5. POPULATION AND HUMAN HEALTH

5.1 Introduction

This section of the Environmental Impact Assessment Report (EIAR) identifies, describes and assesses the potential effects of the Proposed Development on population and human health and has been completed in accordance with the EIA guidance and legislation set out in Chapter 1: Introduction. The full description of the Proposed Development is provided in Chapter 4 of this EIAR.

One of the principal concerns in the development process is that people, as individuals or communities, should experience no diminution in their quality of life from the direct, indirect or cumulative effects arising from the construction, operation and decommissioning of a development. Ultimately, all the impacts of a development impinge on human health, directly and indirectly, positively and negatively. The key issues examined in this section of the EIAR include population, human health, employment and economic activity, land-use, tourism, noise and health and safety.

5.1.1 Statement of Authority

This section of the EIAR has been prepared by Tom Madden and reviewed by Owen Cahill and Eoin O Sullivan, all of MKO. Details on experience and competence can be found in Section 1.8 of the EIAR.

5.2 Population

5.2.1 Receiving Environment

This socio-economic study of the receiving environment included an examination of the population and employment characteristics of the area. Information regarding population and general socio-economic data were sourced from the Central Statistics Office (CSO), the Galway County Development Plan 2022-2028 and Fáilte Ireland. The study included an examination of the population and employment characteristics of the area. This information was sourced from the Census of Ireland 2016 (along with some preliminary results from the Census of Ireland 2022), which is the most recent census for which a complete dataset is available. Data was also sourced from the Census of Ireland 2011, the Census of Agriculture 2010 and 2020 and from the CSO website, www.cso.ie. Census information is divided into State, Provincial, County, Major Town and District Electoral Division (DED or ED) level but may not be available for all levels. Full census results from the Census of Ireland 2022 were unavailable at the time of writing this chapter.

The Proposed Development site is located in the townland of Lomaunaghbaun, County Galway approximately 8.6km north-east of Tuam and 4.7km to the west of the village of Clonberne. Galway City is located approximately 35.2km to the south-west.

In order to assess the population in the vicinity of the Proposed Development, the Study Area for the population section of the EIAR was defined in terms of the Electoral Divisions. The Proposed Development site lies primarily within Clonberne ED. The following seven EDs have also been included in the Population Study Area due to their proximity to the site as shown in Figure 5-2:

- Carrowrevagh ED
- Doonballey ED
- Carrownagur ED
- Raheen ED
- Cloonkeen ED

- Hillsbrook ED
- Levalley ED

The Study Area has a combined population of 3,830 persons and comprises a total land area of 19,269 hectares or 192.69 square kilometres (Source: CSO Census of the Population 2016).

The Proposed Development site is not located within a village or settlement. The overall level of residential development in the area around the site is low, and comprises one-off housing located adjacent to the existing road network. There are twenty-one houses located within 1 kilometre of the Proposed Development site as shown in Figure 5-2 .

5.2.2 Population Trends

In the four years between the 2011 and the 2016 Census, the population of Ireland increased by 3.8%. During this time, the population of County Galway grew by 3% to 258,058 persons. Other population statistics for the State, County Galway and the Study Area have been obtained from the Central Statistics Office (CSO) and are presented in Table 5-1.

Table 5-1 Population 2011 – 2016 (Source: CSO)

Area	Population Change		% Population Change
	2011	2016	2011 - 2016
State	4,588,252	4,761,865	3.8
County Galway	250,541	258,058	3
Study Area	3,882	3,830	-3.2

Map Legend

- EIAR Site Boundary
- Dwellings within 1km
- 1km Site Boundary Buffer

N

Drawing no.
House Locations within 1km

Project Title
Lornaughabhbauna Quarry

Drawn By	Checked by
EC	OC/TM
PProject No. 211034	Drawing No. Figure 5-1
Scale 1:60000	Date 2023- 11 - 09

