medium	Areas where the landscape has certain valued elements, features or characteristics but where the character is mixed or not particularly strong. The character of the landscape is such that there is some capacity for change in the form of development. These areas may be recognised in landscape policy at local or county level and the principal management objective may be to consolidate landscape character or facilitate appropriate, necessary change
Low	Areas where the landscape has few valued elements, features or characteristics and the character is weak. The character of the landscape is such that it has capacity for change; where development would make no significant change or would make a positive change. Such landscapes are generally unrecognised in policy and where the principal management objective is to facilitate change through development, repair, restoration or enhancement.
Negligible	Areas where the landscape exhibits negative character, with no valued elements, features or characteristics. The character of the landscape is such that its capacity for accommodating change is high; where development would make no significant change or would make a positive change. Such landscapes include derelict industrial lands or extraction sites, as well as sites or areas that are designated for a particular type of development. The principal management objective for the area is to facilitate change in the landscape through development, repair or restoration

10.2.3.2 Magnitude of Landscape Change

The magnitude of change is a factor of the scale, extent and degree of change imposed on the landscape with reference to its key elements, features and characteristics (also known as 'landscape receptors'). Five categories are used to classify magnitude of landscape change as set out in Table 10.2 below:

Table 10.2: Magnitude of Landscape Change

Magnitude of Change	Description
Very High	Change that is large in extent, resulting in the loss of or major alteration to key elements, features or characteristics of the landscape (i.e., landscape receptors), and/or introduction of large elements considered totally uncharacteristic in the context. Such development results in fundamental change in the character of the landscape.
High	Change that is moderate to large in extent, resulting in major alteration or compromise of important landscape receptors, and/or introduction of large elements considered uncharacteristic in the context. Such development results in change to the character of the landscape.
Medium	Change that is moderate in extent, resulting in partial loss or alteration of landscape receptors, and/or introduction of elements that may be prominent but not necessarily substantially uncharacteristic in the context. Such development results in change to the character of the landscape.
Low	Change that is moderate or limited in scale, resulting in minor alteration of landscape receptors, and/or introduction of elements that are not uncharacteristic in the context. Such development results in minor change to the character of the landscape.
Negligible	Change that is limited in scale, resulting in no alteration to landscape receptors, and/or introduction of elements that are characteristic of the context. Such development results in no change to the landscape character.

10.2.3.3 Significance of Effect

In order to classify the significance of effects, the magnitude of change is measured against the sensitivity of the landscape/viewpoint, using the following guide, from the EPA Draft Guidance (2017).

There are seven classifications of significance, namely: (1) imperceptible, (2) not significant, (3) slight, (4) moderate, (5) significant, (6) very significant, (7) profound. It is considered that Significant Effects would be those described as Significant, Very Significant and Profound.

Table 10.3 below outlines how the sensitivity and magnitude of change are combined in the assessment.

Table 10.3: Significance of Effect Matrix

		Sensitivity of the Resource				
		Very High	**High**	**Medium**	**Low**	**Negligible**
Magnitude of Change	**Very High**	Profound	Profound-Very Significant	Very Significant-Significant	Moderate	Slight
	High	Profound-Very Significant	Very Significant	Significant	Moderate-Slight	Slight-Not Significant
	Medium	Very Significant-Significant	Significant	Moderate	Slight	Not Significant
	Low	Moderate	Moderate-Slight	Slight	Not significant	Imperceptible
	Negligible	Slight	Slight-Not Significant	Not significant	Imperceptible	Imperceptible

It should be noted that the matrix is a guideline only, and the assessor's professional opinion may depart from the above matrix.

Landscape effects are also classified as beneficial, neutral or negative/adverse. Development has the potential to improve the environment as well as damage it. In certain situations, there might be policy encouraging a type of change in the landscape, and if a development achieves the objective of the policy the resulting effect might be positive, even if the landscape character is changed.

10.2.4 Methodology for Visual Assessment

In Section 10.5.2 of this chapter the visual effects of the development are assessed. Visual assessment considers the value of the views, and the visual susceptibility of the visual receptors (groups of people) and the changes to the composition and character of views. The assessment is made for a number of viewpoints selected to represent the range of visual receptors in the receiving environment. The significance of the visual effects experienced at these locations is assessed by measuring the visual receptor sensitivity against the magnitude of change to the view resulting from the development.

10.2.4.1 Sensitivity of the Visual Receptor

Visual receptor sensitivity is a function of two main considerations:

Susceptibility of the visual receptor to change. This depends on the occupation or activity of the people experiencing the view, and the extent to which their attention or interest is focussed on the views or visual amenity they experience at that location.

Visual receptors most susceptible to change include residents at home, people engaged in outdoor recreation focused on the landscape (e.g., trail users), and visitors to heritage or other attractions and places of community congregation where the setting contributes to the experience.

Visual receptors less susceptible to change include travellers on road, rail and other transport routes (unless on recognised scenic routes which would be more susceptible), people engaged in outdoor recreation or sports where the surrounding landscape does not influence the experience, and people in their place of work or shopping where the setting does not influence their experience.

Value attached to the view. This depends to a large extent on the subjective opinion of the visual receptor but also on factors such as policy and designations (e.g., scenic routes, protected views), or the view or setting being associated with a heritage asset, visitor attraction or having some other cultural status (e.g., by appearing in arts).

Visual receptor susceptibility and value of the viewpoints which are assessed, are discussed further in Sections 10.5.2. For the purpose of assessment, five categories are used to classify a viewpoint's sensitivity as set out in Table 10.4 below:

Table 10.4: Visual Receptor Sensitivity

Sensitivity	Description
Very High	Viewers at iconic viewpoints - towards or from a landscape feature or area - that are recognised in policy or otherwise designated as being of high value or national value. This may also include residential viewers who are focussed to a large extent on the view.
High	Viewers at viewpoints that that are recognised in policy or otherwise designated as being of value, or viewpoints that are highly valued by people that experience them regularly (such as views from houses or outdoor recreation features) and views which are valued by the local community. This would include tourist attractions, and heritage features of regional or county value, and viewers travelling on scenic routes
Medium	Viewers at viewpoints representing people travelling at slow or moderate speed through or past the affected landscape in cars or on public transport, where they are partly but not entirely focused on the landscape, or where the landscape has some valued views. The

Sensitivity	Description
	views are generally not designated, but which include panoramic views or views judged to be of some scenic quality, which demonstrate some sense of naturalness, tranquillity or some rare element in the view.
Low	Viewers at viewpoints reflecting people involved in activities not focused on the landscape e.g., people at their place of work or engaged in similar activities such as shopping, etc. The view may present an attractive backdrop to these activities but there is no evidence of that the view is valued, and not regarded as an important element of these activities. Viewers travelling at high speeds (e.g., Motorways) may also be considered of low susceptibility.
Negligible	Viewers at Viewpoints reflecting people involved in activities not focused on the landscape e.g., people at their place of work or engaged in similar activities such as shopping where the view has no relevance or is of poor quality and not valued

10.2.4.2 Magnitude of Change to the View

Classification of the magnitude of change takes into account the size or scale of the intrusion of development into the view (relative to the other elements and features in the composition, i.e., its relative visual dominance), the degree to which it contrasts or integrates with the other elements and the general character of the view, and the way in which the change will be experienced (e.g., in full view, partial or peripheral, or glimpses). It also takes into account the geographical extent of the change, the duration and the reversibility of the visual effects.

Five categories are used to classify magnitude of change to a view as set out in Table 10.5 below

Table 10.5: Magnitude of Change to the view

Magnitude of Change	Description
Very High	Full or extensive intrusion of the development in the view, or partial intrusion that obstructs valued features or characteristics, or introduction of elements that are completely out of character in the context, to the extent that the development becomes the dominant the composition and defines the character of the view and the visual amenity
High	Extensive intrusion of the development in the view, or partial intrusion that obstructs valued features, or introduction of elements that may be considered uncharacteristic in the context, to the extent that the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.
Medium	Partial intrusion of the development in the view, or introduction of elements that may be prominent but not necessarily uncharacteristic in the context, resulting in change to the composition but not necessarily the character of the view or the visual amenity
Low	Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context, resulting in minor alteration to the composition and character of the view but no change to visual amenity
Negligible	Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity

A set of 12 no. viewpoints were produced from a list of carefully selected viewpoints, to assist in assessing the magnitude of changes from various locations throughout the study area. These locations include areas near to residences, along local roads, and viewpoints also representing protected views and scenic routes. These were

initially identified during the desk study and verified during a site visit. The rationale for the viewpoints selected is at 10.3.3 below.

While these viewpoints are extremely useful in giving an impression of the recent and existing (2017-2021) landscape and visual context, and it is recognised that a number of changes in the landscape are likely to have occurred since then.

Where possible, the description of the viewpoints identifies elements that were and were not present ca.1990, however this is an estimate and is not an exact description of each view as it was at this time.

10.2.4.3 Significance of Visual Effects

As for landscape effects, in order to classify the importance of visual effects, the magnitude of change to the view is measured against the sensitivity of the viewpoint as set out in Table 10.3 above. The seven categories as set out by the EPA (2017) are used to describe the significance of the effect.

10.2.4.4 Quality and Timescale of Effects

The effects are also classified as beneficial, neutral or adverse. This is not an absolute exercise; in particular, visual receptors' attitudes to development, and thus their response to the impact of a development, will vary. However, the methodology applied is designed to provide robust justification for the conclusions drawn. These qualitative impacts/effects are defined as:

- Adverse – Scheme at variance with landform, scale, pattern. Would degrade, diminish or destroy the integrity of valued features, elements or their setting or cause the quality of the landscape(townscape)/view to be diminished;
- Neutral - Scheme complements the scale, landform and pattern of the landscape(townscape)/view and maintains landscape quality; and
- Beneficial – improves landscape(townscape)/view quality and character, fits with the scale, landform and pattern and enables the restoration of valued characteristic features or repairs / removes damage caused by existing land uses.

Landscape and Visual effects are also categorised according to their longevity or timescale:

- Temporary – Lasting for one year or less;
- Short Term – Lasting one to seven years;
- Medium Term – Lasting seven to fifteen years;
- Long Term – Lasting fifteen years to sixty years; and
- Permanent – Lasting over sixty years

10.2.5 Study Area

The EIA project area, defined in Figure 10.1 below, is referred to under the heading 'Site and Immediate Vicinity'. However, the LVIA study area also includes part of the wider landscape approximately 5 kilometres radius from the existing quarry site.

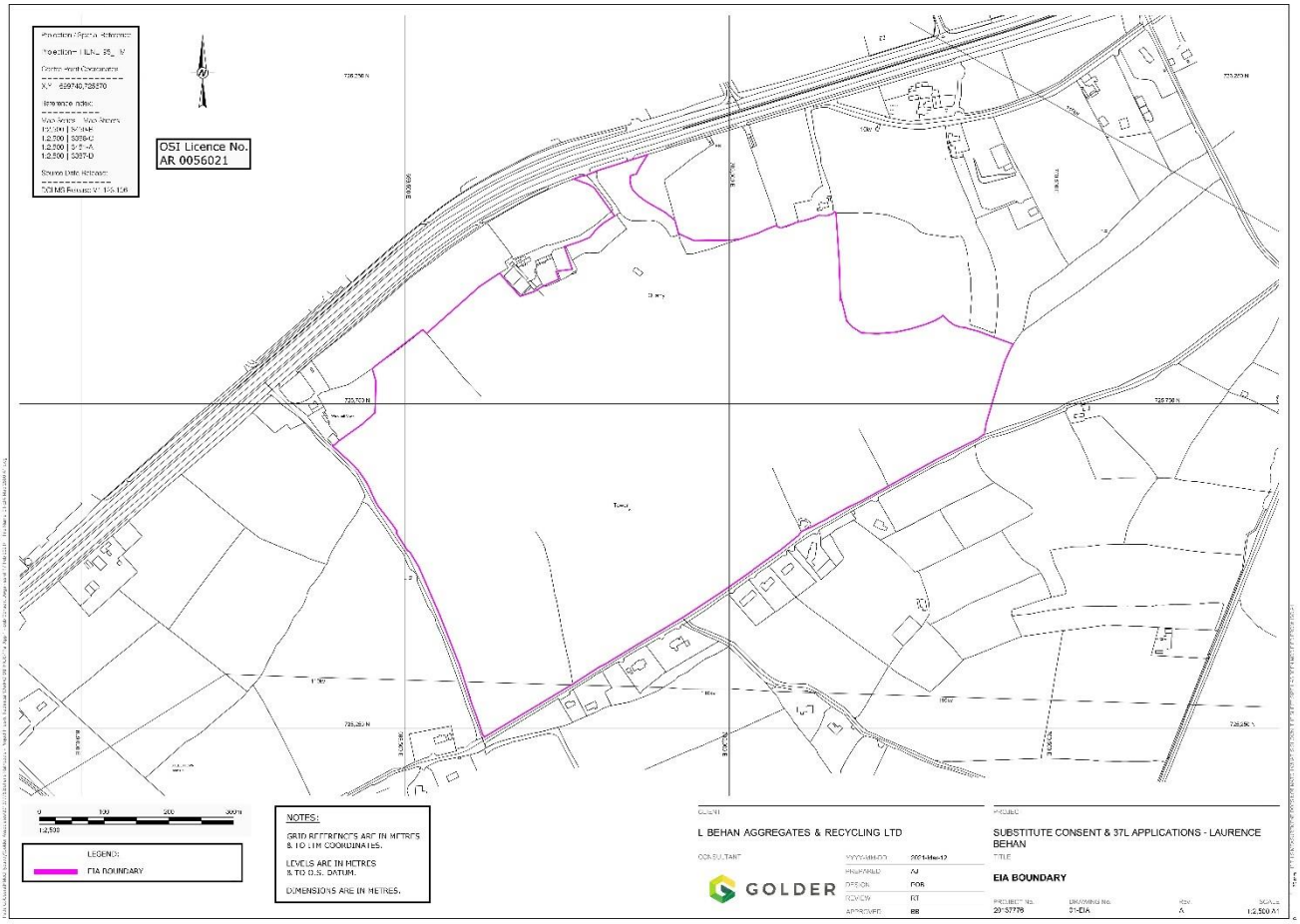


Figure 10.1: EIA Project Boundary

10.2.6 Limitations

This chapter uses a baseline data of ca. 1990, and while images, maps and documents all provide data, the description of landscape character and views/visual amenity is general and high-level, as one has to interpret the data in order to describe the context at that time. It is not possible to give an exact description of a landscape in the past but rather an informed opinion based on available data. Historic development plans which would have been in effect at the time of the baseline date (1990) were not available online. However, some Development Plans from 2004 onwards are available and are briefly reviewed in Section 10.3.1.

The Covid-19 restrictions also imposed limitations on this assessment, as the level 5 restrictions effective between December 2020 until May 4 2021) permitted only essential journeys and this resulted in a delay to the site visit. A site visit was carried out in June 2021) Images previously taken, and provided by the project team, as well as Google Earth/Google Maps (www.google.com/maps) and Myplan.ie (www.myplan.ie) were also reviewed.

In relation to the assessment of visual effects, the viewpoints (1-12) are included to assist in determining the magnitude of change, and ultimately, significance of effect. However as there is not photographic evidence form the intervening years, the description should be taken as a general comment on the major changes which have taken place as a result of the quarry development. It has not been possible to identify and date every element in the view.

10.3 Receiving Environment

This section sets out the character of the baseline (ca.1990) landscape by starting with a description of the present-day characteristics, and then a description of the changes which are likely to have occurred between 1990 and the present day.

10.3.1 Planning Policy

The South Dublin County Development Plan 2016-2022 (hereafter referred to as the SDCC Plan) relates to the site and eastern part of the study area, covering a mix of rural landscape and urban landscape. The western and southern parts of the study area lie within the rural landscape of Kildare County Council and therefore the Kildare County Development Plan 2017-2023 is also referred to. Though the historic development plans were not accessible, the current policy is important in not only assessing the appropriateness of the development which has taken place, but in identifying valued features in the landscape, which are likely to have been valued at the baseline date ca.1990.

10.3.1.1 South Dublin County Development Plan 2016-2022

10.3.1.1.1 Land Use Zoning and Objectives

As noted in Chapter 3, the rEIAR is retrospective in description of development and context and therefore a review of previous Development Plans from baseline has been undertaken.

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, there have been 6 no. Development Plans which relate to the site. Chapter 3 contains a Table (Table 3.8) which records today's mapped objectives for the site and also shows those from previous plans. In relation to LVIA, it is noted that the current 2016-2022 and the 2010-2016 Plan refer to protect and preserve significant views.

The following section focuses on the Current SDCC Plan 2016-2022.

The Site (indicated in Figure 10.2 below with a red dot) is zoned RU (*To protect and improve rural amenity and to provide for the development of agriculture).*

The Zoning Map also includes several marked Prospects (Windmill Hill, Athgoe Hill and Bustyhill) as well as views on the map (one east of the site and one to the northeast. The accompanying policies are set out below.

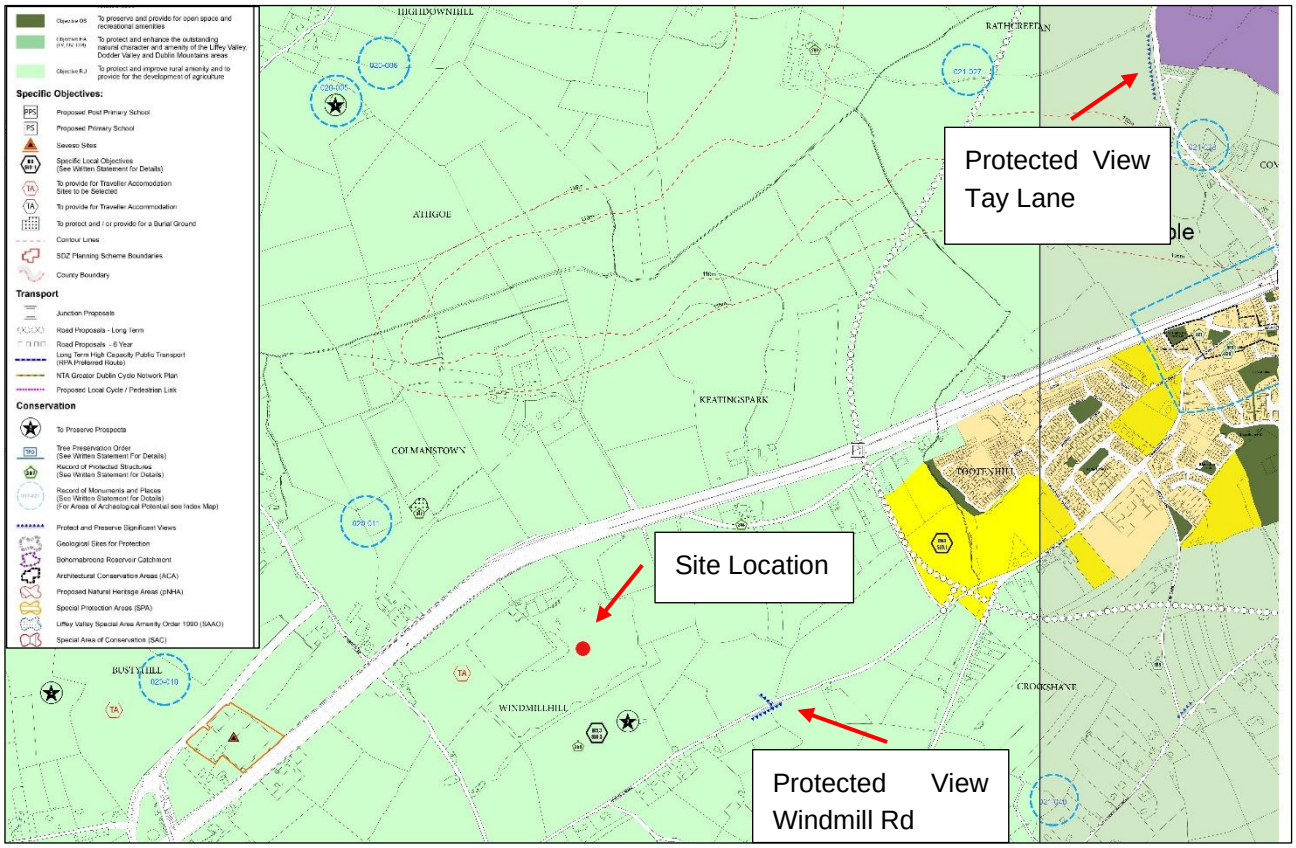


Figure 10.2: Land Use Zoning Map 7 and 8, (Source: the SDCC Plan).

Chapter 4 of the SDCC Plan includes objectives relating to sustainable Mineral Extraction the relevant policy and objectives are as follows:

- *ECONOMIC AND TOURISM (ET) Policy 10 Mineral Extraction: 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;*
- *ET10 Objective 1: To facilitate mineral extraction in suitable locations subject to the protection of amenity and environmental quality;*
- *ET10 Objective 2: To limit the operation of the extractive industry and ancillary uses at environmentally sensitive locations and within areas designated with Zoning Objective 'HA – DM', 'HA-LV' and 'HA-DV' where extraction would result in significant adverse effects and/or prejudice the protection of the County's natural and built heritage.* **(**Note The site is not covered by any zoning).
- *ET10 Objective 3: To ensure the satisfactory reinstatement and/or re-use of disused quarries and extraction facilities, where active use has ceased.*

Chapter 9 of the SDCC Plan includes objectives relating to Heritage, Conservation and Landscapes. The relevant policy and objectives are as follows:

- *HERITAGE, CONSERVATION AND LANDSCAPES (HCL) Policy 2 Archaeological Heritage: is the policy of the Council to manage development in a manner that protects and conserves the Archaeological Heritage of the County and avoids adverse impacts on sites, monuments, features or objects of significant historical or archaeological interest.*

- HCL2 Objective 1: *To favour the preservation in-situ of all sites, monuments and features of significant historical or archaeological interest in accordance with the recommendations of the Framework and Principles for the Protection of Archaeological Heritage, DAHGI (1999), or any superseding national policy document;*
- HCL2 Objective 2: *To ensure that development is designed to avoid impacting on archaeological heritage that is of significant interest including previously unknown sites, features and objects;*
- HCL2 Objective 3: *To protect and enhance sites listed in the Record of Monuments and Places and ensure that development in the vicinity of a Recorded Monument or Area of Archaeological Potential does not detract from the setting of the site, monument, feature or object and is sited and designed appropriately;*
- *Heritage, Conservation and Landscapes (HCL) Policy 7 Landscapes: is the policy of the Council to preserve and enhance the character of the County's landscapes particularly areas that have been deemed to have a medium to high Landscape Value or medium to high Landscape Sensitivity and to ensure that landscape considerations are an important factor in the management of development.*
- *HCL7 Objective 1: To protect and enhance the landscape character of the County by ensuring that development retains, protects and, where necessary, enhances the appearance and character of the landscape, taking full cognisance of the Landscape Character Assessment of South Dublin County (2015).*
- *HCL7 Objective 2: To ensure that development is assessed against Landscape Character, Landscape Values and Landscape Sensitivity as identified in the Landscape Character Assessment for South Dublin County (2015) in accordance with Government guidance on Landscape Character Assessment and the National Landscape Strategy.*
- *HERITAGE, CONSERVATION AND LANDSCAPES (HCL) Policy 8 Views and Prospects: is the policy of the Council to preserve Views and Prospects and the amenities of places and features of natural beauty or interest including those located within and outside the County.*
- *HCL8 Objective 1: To protect, preserve and improve Views and Prospects of special amenity, historic or cultural value or interest including rural, river valley, mountain, hill, coastal, upland and urban views and prospects that are visible from prominent public places.*

10.3.1.1.2 Views and Prospects

The SDCC Plan, as well as the Landscape Character Assessment, includes views and prospects. The SDCC Plan notes that there are many scenic views and prospects. The SDCC Plan distinguishes between these as follows:

Views, which are more localised views, and

Prospects, which relate to prominent landscapes or areas of special amenity or special interest that are widely visible from surrounding areas. It notes that views from prominent public places will be protected.

A review of views within the study area indicates two views in proximity to the quarry development. These views are indicated on the SDCC Plan Maps and shown in Figure 10.2 above. A protected view on Tay Lane lies to the northeast of the site, while another protected view lies to the southeast of the site along Windmill Road and are indicated on the map.

The nearest view is located on a short section of the L6065 Windmill Road just along the Site's south eastern end boundary as annotated on Figure 10.2 above.

The mapped location of this protected view is obstructed is by trees, thus impeding any potential view. This view is not in the direction of the site and is not considered further. It is noted that there are open views nearby

from minor gaps within the roadside vegetation, to the west of the mapped scenic view location. These views are as illustrated below in Figure 10.3 below and it is also evident that these are not in the direction of the site and therefore not affected.

To the south, vegetation frequently prevents visibility, however some gaps in the hedgerow further along the road to the northeast reveal glimpses of the undulating rural landscape with Saggart Hill and a patchwork of small fields and some tree clumps, are evident.

Figure 10.3: Views west of mapped Scenic View on Windmill Road

The existing quarry development is not visible from this location as shown above.

A second view (also annotated on Figure 10.2) view is also located to the west of Rathcoole, on Tay Lane. This view is towards the west, with arable land in the foreground, and views of gently rolling hills of Athgoe, and Windmill Hill. The quarry is visible from this view and this is included in the Viewpoint list (Viewpoint 1) .

The SDCC Plan includes a list of 18 Prospects, which are prominent hills or mountains which are widely visible from surrounding areas. There are 16 are listed in the SDCC Landscape Character Assessment.

A total of five of these hills are prospects located within the study area, with the most prominent being Saggart Hill. The existing quarry site and is located on the northern side of Windmill Hill. These prospects listed within the study area include:

- Athgoe Hill;
- Bustyhill;
- Windmill Hill;
- Lugmore/Tallaght Hill; and
- Saggart Hill.

There may be some limited visibility of the southern ridgeline of Windmill Hill from more distant (over 11km) prospects within the Dublin Mountains to the southeast edge of the council area, however, this is outside the study area and it is unlikely there is any visibility of the quarry development at this distance.

(The SDCC Plan Landscape Character Assessment also includes a number of views for consideration; however, it should be noted they do not appear in the SDCC Plan). Only one of these views is within the study area, that from the Grand Canal (all canal length) which emphasis on views along the canal and towpath and not considered further.

10.3.1.2 Kildare County Development Plan 2017 -2023

The western and southern parts of the study area lie within the rural landscape of Kildare County Council, (KCC). The various policies in relation to landscape character, protection and enhancement of the landscape through the county are found within the Kildare County Development Plan 2017-2023 (hereafter referred to as the KCC Plan), specifically Chapter 14 Landscape, Recreation and Amenity. Policies relevant to the Development are outlined below.

The KCC Plan notes that there are many scenic routes across the county which provide views of the landscape of the county and many built and archaeological features. Additional protected views include those along river and canal corridors and from hills. Views are listed on Table 14.5 and Maps 14.2 and 14.3 of the KCC Plan.

Policy: 14.9 Scenic Routes and Protected Views

- 14.9.1 Scenic Routes It is the policy of the Council to: SR 1 Protect views from designated scenic routes by avoiding any development that could disrupt the vistas or disproportionately impact on the landscape character of the area, thereby affecting the scenic and amenity value of the views. SR 2 Review and update all Scenic Routes and Views in the county during the lifetime of the Plan (Tables 14.5 – 14.10 refer)
- 14.92.2 Water Course and Canal Corridor Views: WV2 Preserve and enhance the scenic amenity of the river valleys and canal corridors and the quality of the vistas available from designated views.

A total of three scenic routes (10,11,12), one hill view and two views along the Grand Canal (GC1, GC2) are within the study area, and listed below. These are illustrated in Figure 10.3 below with the approximate Site location also indicated.

Scenic Routes;

- No.10 - Views of the West Plains on the Oughterard Road (L2009)
- No.11 - Views of the Upland Areas on the Oughterard Road (L6018)
- No.22 - Views to the North-West of the Open Countryside; from Kilteel Village to Rathmore Village

Hill Views;

- Cupidstownhill

Canal Views;

- GC1 - Old Grange Bridge Old Grange
- GC2- Henry Bridge Clonaghris

The visual assessment considers the effects of the Development upon the nearest Scenic route - No. 11. Scenic Routes 10 and 22 are focussed to the west, and north-west, and therefore away from the site. The canal views are not likely to have visibility and are not considered further.

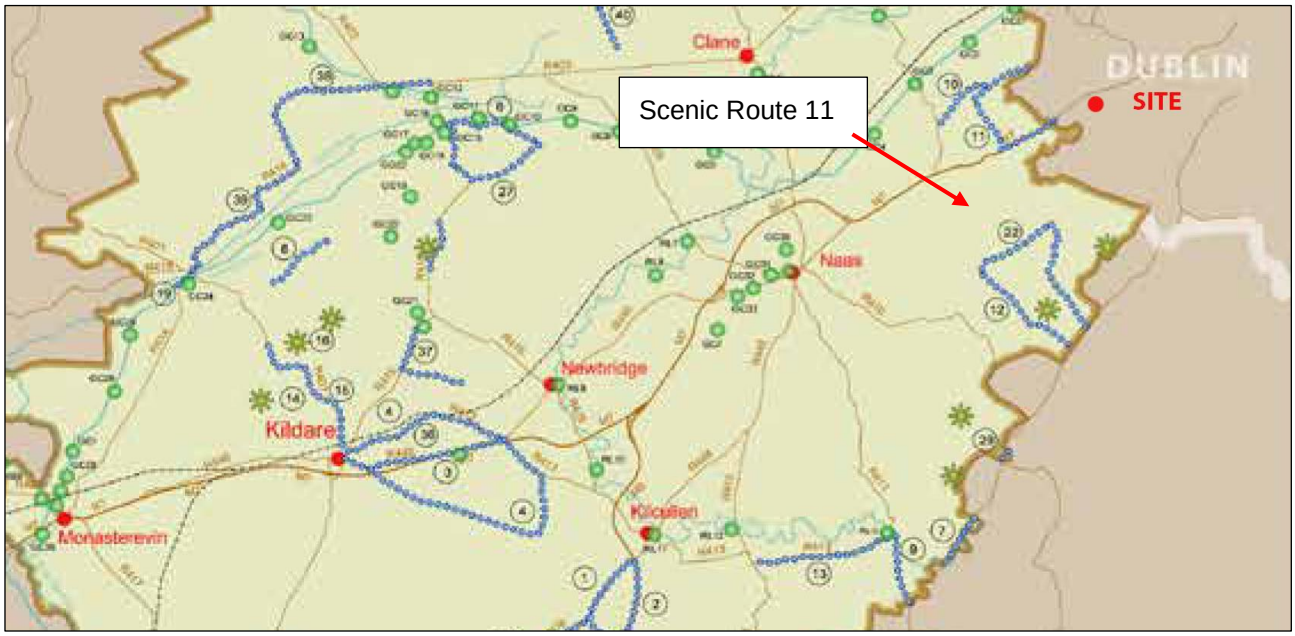


Figure 10.4: Scenic Routes and Viewpoints. Source: Kildare County Council

10.3.1.2.1 Landscape Character Assessment

In 2015, South Dublin City Council carried out a Landscape Character Assessment of South Dublin County (hereafter known as the SDCC Assessment). There are five Landscape Character Areas (LCAs) identified. The study area (within 5 km radius of the site) includes three of these LCAs. However, the site, the immediate vicinity and the majority of the wider landscape are included in the Athgoe and Saggart Hills LCA. The site is shown in the LCA map in Figure 10.4 indicated by a red dot.

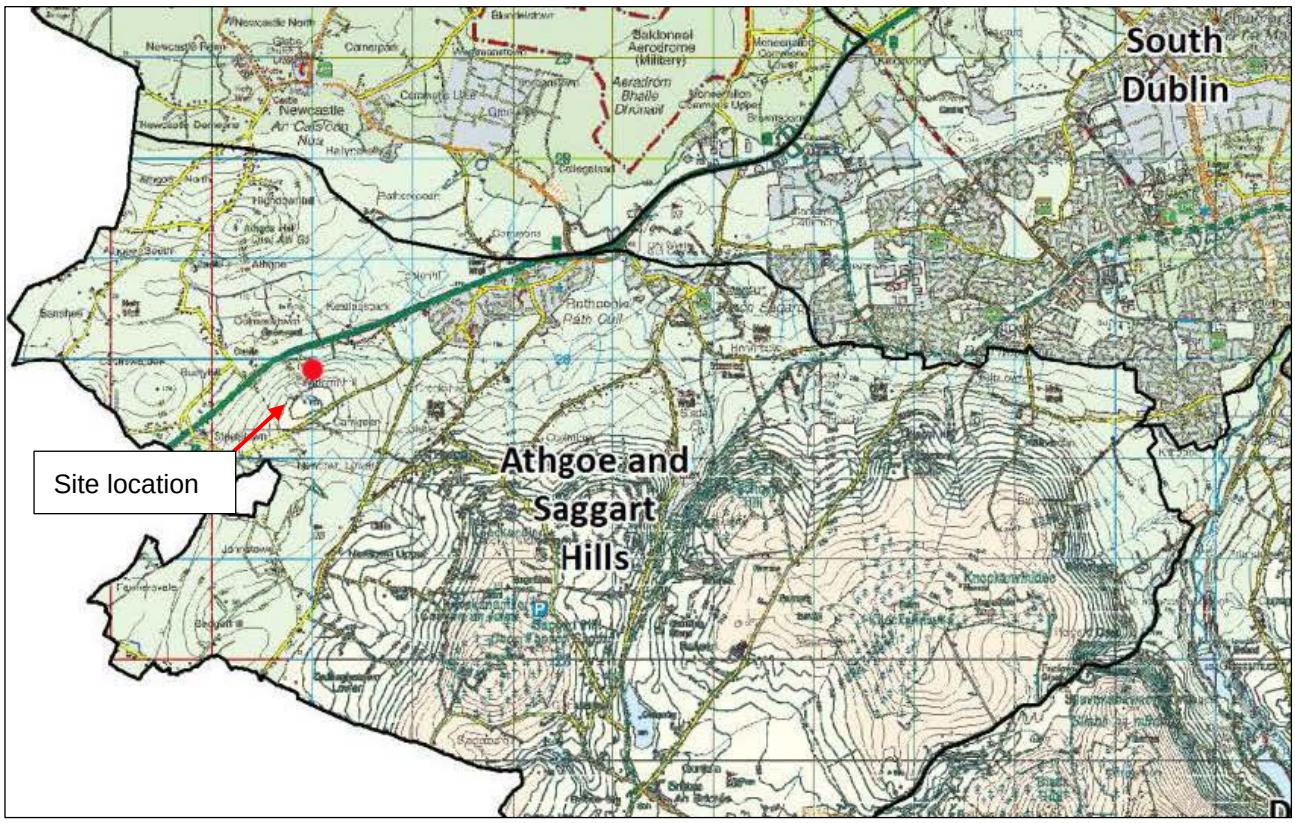


Figure 10.5: LCA Map with site, (Source: SDCC).

Further detail on each LCA is provided in the Assessment document itself. The Development falls within the Athgoe and Saggart Hills LCA which the Assessment describes the key characteristics as:

- Enclosure varies between open and expansive on hills such as Athgoe, Saggart Hills to more enclosed, intimate areas defined by narrow rural lands on slopes with high earth banks and hedgerows;
- Long views across surrounding lowlands to the north and east;
- Round pillars associated with vernacular style;
- Sheep grazing; and
- Field boundaries medium to large rectangular pattern and evidence of removal and rationalisation of boundaries relatively recently.

The landscape values noted in the SDCC Assessment are as follows:

- pNHA designations;
- prehistoric megalithic ritual landscape;
- scenic routes and extensive views; and
- recreational uses -golf course, equestrian and walking activities.

Landscape Value and Sensitivity, as well as visual sensitivity, and the landscape capacity, are also set out in the Assessment. It should however be noted that the GLVIA (2013) regard Landscape Sensitivity as related to the type of development and therefore can vary depending on the type of development being considered. The SDCC Assessment states the following:

- Landscape Character Sensitivity – Medium-High.
- Visual Sensitivity: High
- Overall landscape Sensitivity: High
- Landscape Value: High

The site, while an existing quarry at the time of the baseline ca. 1990, is on the side of Windmill Hill, a prospect, and quarrying is an activity which typically extracts material from the ground and can change local topography.

The sensitivity of the site itself is likely to vary – there are areas such as the summit of the hill considered of High sensitivity, but certain parts of the site (the active quarry) would be considered Low. Sensitivity is considered more fully in Section 10.5 and refers to both the site itself and the wider landscape.

Co. Kildare

A Landscape Character Assessment for County Kildare was carried out and this identifies the nearest Landscape Character Area as the Eastern Transition LCA, west of the site. The key characteristics are as follows:

- Located between the between the County Kildare uplands and lowlands;
- Undulating topography with a series of small hilltops;
- Long distance views of Kildare lowlands, eastern uplands and the skyline to east is defined by the Wicklow hills; and

- Predominantly pastureland use with some blocks of coniferous forestry and
- Dense rural population across small settlements and clusters of rural dwellings.

The parts of the LCA closest to the site would have some visibility of the site as shown in Section 10.5.2.

10.3.2 Landscape Character

Landscape character is described in terms of landform (topography and drainage) and landcover (vegetation, built form, natural and cultural heritage. The Site and immediate surrounds are described separately from the wider landscape. While the SDCC Assessment describes the landscape character, sensitivity and value at a wider scale, a more detailed assessment is carried out in this section to assess the character of the site and surrounds at a more detailed level.

10.3.2.1 Topography and Drainage

10.3.2.1.1 Wider landscape

The topography of the wider landscape is influenced by a number of relatively low, but nonetheless noticeable hills (ranging from approx. 170-395mAOD which lie on a larger, relatively elevated plain, as seen in the OSI Discovery Map. The N7 runs northeast/southwest through this elevated plain with some views to the northwest over undulating lands including several hills, and views more restricted to the south and east of the road and towards the quarry site.

Windmill Hill lies immediately southeast of the site, and the hills of Badgerhill, Knockananiller and Saggart Hills lie further to the southeast. Hills are also found to the northwest, with Bustyhill and Castlewarden the closest hills, and Athgoe Hill lies further north. Several rivers or streams run off the hills, with the Griffin River rising near Athgoe Hill and running to the east, and a number of unnamed streams are shown to the southeast of the site, at Newtown Upper, Newtown Lower and Redgap.

Large-scale changes between 1990 and 2021 in the topography and drainage of the wider landscape are not apparent from the maps and aerial images. Comparison of the 2004 and 2016 aerial images shows the widening of the N7 and the creation of an overpass approximately 0.86km southwest of the site, providing access to the Castlewarden, Athgoe and Steelstown roads, creating a localised change in topography of the local roads adjacent to the N7. Therefore, at the baseline date of 1990, the topography of the wider area appears to have been largely the same as it is today, with the exception of the localised widening and topographical changes as a result of the widened N7.

10.3.2.1.2 Site and immediate vicinity

The site and the immediate surroundings are defined by its location on the north-eastern slope of Windmill Hill. The quarry face is currently approximately 50m north of the peak of Windmill Hill.

Golder Associates Drawing 02 Baseline Conditions shows that in 1990 the quarry was located on the northern slope of Windmill Hill, and that the lands slope from the peak of Windmill Hill south to a level of approximately 210 mAOD and fall away more steeply thereafter from 210 to 200 mAOD. The level at the top of the quarry face was therefore approximately 200 mAOD, while the quarry floor was at a level of approximately 160 mAOD. Drawing 02 also shows steep slopes to the south on the and eastern sides of the quarry, with a gentler slope along most of the western face. No areas of water are apparent on the 1991 aerial image, suggesting the quarrying was above the level of the water table.

Within the EIAR project boundary, Golder Associates Drawing 01- Site Location, shows that Windmill Hill slopes south from the hilltop (219 metres) near the windmill stump to approximately 205 mAOD along Windmill Road, and to the west to a level of 200 mAOD while the lands to the east slope to a height of approximately 180m

mAOD at the lowest point. Lands to the north of the quarry slope from 160m, to approximately 144-147 metres contour, just south of the N7 road.

On the Site itself and the area within the EIAR project boundary, changes to the topography have occurred as a result of the quarrying activities. These are described in Section 10.4.

10.3.2.2 Land Cover – Vegetation, Built Form and Cultural Heritage

10.3.2.2.1 Wider landscape

The landcover of the wider landscape (within ca. 5km of the quarry site) in 1990, represented on the 1991 aerial image, would have been largely similar to what it is today. The 1991 aerial image indicates that the wider landscape is mainly composed of agricultural lands, interspersed with a number of areas of built form, including the village of Rathcoole which lies approximately 1.8 kilometres to the northeast. The other areas are mainly rural in nature.

The N7 lies just north of the site and runs northeast/southwest through a predominantly rural landscape. Fields range from large to relatively large, to smaller fields in the areas of Redgap and to the east of Athgoe Hill with some also evident at Keatingspark. A considerable area of woodland to the south of the site, denotes the boundary of the golf course, formerly the lands associated with Johnstown House, (while a small portion of the golf course is visible on the aerial, it appears that it existed in 1990).

In terms of built form, several areas in the wider landscape show small clusters of detached dwellings – south of the Site along Windmill Road, some at Redgap, and further clusters to the north at Athgoe, and east of the site along the Kilteel Road. The residential expansion to the southwest of Rathcoole which is evident in 2021 (Broadfield Manor) was not in existence in 1990. The 1995 aerial Geohive image (map.geohive.ie) and comparison of the aerial images contained in Appendix 10.1 shows several large fields between the suburbs of Rathcoole, between the N7 and School Road/Kilteel Road. These fields have since been replaced by built form (estates at Broadfield and Rathmill).

Other elements of built form evident from aerial in 1990 includes several buildings and lands which appear of an industrial/storage nature. These include what is known today as the Blackchurch business park north of the N7, and a number of sheds on the location of the present day Barlon Industrial Park. These are on the northern side of the N7, west of the site. Several buildings which are today of an industrial nature at the end of the cul-de-sac road at Colemanstown, north of the site across the N7, also appear to be in existence in 1990 and it is assumed the buildings were of a similar nature. To the east of the site, several large sheds are visible on the L-6065, which is currently a plant rental location – and it is also assumed the sheds on a smaller site in 1990 were of a similar nature. Therefore, buildings of an industrial nature were a relatively common feature of the wider landscape but particularly along the N7 ca.1990.

As mentioned, the Beech Park Golf Club southwest of the site would have been the main recreational land use in the vicinity. Another golf club at Castlewarden exists today to the southwest of the site, between the N7 and Castlewarden Road, and another to the southeast of the site at Slade Valley. However, these are outside the areas depicted on the 1991 aerial imagery but are present on the 1995 Geohive aerial (www.geohive.ie) . Also in the wider landscape, the hills of Saggart/Slievethoul and Lugg lie southeast of the Site. These areas today provide recreation opportunities and as part of the Coillte Looped walks. These areas may have provided for informal recreation at the time of the baseline (ca. 1990).

Cultural Heritage/Historic Landscapes

The remains of several historic estates or demesnes are evident in the wider landscape, when comparing the aerial imagery from GeoHive and the historic mapping on www.myplan.ie. The Johnstown estate (the present-day Beech Park Golf Club) south of the site, is evident on the historic (6 inch map), as is a Castle, chapel and

graveyard in Colemanstown, north of the site, and a castle and a designed landscape is clearly visible at Athgoe to the north. The overall pattern of the woodlands and shelterbelts in these areas remain visible and therefore would have been visible in the 1990 landscape. It should be noted the historic maps show a number of small-scale quarries in the wider landscape.

10.3.2.2.2 Site and immediate vicinity

In 1990, the immediate vicinity outside the Site would have included detached houses along Windmill Road, the N7 to the north. A cluster of buildings is evident outside the northern boundary, west of the site entrance, (identified in the Cassini 6 inch map as Windmill House). Another cluster of buildings just outside the EIA project boundary is evident adjacent to the northwest corner of the Site, (named Windmill View in the Cassini 6 inch map). An extract from the Cassini 6 inch map is included below, and the EIA boundary is outlined in magenta - though it should be noted this is approximate.

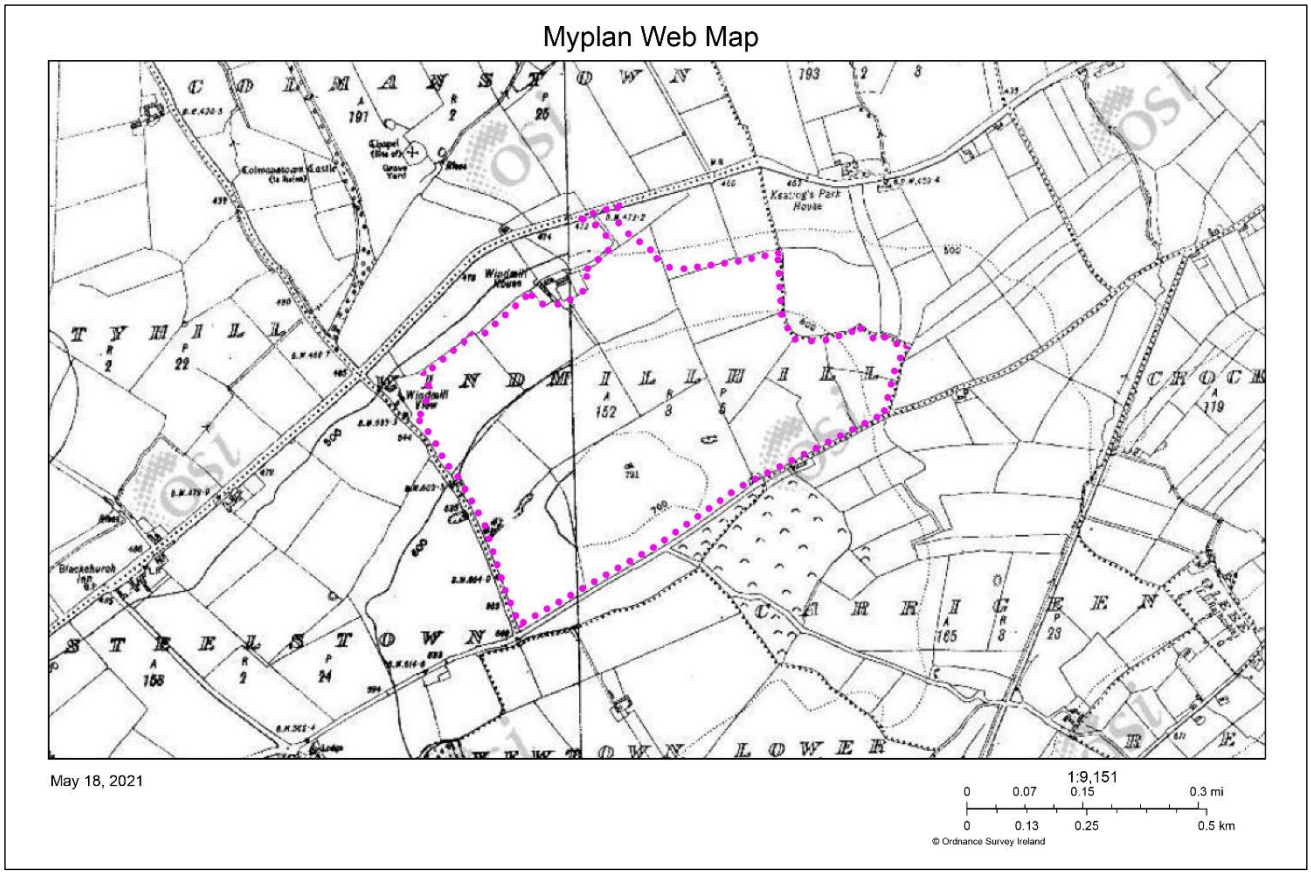


Figure 10.6: Cassini 6" map of site. Source: www.myplan.ie

Landcover within the EIAR project boundary in 1990 consisted of the quarry, accessed just south of the N7, and surrounded by a number of fields with well-defined hedgerows.

In 1990, the most obvious element of built form within the project boundary is the windmill, which is on the peak of Windmill Hill, south of the quarry. This also has value as an element of cultural heritage. The Historic Environment Viewer (maps.archaeology.ie) notes that the windmill appears to be 18th century but occupies the site of an earlier windmill. A number of other historic monuments are recorded on this map in the vicinity of the windmill, including a hillfort, a ring-ditch, a burial cairn at the summit of the hill, and a ceremonial enclosure.

10.3.2.3 Summary of Landscape Characteristics

10.3.2.3.1 Wider landscape

The wider landscape in 1990 would have had a largely similar character to what it has today.

The flat or gently undulating landscape with several prominent hills (Saggart, Athgoe, Windmill Hill) which are characteristic of the area would have been also characteristic in 1990.

The rural character would have been slightly stronger than at present, as residential, industrial, and commercial land uses have increased, and the settlement of Rathcoole has expanded, with more residential development between the N7 and School Road/Kilteel Road (east of the site) in the intervening years. The N7 upgrade has caused localised changes along the road, including overpasses and entrances/exits, and development has increased along the road.

Strong rural character would have been evident in 1990, with less residential expansion from Rathcoole to the east of the Site and field boundaries more intact. However, small scale industrial parks, machinery and auto yards appear to have been a feature of the area in 1990, albeit on a smaller scale. Clusters of residences are evident in the landscape both to the north (e.g., Athgoe) and south of the site (such as Redgap). Some scattered farms houses, yards and vernacular buildings along the N7 and local roads would also have been present at the time.

The remains of several historic landscapes would have been present in 1990 (Johnstown to the south, Athgoe to the north) and some associated areas of woodland remain at Johnstown and several golf clubs were located in the area in 1990.

10.3.2.3.2 Site and immediate vicinity

The Site and immediate vicinity itself ca. 1990 can be characterised by its location on the north-western slope of Windmill Hill, with the immediate surroundings including the windmill ruins, fields with well-defined hedgerows, and small clusters of detached dwellings. The fields and field boundaries which have been removed as a result of the quarry, would have been present in 1990.

10.3.2.4 Land Use

10.3.2.4.1 Wider landscape

Land uses in the wider vicinity include agriculture, several industrial parks/areas, scattered residential clusters, and recreation/leisure (golf courses). Transport is also a land use with the N7 a prominent feature of the baseline landscape.

10.3.2.4.2 Site and immediate vicinity

Land uses on site and immediate surrounds included quarrying on the Site, agriculture, and residential land uses. Some nearby land uses may have included car repair/machinery rental to the east and west of the Site.

10.3.2.5 Landscape Value/Sensitivity

Landscape Characteristics

The landscape value can be described in terms of value with reference to ‘designated features’ which are referred to in the current SDCC Plan, as well as values derived from its qualities which include quality, naturalness, cultural heritage, rarity, tranquillity, recreation value and accessibility.

The SDCC Plan notes that in this LCA 4 – Athgoe and Saggart Hills – is considered of High Value, and of Medium-High to High sensitivity. (As noted previously, the sensitivity of a particular landscape relates to the type of development.

The values associated with the site and wider landscape are evident in the importance of the surrounding hills (Windmill Hill, Athgoe, Bustyhill and Saggart) as Prospects, which are important elements of the landscape when viewed from the surroundings – particularly from ‘prominent public places’ as notes in the SDCC Plan. Other evidence of value are the protected views in the vicinity which have views either towards the hills (Protected View from Tay Lane, northeast of the site, as annotated on Figure 10.2) or long-distance views over

the rolling countryside. The remnants of historic landscapes are also considered to be valued features of the landscape. These values which are evident today, would also have been evident in 1990.

More localised elements of landscape value evident ca. 1990 in the immediate vicinity of the site include Windmill Hill itself (designated as a Prospect), the windmill tower which is a landmark, and the number of cultural heritage monuments located adjacent to this. The Site was not publicly accessible, and the quarry was ca. 1990, surrounded by agricultural fields and hedgerows which are not considered rare.

10.3.3 Visual Receptors

Visual receptors in the vicinity of the site include those travelling on the roads (minor roads as well as busier roads such as the R120 and the N7), and receptors living in clusters of houses nearby the project site.

Several sensitive visual receptors were identified, at viewpoints including the protected views/scenic routes referred to in Section 10.3.1, identified in the SDCC Plan and KCC Plan, several of which have views of the quarry today.

Residential receptors include those located to the southeast of the site along Windmill Lane, to the east in the residential Broadfield area, as well as several located on minor roads north of the N7 and in the vicinity of Athgoe. Residential receptors are also located southeast of the site at Redgap.

Today, the quarry site is visible from a relatively limited number of locations in the immediate vicinity of the Site, with more open views located to the north of the Site. Views to the south and southeast, and views from the N7 are restricted due to vegetation, topography and built form. Views along the N7 are largely restricted due to screening by built form, structures and vegetation. It is also noted that visual receptors travelling along the N7 would be travelling at higher speeds than the surrounding roads (and would be also considered of Low sensitivity).

An initial list of viewpoints was prepared, and further reviewed in the context of visibility of the existing quarry.

The location of these viewpoints and a list of viewpoints are shown in Section 10.5.2.

10.4 Development which has occurred

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. This is shown below in Figure 10.5. 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 centre of its northern boundary from the N/M7 and has been historically accessed from that road and included in grant of planning permission for stone quarrying on site in 1968 (under Reg. Ref. 11547 / A.14). The current quarry void is centrally located within the EIA unit and roughly rectangular is 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 5 ha.

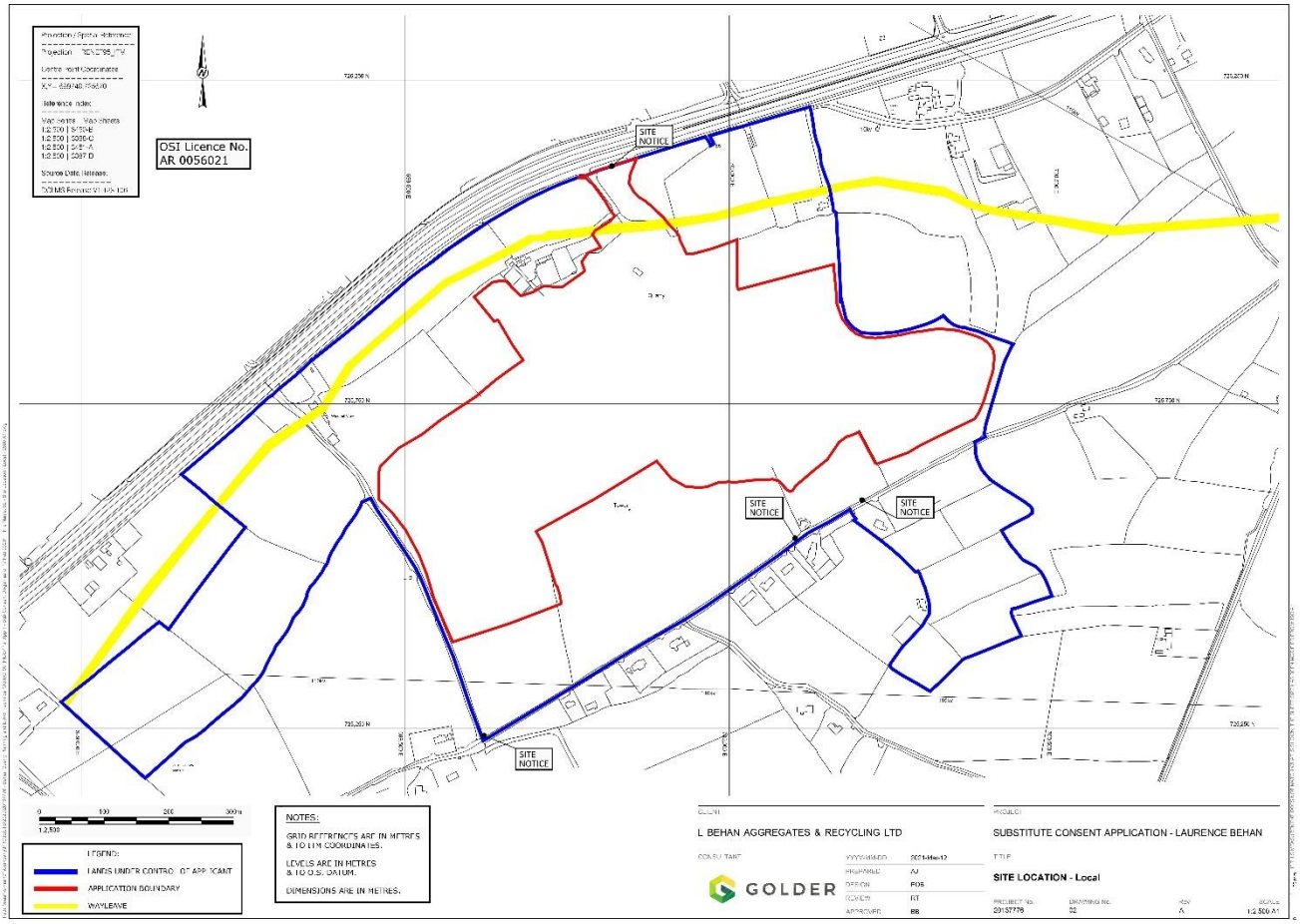


Figure 10.7: Substitute Consent Application Boundary (with extent of land ownership indicated)

It should however be noted that, for consistency, the EIA project boundary is used in the assessment in Figure 10.1 and that references to 'Site' refer to the EIAR project boundary.

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, in 2021 has expanded laterally to 28.8 ha. with an average working depth of 173 mAOD. The baseline condition in 1990 is shown in Figure 10.7 below:

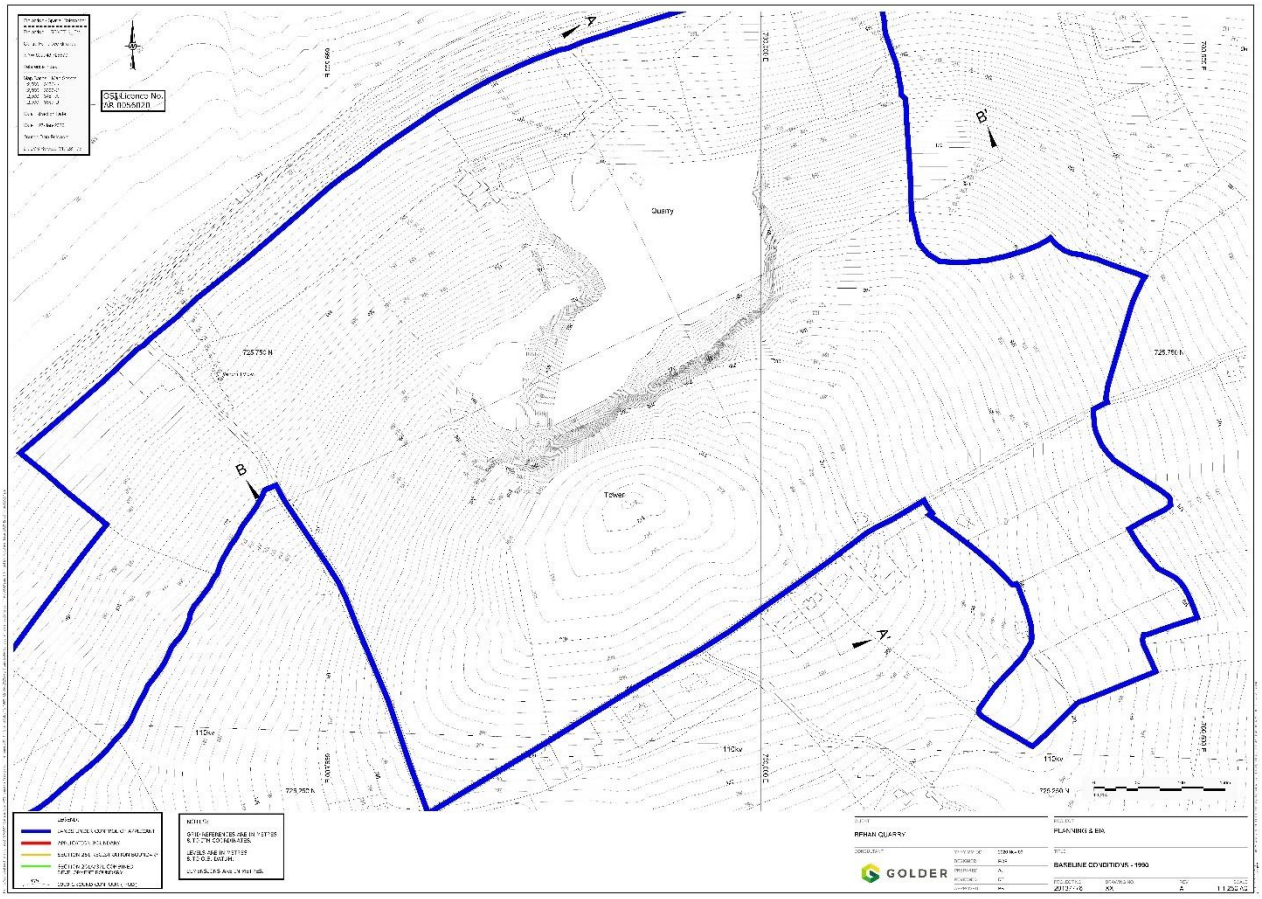


Figure 10.8: Baseline Conditions - 1990

Changes that have occurred within the Substitute Consent Application Boundary since 1990 (with reference to the aerial images) include:

- 1990-1994: Extension of quarrying to the fields west of the site;
- 1994-2000: Extension of quarrying to lands south of site in the direction of Windmill Hill, as well as to the west and north of the quarry void. Also expansion of quarrying to the east;
- 2000-2004: Further expansion to the south-east;
- 2004-2016: Further expansion to the south-east and north-east; and
- 2016-2020: Further expansion to south-west and southeast

The extension of the quarry included blasting and mechanical extraction, crushing, washing and grading of extracted material.

Other elements include a centrally located 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, an asphalt plant, a concrete plant and washing, crushing, screening and bagging plant. Also, within this plant and administration area are 2 no. weighbridges, 4 no. wheel washes, fuel storage and refueling area, operations water well 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.

10.5 Assessment of Effects

10.5.1 Landscape Effects

10.5.1.1 Landscape Sensitivity

10.5.1.1.1 Wider landscape

Landscape Sensitivity of the wider Landscape Character Area is considered by the SDCC Landscape Character Assessment to be Medium-High to High. However, the GLVIA notes that Sensitivity is considered to be a combination of an area's landscape value and its susceptibility to change. The SDCC Landscape Character Assessment considers the Landscape Value to be High.

Several elements of high value are indicated in the Development Plan – namely the topography and hills in the area, and several open and expansive views of the hills and landscape, as well as elements such as cultural heritage features in the wider landscape. However, this study also identifies several elements of low landscape value in the area include the N7, and areas of industrial development.

10.5.1.1.2 Site and Immediate Vicinity

Elements of high value on the Site and its immediate vicinity include Windmill Hill itself, which is an important part of the wider landscape and views, and also the windmill ruin itself, as well as and other features of cultural heritage interest on the hill identified by reference to the historic environment viewer (maps.archaeology.ie). The field boundaries and hedgerows are considered of Medium value. The quarry void itself as it was in 1990, as an operating quarry, would be considered of Low sensitivity.

10.5.1.2 Effects which have occurred – Wider Landscape.

10.5.1.2.1 Magnitude of Change

The magnitude of change which has occurred at the wider landscape scale relates primarily to the landscape character.

The development (expansion of the existing quarry) which has taken place has altered the topography. The generally flat topography, with several notable hills. is one of the key characteristics of the area. Windmill Hill is noted in the SDCC Plan as a 'prospect' which denotes its importance as a feature of the wider landscape. The extent of the expansion to today is approximately twice the baseline size of the quarry. The expansion of quarrying to over twice the area on the side of a hill represents a High magnitude of change from the wider landscape:

Change that is moderate to large in extent, resulting in major alteration or compromise of important landscape receptors,

At the scale of the wider landscape, the change in character would have been noticeable from some viewpoints, where the quarry void or rockface can be seen and is therefore likely to be more pronounced. From some viewpoints only stockpiles and / or top and subsoil storage berms are visible.

10.5.1.2.2 Significance of Effect

At the wider landscape scale (within 5km), the significance of effect that has occurred is considered to range from Moderate to Significant, and adverse, on certain parts of this landscape. Windmill Hill is an important and valued landscape element in the wider landscape, where the hills are a feature of the area's character. The changes to the topography are visible in the wider landscape from certain viewpoints, however it is noted that these are primarily to the north and west, with the views from the landscape to the south and east unchanged.

10.5.1.2.3 Effects which have occurred – Site and Immediate Vicinity

10.5.1.2.4 Magnitude of Change

The magnitude of change which has occurred at a local level relates primarily to the local landscape fabric, which has undergone a High magnitude of change.

Change that is moderate to large in extent, resulting in major alteration or compromise of important landscape receptors…

The extent of the expansion is approximately twice the baseline size of the quarry. The change has also resulted in the removal of parts of the field pattern and field boundary vegetation. The activities described above which are associated with quarrying would have continued, as they had prior to 1990, albeit over an expanded working area. Other changes as a result of the quarry activity evident on the local landscape would be the change of use from agricultural to quarrying, and the deposition of overburden or spoil along the quarry boundary. Other changes include the elements of bult form referred to in Section 10.4 which represent a Low level of change.

The changes to the landscape character are not considered to be as pronounced as changes to the landscape fabric, as the quarry is largely screened from view from the immediate vicinity.

10.5.1.2.5 Significance of Effect

At the localised landscape scale, the landscape effect is considered Moderate. Effects are mainly adverse (vegetation removal and less of field/landscape pattern) to neutral (the creation of earth mounding along parts of the southern boundary is considered a neutral effect) in some areas depending on the scale and surface of the mounding.

10.5.1.3 Effects which are occurring

10.5.1.3.1 Magnitude of Change

Quarry operations (extraction, crushing, washing) have been ongoing and as a result of these, the local landscape character would be subject to noise and dust at a localised level. This would presumably have been the case prior to 1990, thus these activities have been persistent albeit over a larger area.

This would result in an ongoing Low magnitude of change in the immediate vicinity of the site.

10.5.1.3.2 Significance of Effect

The significance of effect is considered Slight. The effects which are occurring are those ongoing activities which do not affect the wider landscape or landscape elements of high value.

10.5.2 Visual Effects

10.5.2.1 Effects which have occurred

10.5.2.1.1 Visual Receptor Sensitivity

Visual receptors of medium to high sensitivity include those at locations of scenic viewpoints (Viewpoints 1 and 12), viewpoints near residences and viewpoints which have a view towards Windmill Hill and could be considered as a Prospect as per the SDCC Plan.

There were no viewpoints considered along the N7 as the quarry is largely screened from view and vehicles are typically travelling at speed. Some 12 viewpoints from the surrounding area were chosen and reviewed to assist in the assessment of visual effects which have occurred. shown below in Figure 10.8 (and listed in Table 10.6) below:

Table 10.6: Viewpoint Locations

Viewpoint	Description
1	View from South Dublin County Council Protected View on Tay lane
2	View from Rathmill Green, Broadfield Manor housing estate
3	View from next to farmhouse along L8040 Keatings Park northeast of quarry
4	View from along Colemanstown Lane north of quarry
5	View from nearest group of houses south of quarry along Windmill Road
6	View from group of houses along Windmill Road west of junction with Carrigeen Lane
7	View from next to group of houses along Windmill Road to the southwest of quarry
8	View from edge of a group of houses along Rathcoole Hill Road at junction of Carrigeen Lane
9	View from along L6044 Oweneen's Lane
10	View from group of houses along L6002 Athgoe Road
11	View from group of houses along Old Chapel View Road
12	View from Kildare County Council Protected route on L6018 Puckstown Road

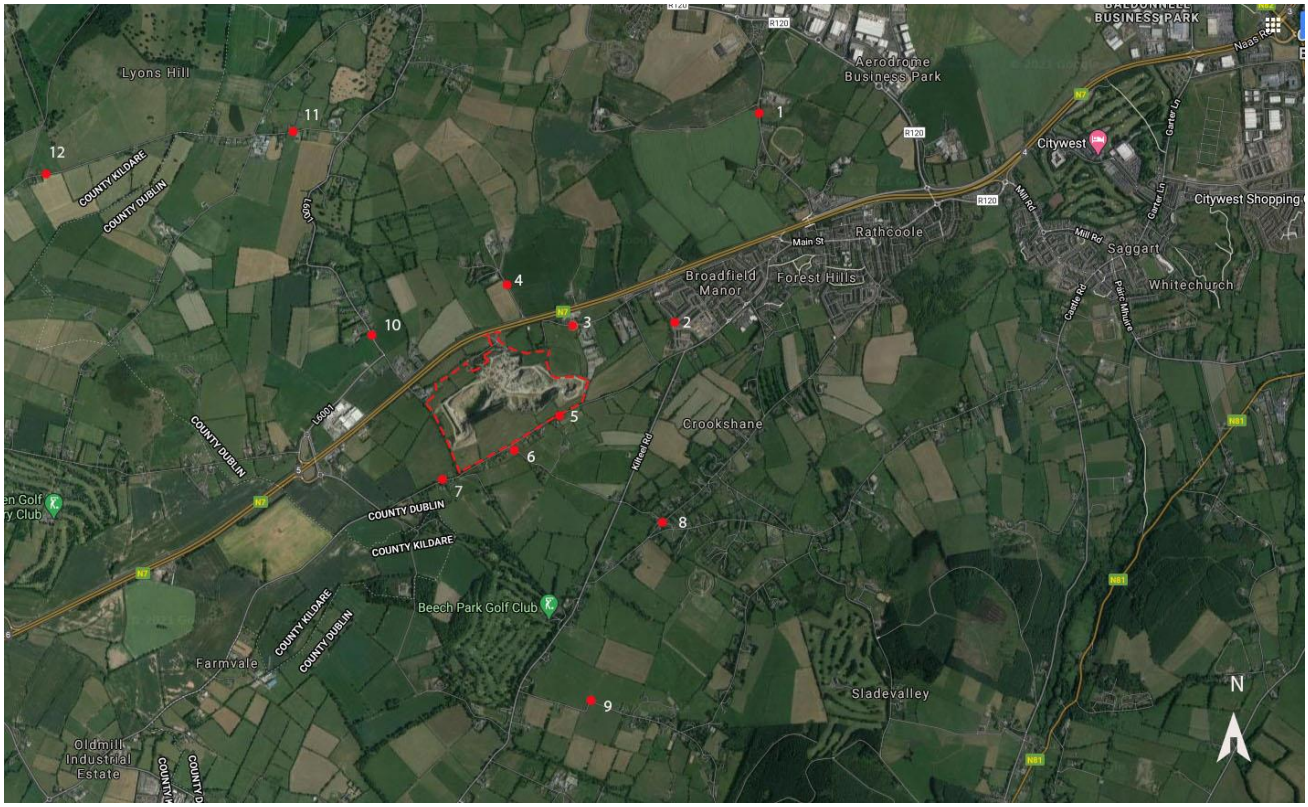


Figure 10.9: Viewpoint Locations 1-12, Image Source: Google Maps 2021.Viewpoint Assessment

The viewpoints are described below, under the headings 'Existing view', 'Visual Receptor Sensitivity', Magnitude of Change' (which has occurred) and the 'Significance of Effect'.

Viewpoint 1 –South Dublin County Council Protected View on Tay lane

Figure 10.10: Viewpoint 1

Existing View

This view shows panoramic roadside views across the large field with a shelterbelt in the foreground and middle ground. To the rear, the outline of hills in the background is visible to the west and south. Amongst these hills, to the centre of the view, the existing quarry is distinguishable by its pale rock face along the southern boundary and the uncharacteristic, jagged profile of Windmill Hill. The remnant windmill base is visible on the summit of Windmill hill, directly south of the quarry's edge.

Visual Receptor Sensitivity

The visual receptor sensitivity is considered High (designated protected view)).

Magnitude of Change

The magnitude of change which has occurred, and which would have been evident from this view, includes the expansion of the quarry to the south (towards the summit of Windmill Hill) and to the east (the rock face to the left of the view). While the quarry void and the prominent rock face would have been visible, the extent would have been less, and it is likely that what now appears as a jagged rock face seen against the skyline would have had a less prominent profile in 1990. The magnitude of change is considered Medium to High:

Medium: Development…resulting in change to the composition but not necessarily the character of the view or the visual amenity

High: the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.

Significance of Visual Effect

The significance of the visual effect is **Moderate-Significant.** The quality of the effect is considered adverse, long term. An element of professional judgement was applied to the guideline Matrix outlined in Table 10.3.

Viewpoint 2 – Rathmill Green, Broadfield Manor housing estate`

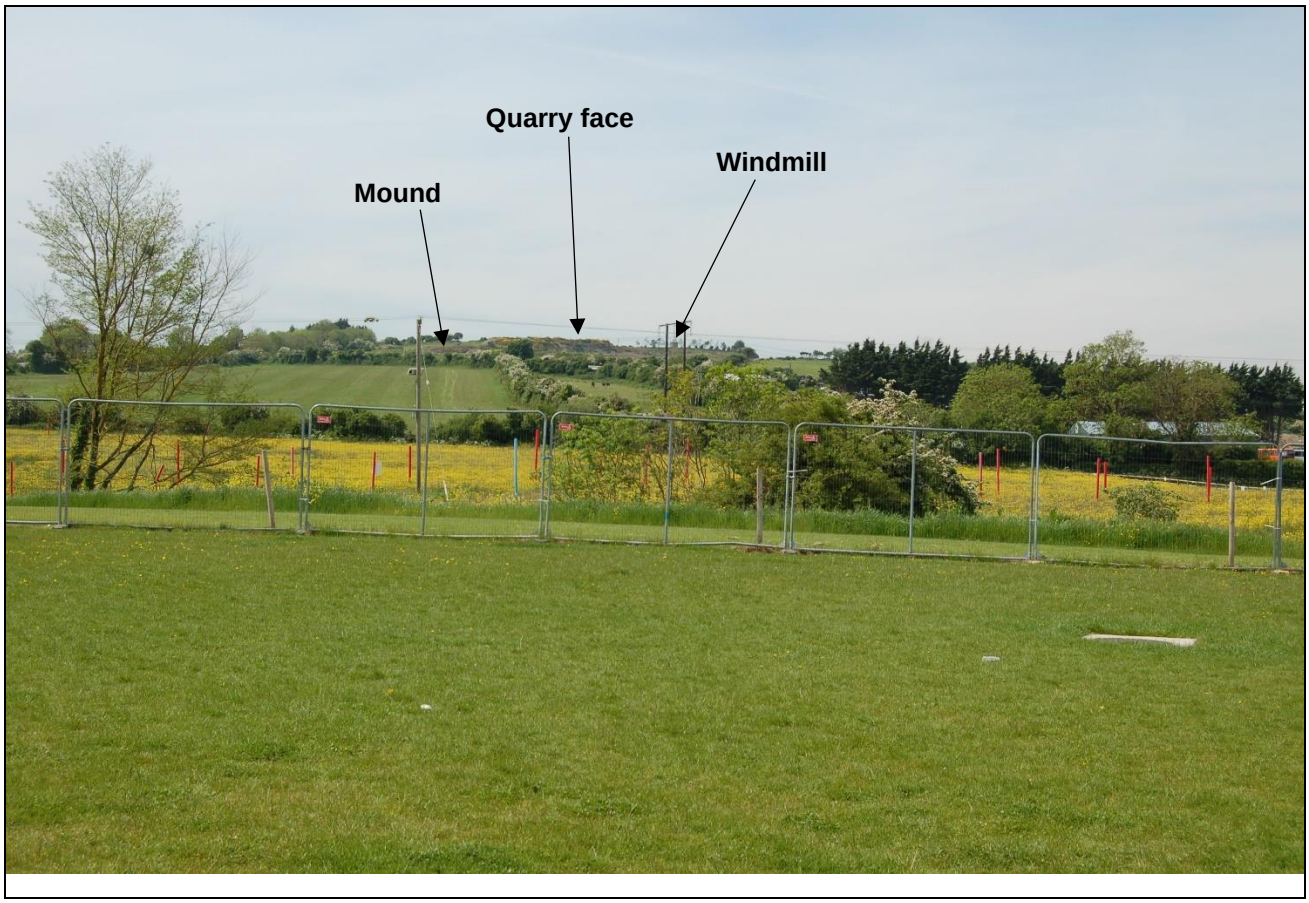


Figure 10.11: Viewpoint 2 Existing View

Existing View

The view is from the small amenity space between the houses of Rathmill Green and Brookfield lawns, which is contained by the temporary security fencing. Beyond the fencing is the surrounding farmland with well-developed hedgerows, which rises west towards the summit of Windmill Hill in the background. In the middle ground are partial views of sheds and vehicles within the industrial units on L6040 Keatings Park. Partial views of the Site's worked quarry face, south eastern boundary mound and boundary vegetation along with the remaining windmill structure on the ridge are visible in the background. The majority of the quarry is not visible due to topography.

(It should be noted that this housing estate was not in existence at the baseline date of ca. 1990.)

Visual Receptor Sensitivity

Visual Receptor Sensitivity is considered to be Medium. The view is from a residential area and is a pleasant rural view but is not considered of high scenic value.

Magnitude of Change

The existing earth mound and rock face are the only change visible in this view, which occupies a very limited extent of the view and is of a similar height to the surrounding vegetation. Therefore, the magnitude of change is considered Negligible:

'Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity'.

Significance of Visual Effect

The visual effect is considered **Not Significant**. The quality of the effect is considered adverse.

Viewpoint 3 - View from next to farmhouse at Keatings Park along L8040 northeast of quarry

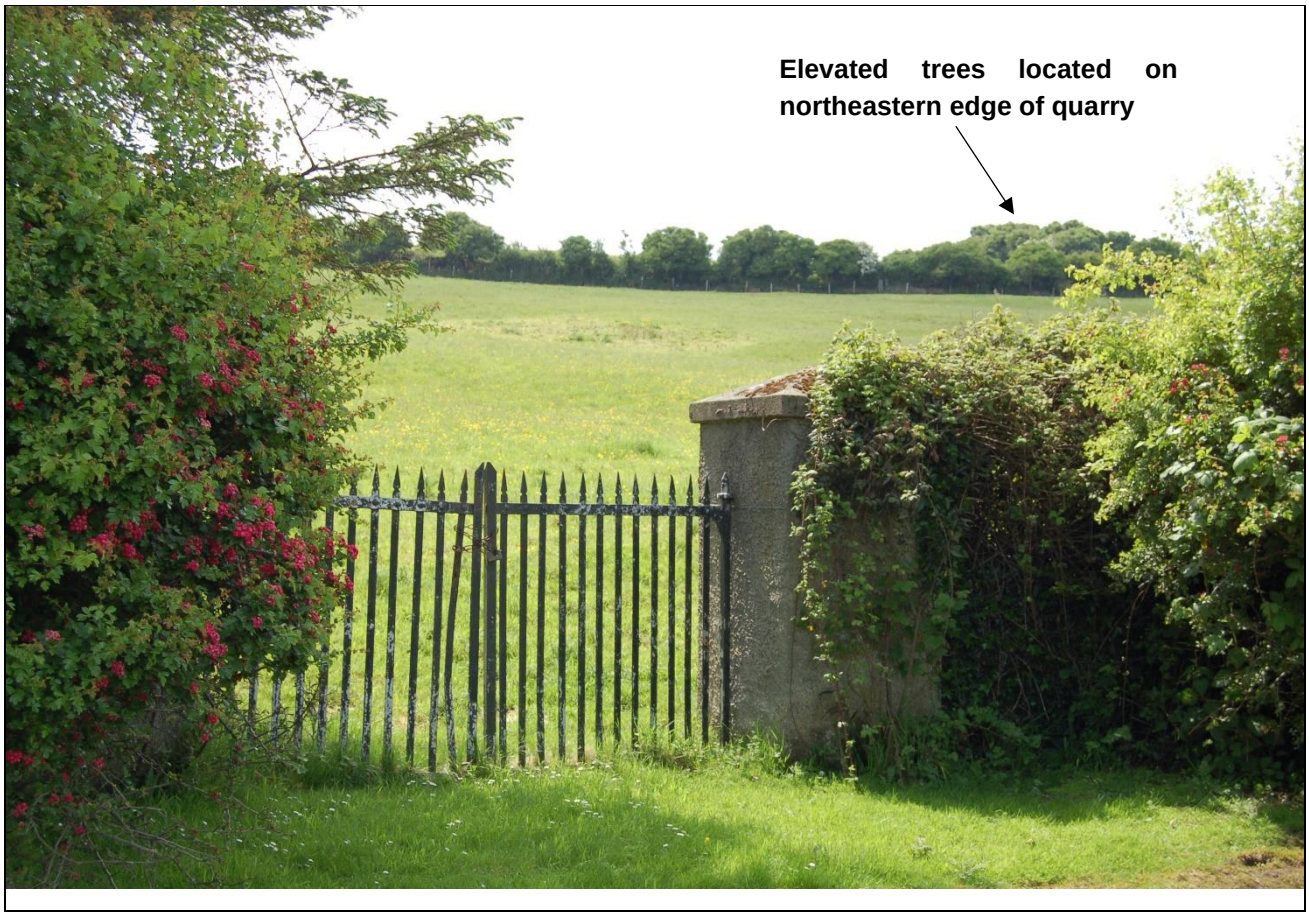


Figure 10.12: Viewpoint 3 Existing View

Existing View

The view is taken opposite Keatings Park House, to the northeast of the quarry. Outward views from the house are heavily restricted by the mix of walls and hedgerows along the garden and opposite side of the laneway. The field gate in the foreground provides views into the neighbouring fields which rises up towards the southwest in the direction of the existing quarry. However, the intervening field hedgerow in the middle ground greatly

screens views of the site boundary. The only visible elements of the Site are the upper portions of a group of trees on the quarry's far north-eastern boundary which peer above the intervening hedgerow.

Visual Receptor Sensitivity

The visual receptor sensitivity is considered to be Medium. It is next to a residence and the view is pleasant but not highly scenic.

Magnitude of Change

Views in the direction of the development site are screened by the topography of the hill, as well as intervening vegetation to the left of the view. There is no visibility of the quarry development and no change.

Significance of Visual Effect

None.

Viewpoint 4 – Colemanstown Lane north of quarry

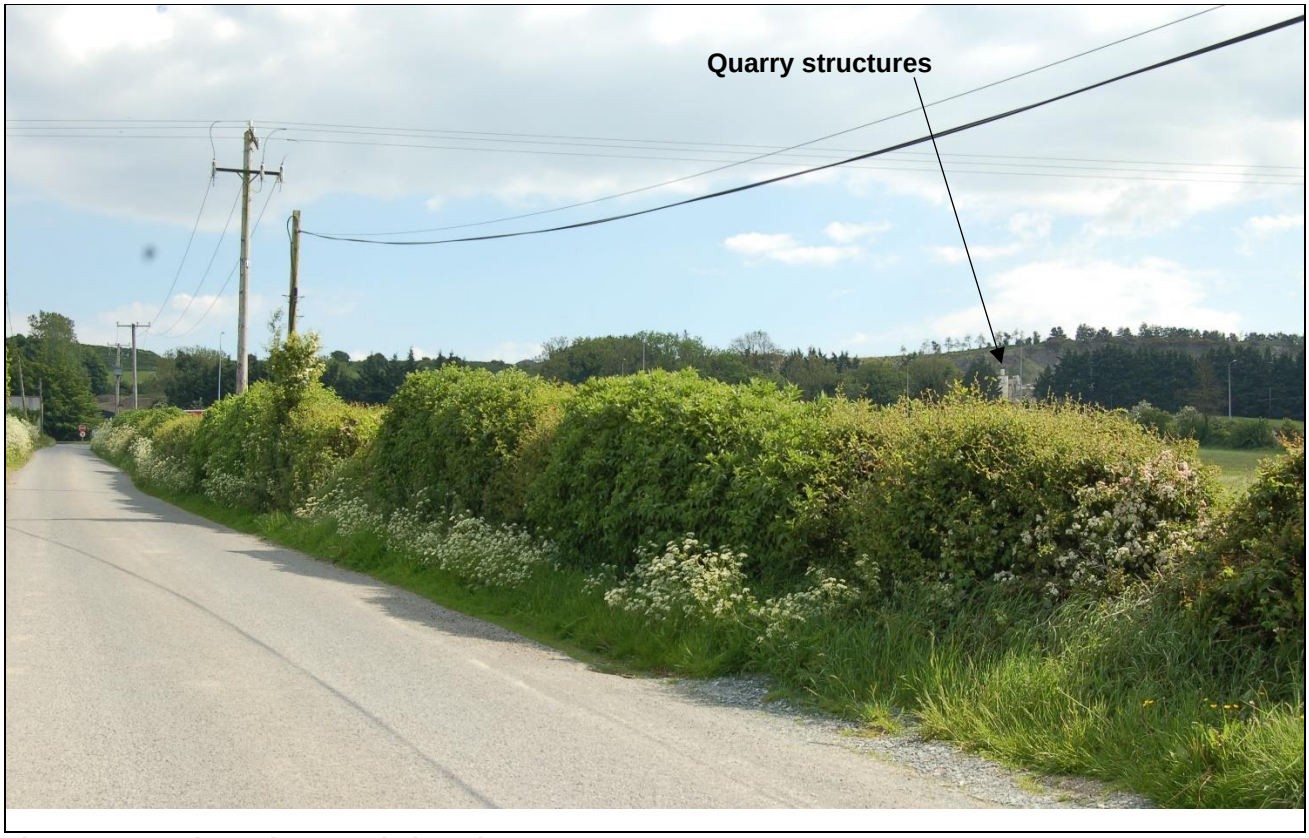


Figure 10.13: Viewpoint 4 - Existing View

Existing View

The existing view looks north along a local road, towards the Site. Beyond the local road and hedgerow, there are views of the N7 road which are partially screened by the hedgerow opposite, but the road is defined within the middle ground by the street lighting.

The existing quarry is largely screened by the topography and dense planting along the quarry boundary. The ridgeline of Windmill Hill and existing quarry's upper southern rock face are visible in the background above the lower hillside, trees and hedgerows. Some of the quarry's processing plant structures are partially visible between a gap in the tree cover.

Visual Receptor Sensitivity

Views will be experienced by road users walking or driving towards the N7 road. The visual receptor sensitivity is considered to be Medium, representing road users (primarily residents) travelling at slow speeds at a viewpoint which is pleasant but not highly scenic. (It should be noted that in selecting this viewpoint, consideration was also given to potential views from a group of residences located at the end of the same laneway, approximately 120m northwest of the viewpoint, but these appear to be fully screened by their garden hedgerows and other houses.) Viewers closer to the N7 road would not experience open views.

Magnitude of Change

The magnitude of change in this view is considered Negligible:

'Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity'.

The view in 1990 is likely to have been similar, with perhaps less mature planting and the glimpse of overburden/rockface is unlikely to have been visible at that time as this is due to the quarry extension to the north-east.

Significance of Visual Effect

The visual effect is considered **Not Significant**. The quality of the effect is considered adverse.

Viewpoint 5 Group of nearest group of houses south of quarry along Windmill Road

Figure 10.14: Viewpoint 5 Existing View

Existing View

The existing view, taken from next to a property entrance, looks across the road to the high vegetated bank marking the Site's southern boundary with the road. Some gorse covered mounding is visible in the centre of the view above the field boundary which is the only evidence of the quarry development. The baseline view would not have shown any areas of mounding and the quarry would have been hidden from view.

Visual Receptor Sensitivity

The visual receptor sensitivity is considered to be Medium as it near a cluster of houses and considered pleasant but not highly scenic.

Magnitude of Change

The magnitude of change is considered Negligible. The mounding evident to the centre of the view, covered in gorse, would not appear to have obstructed any important views. This is considered a Negligible magnitude of change to the overall view:

Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity.

Significance of Visual Effect

The visual effect is considered **Not Significant.** The quality of the effect is considered neutral.

Viewpoint 6 – Group of houses along Windmill Road west of junction with Carrigeen Lane

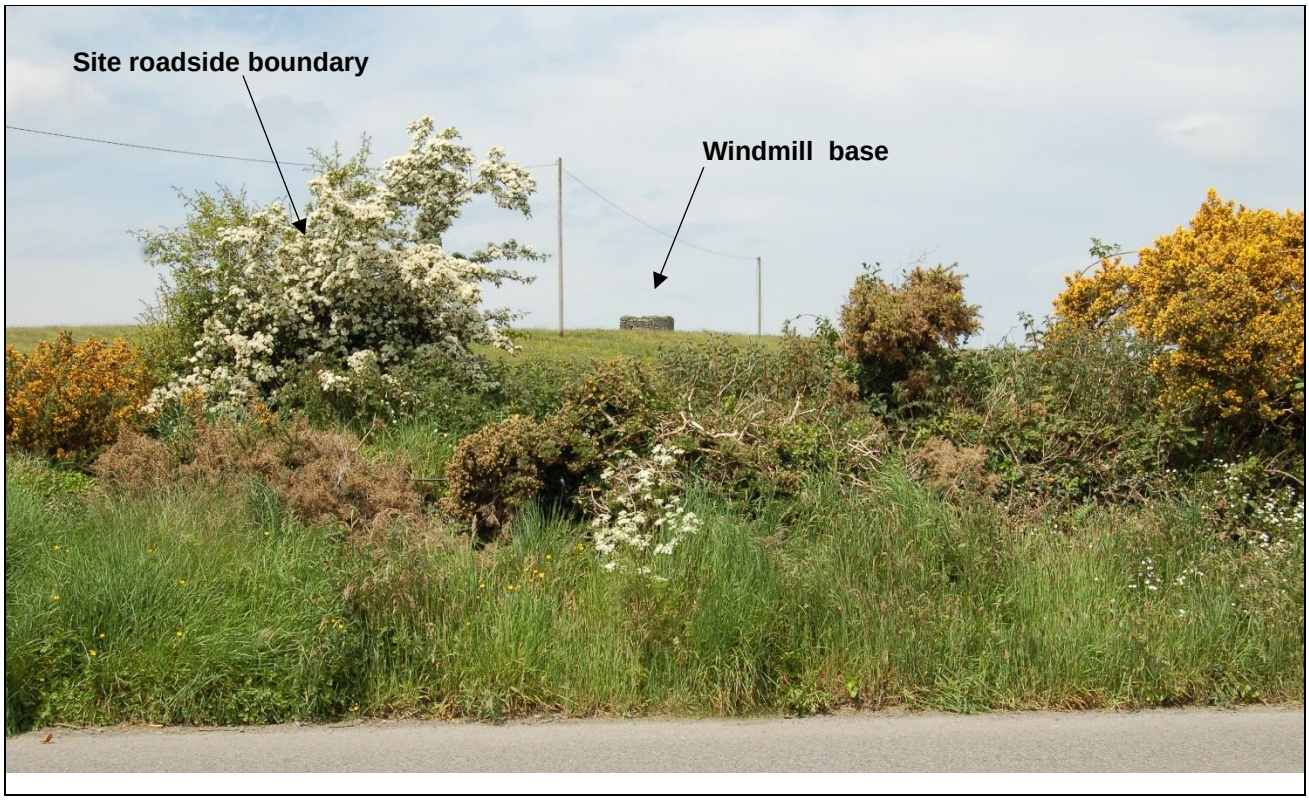


Figure 10.15: Viewpoint 6 Existing View

Existing View

This view is from the junction of Carrigeen Lane and Windmill Road. (Note four houses are located to the left of the junction but not visible in the view). A large sloping agricultural field is seen behind a low hedgerow, and the Windmill is visible on the summit of the hill.

No other views of the existing quarry are available as they are screened by the topography.

Visual Receptor Sensitivity

The visual receptor sensitivity is considered to be High –views would be experienced by local residents in the adjacent houses and there are clear views of the Windmill ruin on the summit of the hill which is regarded as a Prospect in the development plan and is a landmark in the local landscape.

Magnitude of Change

There is no change evident from this view.

Significance of Visual Effect

None.

Viewpoint 7 –Group of houses along Windmill Road to the southwest of quarry

Figure 10.16: Viewpoint 7 Existing View

Existing View

This view is taken from a relatively narrow road with a rural character ((Windmill Road). A short break in the predominantly high roadside hedgerow allows views towards a dwelling, which partly screen the ridgeline of Windmill Hill. To the left of the house, the ridgeline of the hill is marked by gorse, and a hedgerow marking the

existing quarry's western boundary edge, although there are no views of the quarry itself. Trees and vegetation are seen to the rear of the dwelling.

Visual Receptor Sensitivity

The visual receptor sensitivity is considered to be Medium, as it represents road users along a local road with some scenic qualities and a pleasant rural character. This section with a more open view is a short section in a predominantly vegetated roadside.

Magnitude of Change

The existing quarry is not visible in this view. There is no change to the view.

Significance of Effect

No visual effect.

Viewpoint 8 – Group of houses along Rathcoole Hill Road at junction of Carrigeen Lane

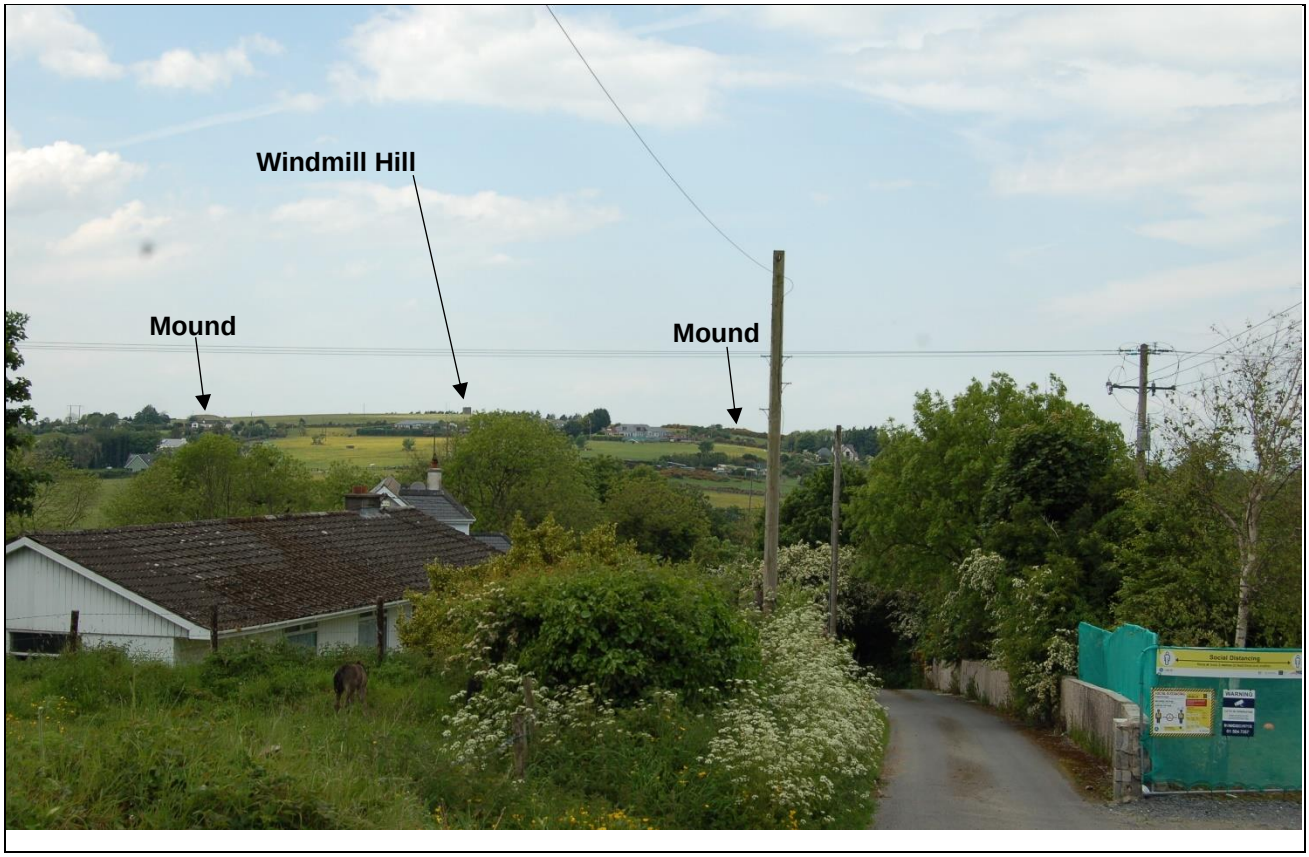


Figure 10.17 Viewpoint 8 Existing View

Existing View

This view looks across the undulating agricultural lands, beyond the foreground dwellings and vegetation, towards the ridgeline of Windmill Hill. The windmill remains are evident in the view. The landscape is a rolling rural landscape, with clumps of trees and some dwellings evident. The quarry itself is not visible, however some of the (now vegetated) overburden mounds appear evident to either side of the hill, as indicated in Figure 10.17 above,however, it should be noted that these appear distant.

The view would have been similar in 1990 but without the mounds of overburden which appear to be to the southeast and southwest of the hill.

Visual Receptor Sensitivity

The visual receptor sensitivity is considered to be High as it represents road users along a narrow rural road, with good views towards Windmill Hill which is a Prospect in the SDCC Plan. It is also taken at the entrance to a dwelling which is slightly elevated with good views towards the site.

Magnitude of Change

The magnitude of change is considered Negligible, with the mounds occupying a very limited proportion of the overall view, and rather difficult to discern at this distance. The mounds do not interfere with the views towards the hilltop and the windmill. Negligible is defined as:

'Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity'.

The mounds along the south-eastern boundary are the only likely change in this view, and this is at a distance.

Significance of Visual Effect

The visual effect is considered **Not Significant, neutral effect.** An element of professional judgement was applied to the Matrix in Table 10.3 (which is a guideline only).

Viewpoint 9: View from along L6044 Oweneen's Lane

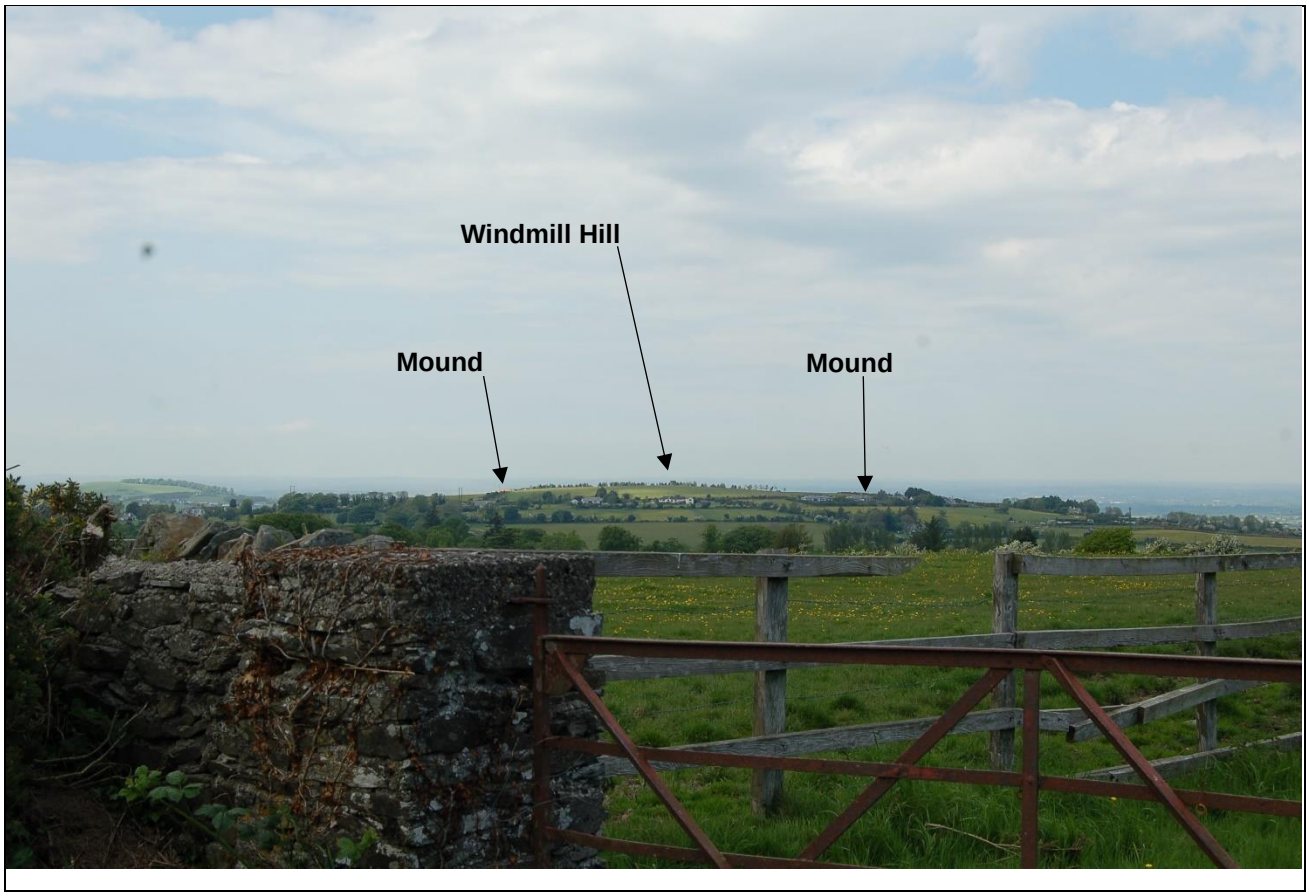


Figure 10.18 Viewpoint 9 – Existing View

Existing View

The existing view along a short open section of this local road provides panoramic views across the undulating lands across to Windmill Hill and surrounding hills. The settlements of Rathcoole and Newcastle to the north are visible in the distance. The ridgeline of Windmill Hill is visible in the distance, and blocks views of the existing quarry, while in the distance, some of the overburden mounds are just visible.

Visual Receptor Sensitivity

The visual receptors are road users in a pleasant area with some scenic views, which will have Medium sensitivity.

Magnitude of Change

The magnitude of change is considered Negligible:

'Barely discernible intrusion of the development into the view, or introduction of elements that are characteristic in the context, resulting in slight change to the composition of the view and no change in visual amenity'.

Significant of Visual Effect

The visual effect is considered Not Significant.

Viewpoint 10 – Group of houses along L6002 Athgoe Road

Figure 10.19: Viewpoint 10 Existing View

Existing View

This view is taken from the road, south of a cluster of dwellings where there is an open view towards the Site.

(Most houses within the group have no views of the existing quarry as they are surrounded by high garden and roadside hedgerows and trees.) Three houses on the south eastern edge of the group may have varying ground and upper floor may have views towards Windmill Hill.

Through a gate, an agricultural field is visible with tree clumps and shed roofs in the middle ground. The passing traffic along the N7 route is visible through gaps in the roadside hedgerow.

There is an open view towards Windmill Hill which is an important feature of the view, , and the hill with its tree line, and the exposed quarry face, are prominent in the view. To the left of the view, a large, partly vegetated overburden mound is visible.

Visual Receptor Sensitivity

The visual receptor sensitivity is considered Medium-, representing road users on a minor road with some scenic qualities.

Magnitude of Change

Since 1990, it appears that this view has changed somewhat. The quarry has laterally extended east, west and south, and therefore the extent of the rock face in the view would have been of a lesser horizontal extent in 1990, with fields likely to have been visible to the right of the existing quarry. The height of the quarry face has increased as the quarrying expanded into the upper slopes of Windmill Hill and the rock face is quite prominent. Mounds to the left of the view may not have been present at the time. The quarry and associated mounds therefore occupy a considerable proportion of the view.

The magnitude of change is considered Medium, defined as:

"…introduction of elements that may be considered uncharacteristic in the context, to the extent that the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity."

Significant of Visual Effect

The significance of the visual effect is considered to be **Moderate to Significant.** The quality of the effect is considered adverse, long term.

Viewpoint 11– Group of houses along Old Chapel View Road

Figure 10.20 Viewpoint 11 - Existing View

Existing View

The elevated point in the road near a cluster of houses, provides panoramic views over undulating agricultural fields with tree clumps. The existing quarry is visible in the middle ground, to the right of the residence. The higher Saggart Hill and Dublin mountains form a backdrop to the quarry.

Visual Receptor Sensitivity

The viewpoint is near a cluster of houses and represents an open view which may be shared by some of the houses and gardens without intervening vegetation or walls. Visual receptor sensitivity is considered to be High due to the proximity to houses and the scenic qualities to the view.

Magnitude of Change

The baseline view ca. 1990 is likely to have changed considerably. The quarry face visible in the view has extended to the east and west in the intervening years, replacing fields and hedgerows, and the quarry face itself has also increased in height, however the backdrop of the hills reduce the prominence of the quarry in the view as it is not seen against the skyline.

The magnitude of change is considered Medium, defined as:

"*the development becomes co-dominant with other elements in the composition and affects the character of the view and the visual amenity.*"

Significant of Visual Effect

The significance of the visual effect is considered to be **Moderate to Significant.** The quality of the effect is considered adverse in quality, and long term. An element of professional judgement has been applied to this visual assessment.

Viewpoint 12– Kildare County Council Protected route on L6018 Puckstown Road

Figure 10.21: Viewpoint 12 - Existing View.

Existing View

The view looks along the road, and across the undulating agricultural fields with mature hedgerows, tree clumps and occasional buildings. Other less obvious elements include electricity line with wooden poles. A long low line of hills is visible in the background, which includes Windmill Hill, Saggart Hill and Dublin Mountains. The existing quarry is distinguished by the contrast of the rock face and mounds with the surrounding vegetation cover.

Visual Receptor Sensitivity

The visual receptor sensitivity is considered to be High for road users on this county level designated scenic route.

Magnitude of Change

The quarry occupies a limited extent of the overall view and the prominent backdrop of hills renders the quarry less obvious in this view. In 1990, the quarry is likely to have been a much less obvious feature in the landscape, with fields and hedgerows evident on either side of a smaller quarry void, and a less prominent rockface.

The magnitude of change is considered Low, defined as:

Minor intrusion of the development into the view, or introduction of elements that are not uncharacteristic in the context"

Significant of Visual Effect

The significance of the visual effect is considered to be **Slight- Moderate.** The quality of the effect is considered adverse, long term.

10.5.2.2 Summary of Visual Effects

The visual effects are summarised in the table as follows:

Table 10.7: Viewpoint Summary Table

Viewpoint	Description	Visual Receptor Sensitivity	Magnitude of Change	Significance of Effect
1	View from South Dublin County Council Protected View on Tay lane	High	Medium-High	Moderate-Significant
2	View from Rathmill Green,, Broadfield Manor housing estate	Medium	Negligible	Not Significant
3	View from next to farmhouse along L8040 Keatings Park northeast of quarry	Medium	None	None
4	View from along Colemamstown Lane north of quarry	Medium	Negligible	Not Significant
5	View from nearest group of houses south of quarry along Windmill Road	Medium	Negligible	Slight-Moderate
6	View from edge of a group of houses along Windmill Road at junction of Carrigeen Lane	High	None	None
7	View from next to group of houses along Windmill Road to the southwest of quarry	Medium	None	None
8	View from edge of a group of houses along Rathcoole Hill Road at junction of Carrigeen Lane	High	Negligible	Not Significant
9	View from along L6044 Oweneen's Lane	Medium	Negligible	Not Significant
10	View from group of houses along L6002 Athgoe Road	Medium	Medium	Moderate-Significant

11	View from group of houses along Old Chapel View Road	High	Medium	Moderate-Significant
12	View from Kildare County Council Protected route on L6018 Puckstown Road	High	Low	Slight-Moderate

The viewpoints described above give an overall sense of the main areas where changes to the views are apparent, but it is noted that these are not exact descriptions of the changes due to the lack of baseline photography from 1990. It is however possible to note that, overall, views from the immediate vicinity of the quarry are restricted to views of overburden mounds (Viewpoints 2, 4,5) or no views (Viewpoint 3,6,7) with no views of the rockface or the void due to screening by the topography of Windmill Hill. Therefore, changes which have occurred in this vicinity to the south and southeast of the quarry site are not Significant and tend to be Not Significant to Slight.

It is also noted that the views towards the remains of the windmill structure on Windmill Hill (which is a designated Prospect) from the southeast of the site (Windmill Lane, Redgap) are not affected by the development that has taken place. Views from the N7 road are also largely screened.

Several views to the north and west of the site show that the visual effects that have taken place were more pronounced. Viewpoints 1, 10 and 11 show clear and open views of the quarry and in particular the southern rock face which is the most prominent aspect. While it Is not possible to be exact as to the extent of the change between 1990 and 2021 (owing to the lack of comparative baseline photography, a high-level assessment concludes that these views have undergone considerable change, and visual effects range from Moderate to Significant, noting that the aspect of the topography, Windmill Hill is a landmark and a Prospect and therefore a highly valued feature of the topography.

Two of the above views north and north-west of the site are now protected by the relevant Development Plans (Viewpoint 1 and 12).

10.5.2.3 Effects which are occurring

Effects which are occurring are primarily the continuing operations at the quarry including blasting, crushing and washing and grading of the stone which involves movement of machinery. The blasting process may result in dust which may be visible within the study area and may result in intermittent Slight, adverse visual effects. This represents a continuation of activities which are already ongoing.

10.5.2.4 Cumulative Effects

Cumulative landscape effects can be defined as those which:

'…result from additional changes to the landscape or visual amenity caused by the proposed development in conjunction with other developments (associated with or separate to it) or actions that occurred in the past, present or are likely to occur in the foreseeable future' (Landscape Institute and IEMA, 200 quoted in GLVIA 2013).

(It is noted that this development has occurred as opposed to a proposed development as mentioned above however the process is the same). The potential for cumulative landscape and visual effects to have occurred, e.g., other quarries, road schemes or large-scale housing/industry across the study area were considered.

Since 1990, a number of changes have been identified in the landscape. One of the main changes was the upgrading of the N7 road, through Road Improvement Schemes, which passes to the north of the Site. This

included the widening of the road form two lanes and a hard shoulder at the end of the 1990s, to three lanes and a hard shoulder in each direction in the mid-2000s. A grade separated junction was introduced at Steelstown (southwest of the Site). This was already a busy route with two lanes in each direction, so while the improvement scheme introduced some new elements and reduced the number of roads directly accessing the N7, the character of the road corridor and surrounds was already established. These changes slightly reduced the rural character or parts of this route.

It is noted that there are no extractive or sizable industries in the surrounds of the site which may contribute to cumulative effects.

There are several active quarries are located across the wider area but outside the LVIA study area. (6-10km) within both SDCC and KCC areas. The nearest quarries are Ballinascorney (6.0km southeast) and Belgard (6.2km east). These various quarries through the wider landscape are generally contained within their local rural or urban landscapes and not likely to have any notable potential cumulative interaction with the Development, so are not considered any further here.

Other smaller scale changes in the landscape include removal of field boundaries in the wider landscape, an increase in the number and size of industrial parks/storage yards (to the north and northeast of the site) which are more incremental changes.

Cumulative effects resulting from the increase in area quarried, in combination with the projects and development mentioned above have resulted in a Slight to Moderate, adverse effect on the landscape character, with the loss of some elements of the rural landscape (fields and hedgerows and localised changes in topography) and an increase in transportation, industrial/commercial and extractive land uses.

Cumulative visual effects are the effects on views and visual amenity enjoyed by people, which may result in wither adding the effects of the project being assessed to the baseline conditions, or from their combined effect.

There are limitations to this process being carried out retrospectively. However, a high-level review of the viewpoints suggests that there are no other large-scale changes in the landscape that can be clearly classified as Cumulative effects. The N7 improvement scheme would have imparted a degree of visual change to the immediate vicinity of the site but very limited views, if any, are available of the site, form the N7 corridor. The combination of both elements may be visible from some viewpoints but there would be no Significant Cumulative visual effects.

10.6 Mitigation

This section refers to mitigation which has been put in place, and also to mitigation measures outlined in the Concept Restoration Plan.

Mitigation measures which have been carried out between 1990-2021 (and evident on the 2020 Aerial image) include:

- Southern Boundary: Shelterbelt/Hedgerow planting has been carried out to the north of the Windmill, along the top of the rockface. Some sections of hedgerows have been retained. Natural regeneration has been allowed along parts of the southern slopes of the quarry;
- Along the Eastern boundary, boundary planting is evident while areas of natural regeneration and planting are also visible within the quarry and in the vicinity of the carpark;
- To the South, several dense areas of planting and natural regeneration of trees and shrubs are evident in the vicinity of the buildings and yard;

- Along the South-West boundary come boundary vegetation has been retained with some spoil mounds evident to screen views; and
- Along the site's western boundary retention and enhancement of the boundary is evident, with a dense treeline apparent.

10.6.1 Additional Mitigation - Concept Restoration Plan

- The Concept Restoration Plan (Drawing in Appendix 10.-2) outlines additional measures to assist in assimilating the Development into the landscape and enhancing vegetation cover and biodiversity to offset the effects of the vegetation and habitat loss. New habitat provision under the concept restoration plan will include provisions for trees, hedgerow, and shrub planting over and above the current situation; and
- The landscape mitigation and remediation measures will seek to provide additional visual screening of the Development from visual receptors. The landscape proposals will also enhance the biodiversity and ecosystem services delivery of the site in comparison with the surrounding agricultural lands.

Proposed measures include:

- Management/Improvement of the retained site boundary hedgerows and trees: The existing Site boundary hedgerows and trees to be surveyed and appraised in terms of (a) species mix - for biodiversity and maximum screening (height, density of foliage), and (b) intactness/continuity. Generic improvements and spot fixes to be made where required to optimise the health of the hedgerows, their biodiversity value and visual screening function;
- Reprofiling of the existing mounds on the south eastern and southwestern boundaries of the Site, where required, in order to help reduce the prevalence of these structures on views within the locality. These will be planted with a woodland species mix (including tree and shrub species), to form a substantial belt of woodland along the hillside. This will soften the form of the constructed mound, add to the height of the mound as a visual screen, and contribute to vegetation/habitat in the landscape generally.
- Planting will be required to mitigate for tree and hedge removal that occurred post 1990 and the concept restoration plan will be required to replace any trees and shrub species removed on a "like for like" basis (as a minimum). Consideration will be given towards hawthorn, blackthorn mix with individual alder and birch (to form native tree hedges) and deciduous trees (native tree species include oak, alder, birch);
- Enhancement of existing boundary screening with native vegetation as specified above is proposed and planting should comprise native species of local provenance. Where this is not possible, plants will be selected for their fruit, berry, or nectar bearing qualities. All landscape planting within the Site will be managed for the benefit of wildlife. Any gaps in the boundary vegetation are to be planted with native hedgerows;
- Re-vegetation/colonisation of site outside of excavation: In accordance with current best practice recommendations the areas between the excavation and the woodland-planted earth mounds around the perimeter of the Site will be allowed to re-vegetate/colonise naturally. This results in greater biodiversity and habitats most appropriate to the site conditions;
- Lake formation in quarry void: Engineered shallow areas on the floor of the quarry will initially provide islands and will ultimately be covered by water as the quarry fills to its natural level (determined by the water table), forming a permanent lake. The shallow areas will provide suitable substrate for aquatic invertebrates, with gentle grading of shoreline and marginal planting added (to be determined at the time, with the advice of an ecologist);

- Quarry benches: At a number of locations (to be determined at the time, with the advice of an ecologist) a mixture of trees and shrub species will be planted in an engineered substrate to form patches of habitat. This will create a platform for a more diverse flora to develop naturally and provide habitat and food resources for birds, mammals, insects and other invertebrates;
- Quarry faces: Whilst recognising the geological heritage value of the exposed quarry faces, it is proposed that some native tree and shrub species be planted in/on fissures and ledges, to help break up the bare profile of the rock face (the southern quarry face in particular.) Other plant species will be allowed to find and colonise the area by natural means, and these will include various mosses, lichens, algae, ferns, flowering plants, etc. The gradually increasing plant diversity over time will in turn ensure that a corresponding diverse list of animal species (birds, mammals, butterflies and other insects, other invertebrates, etc.), can become established; and
- Safety measures: An agricultural fence to be installed around the edge of the excavation, to act as a visual indicator of the edge and a physical barrier for people and animals. Safety signs are also proposed to be erected on and outside the boundary fence.

10.6.2 Conclusion

This assessment is a retrospective assessment of the Landscape and Visual Effects – and the notable effects in the case are the effects which have occurred between 1990 which is the baseline date, and the present.

The Methodology and Limitations sections outline the difficulties in assessing a development retrospectively and in some cases (in particular the assessment of viewpoints) it is not possible to be exact regarding the extent of the change which has happened in this time, particularly as some quarrying would have been evident in 1990.

10.6.2.1 Landscape Effects

The landscape character of the area is characterised by the relatively flat and gently sloping lands interspersed with locally prominent hills. The area is primarily rural though some areas have an industrial character and the N7 road is a notable feature of the area.

The landscape effects resulting from the quarrying relate to effects on the landscape character of the site as well as the wider landscape, as Windmill Hill is a prominent feature in the landscape.

Landscape Effects range from Moderate to Significant and are considered adverse and Long Term to Permanent (Long Term effects include mounding while the removal of rock is considered Permanent).

At the localised landscape scale, the landscape effect is considered Moderate. Effects are mainly adverse (vegetation removal and less of field/landscape pattern) to neutral (the creation of earth mounding along parts of the southern boundary is considered a neutral effect) in some areas depending on the scale and surface of the mounding.

At the wider landscape scale (within 5 km), the significance of effect that has occurred is considered to range from Moderate to Significant, and adverse, on certain parts of this landscape. Windmill Hill is an important and valued landscape element in the wider landscape, where the hills are a feature of the area's character. The changes to the topography are visible in the wider landscape from certain viewpoints, however it is noted that these are primarily to the north and west, with the views from the landscape to the south and east unchanged.

10.6.2.2 Visual Effects

Visual effects also vary. From 12 viewpoints selected, there is no visibility of the quarry development from three (Viewpoint 3,6,7). Moderate to Significant, adverse visual effects result from Viewpoints 1,10 and 11 where the quarry face and Windmill Hill are prominent features of scenic views. However, it should be noted that the remaining viewpoints are mainly considered Not Significant (Viewpoints 2,4,5,8,9) with the quarry screened by

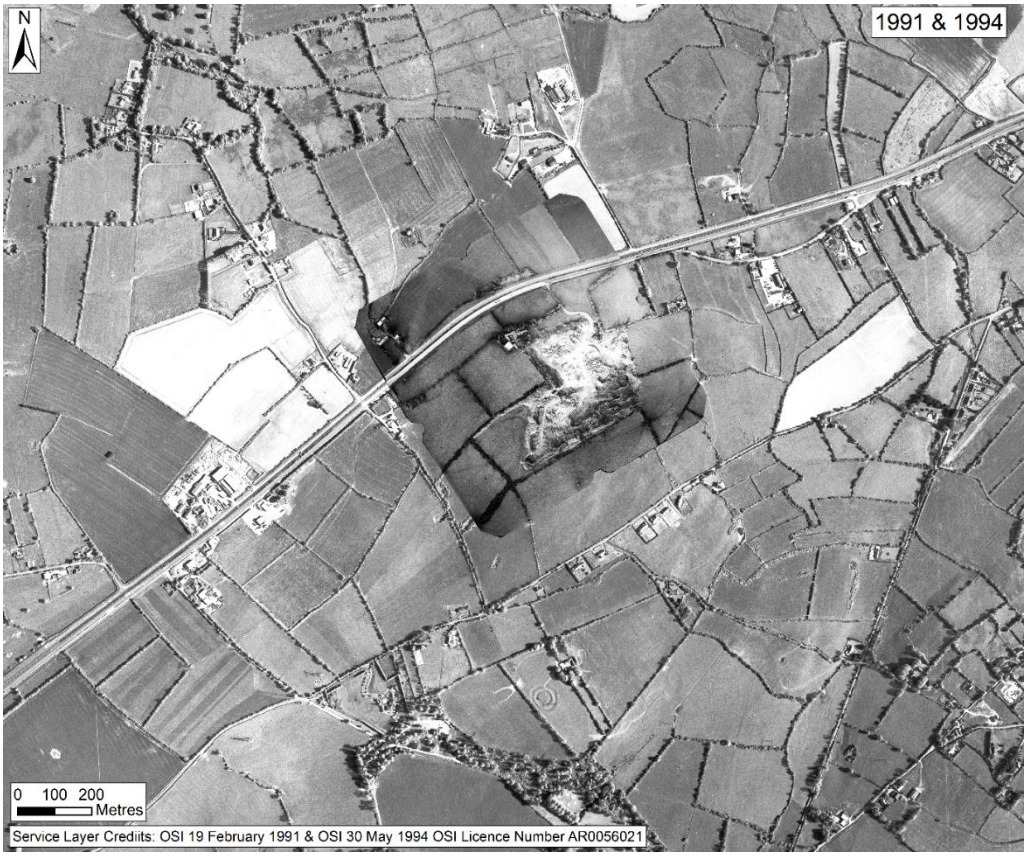
either Windmill Hill topography itself as is the case for the receptors to the south east and along Windmill Road, as well as some viewpoint to the north/northwest where view to the quarry are screened by topography and vegetation. Viewpoint 12 which is a protected view is considered Slight-Moderate.

Therefore, visual effects vary considerably depending on the location.

It should also be noted that though several viewpoints are taken close to residences along Windmill Road and to the roads close to the N7 north of the quarry, due to the topography and screening near the site and along the roads (particularly Windmill Road) visibility is greatly reduced. However, it is noted that residences with upper storeys may obtain more open views of the site in some cases.

APPENDIX 10.1

Aerial Images


N
1991 & 1994
0 100 200
Metres
Service Layer Crediits: OSI 19 February 1991 & OSI 30 May 1994 OSI Licence Number AR0056021


N
1994
0 100 200
Metres
Service Layer Crediits: OSI 30 May 1994 OSI Licence Number AR0056021


N
2000
0 100 200
Metres
Service Layer Credits: OSI 6 May 2000 OSI Licence Number AR 0056021


N
2004
0 100 200
Metre
Service Layer Credits: OSI 8 September 2004 OSI Licence Number AR 0056021


N
2016
0 100 200
Metres
Service Layer Credits: 17 March 2016 Google Earth (Maxar Technologies)


N
2020
Service Layer Credits: 2020 Aerials: January 2020 quarry drone survey and June 2020 Google Earth for the wider area (Maxar Technologies).

APPENDIX 10.2

Concept Restoration Plan

LEGEND

- EIA SITE BOUNDARY
- LANDOWNER BOUNDARY
- WORKING QUARRY LIMITS
- PROPOSED EXCAVATION
- EXPOSED ROCK FACES AND BENCHES IN THE EXTENDED AREAS
- EXISTING BUILDING RETAINED
- EXPOSED ROCK FACES IN THE WORKING QUARRY
- EXISTING WATER BODY
- EXISTING SCREENING MOUND
- PROPOSED SCREENING MOUND
- EXISTING WOODLAND SUPPLEMENTED BY INFILL PLANTING AS REQUIRED
- AGRICULTURAL FIELD
- NEW WOODLAND FRAMEWORK FOR SCREENING AND HABITAT ENHANCEMENT
- BIRD BOX (indicative location)
- EXISTING HEDGEROW SUPPLEMENTED FOR SCREENING HABITAT
- BAT BOX (indicative location)
- PROPOSED HEDGEROW
- INVERTEBRATE HOUSING (indicative location)
- AREAS AROUND QUARRY FOR NATURAL COLONIZATION
- AREA FOR REINSTATEMENT

PLANTING SCHEDULE				
PLANT TYPE	**%/No.**	**Size**	**Form**	**Spacing**
WOODLAND MIX : Planted at 2-3m c/s in groups of 5-15 no.				
Alnus glutinosa	25%	120-150cm	1+1	2-3m c/s
Betula pendula	10%	120-150cm	1+1	2-3m c/s
Ilex aquifolium	5%	60-90cm	3lt cg	5/lin.m
Pinus sylvestris	15%	120-150cm	1+1	2-3m c/s
Prunus avium	10%	120-150cm	1+1	2-3m c/s
Quercus robur	20%	120-150cm	1+2	2-3m c/s
Salix caprea	10%	120-150cm	1+1	2-3m c/s
Sorbus aucuparia	5%	120-150cm	1+1	2-3m c/s

Hedgerow Mix supplementing existing and new hedgerows: Planted at 5/lin.m double staggered				
Corylus avelana	25%	40-60cm	B/R	5/lin.m
Crataegus monogyna	35%	60-90cm	B/R	5/lin.m
Ilex aquifolium	10%	45-60cm	2lt cg	5/lin.m
Prunus spinosa	10%	60-90cm	B/R	5/lin.m
Rosa canina	5%	40-60cm	B/R	5/lin.m
Sambucus nigra	5%	60-90cm	B/R	5/lin.m
Viburnum opulus	10%	40-60cm	B/R	5/lin.m

REV	DATE	AMENDMENT
B	03/06/2021	REVISED LAYOUT

CUNNANE STRATTON REYNOLDS

LAND PLANNING & DESIGN

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PROJECT: **BEHANS QUARRY EIAR WINDMILL HIll, RATHCOOLE, CO. WICKLOW**	DATE: June 2021
	SCALE: 1:2000 @ A1
	DRAWN: RF CHECKED: DOL
DRAWING: **CONCEPT LANDSCAPE RESTORATION**	DRAWING NO: **21420-1-102/B**