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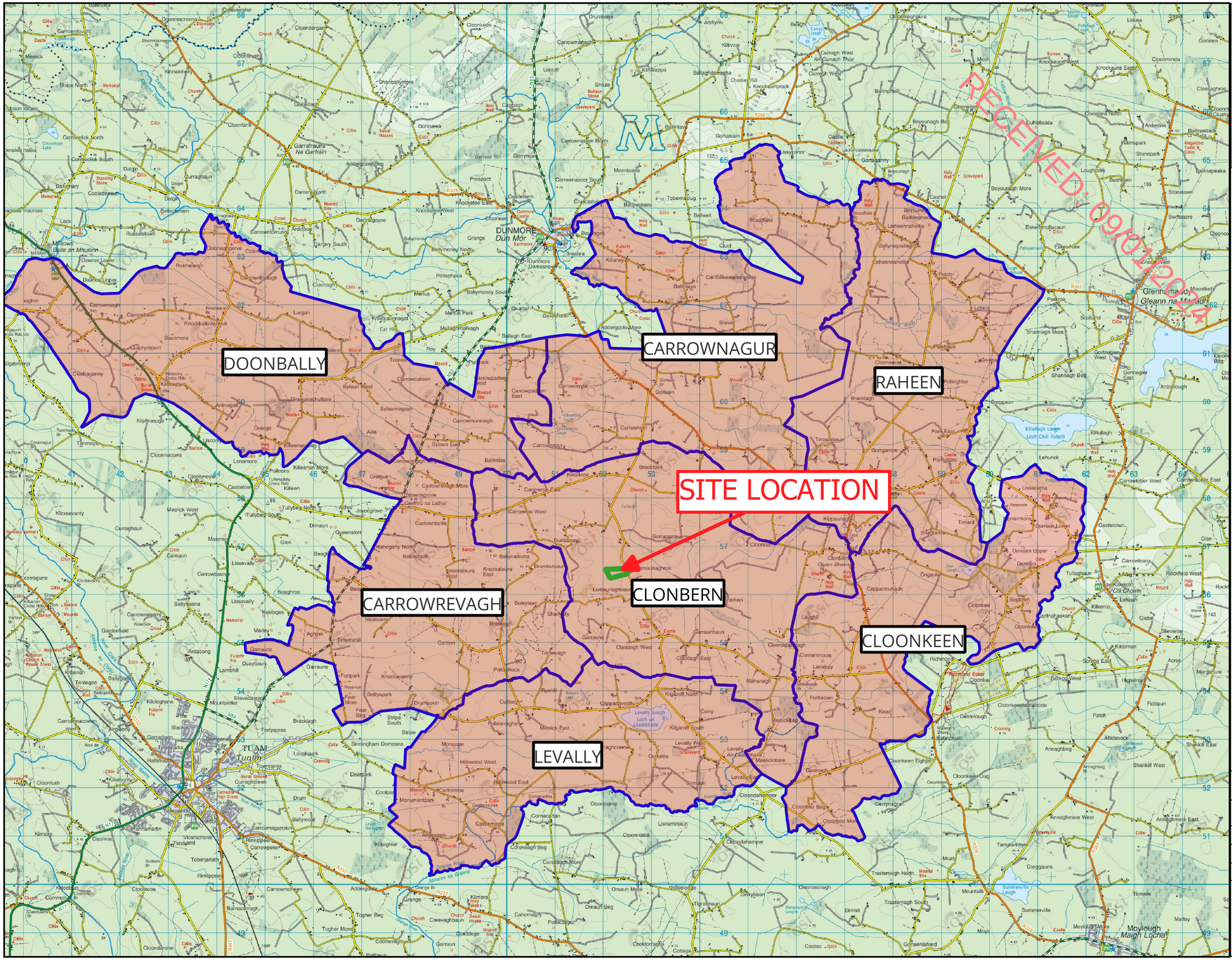

Map Legend

- EIAR Site Boundary
- Population Study Area
- ELECTORAL DIVISIONS

N

Title: Population Study Area

Project Title: Lornaughabhbauna Quarry	
Drawn By: EC	Checked By: OC/TM
Project No.: 211034	Drawing No.: Figure 5-2
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The data presented in Table 5-1 shows that the population of the Study Area decreased by 1.3% between 2011 and 2016. This population decline was at odds with the population growth observed at a State and County level. When the population data is examined in closer detail, it shows that the rate of population decreases within the Study Area has been unevenly spread through the EDs. Population increases were observed in the Doonballey ED and Cloonkeen ED where increases of 6.5% and 0.2% were observed in the population, respectively. In comparison, the populations of Clonberne ED and Raheen ED decreased by 8.3% and 4.6%, respectively during the same time period.

Of the EDs that make up the Study Area for this assessment, the highest population was recorded in Hillsbrook ED, with 685 persons recorded during the 2016 Census. The lowest population was recorded in Levalley ED, with 363 persons recorded during the 2016 Census.

5.2.3 Population Density

The population densities recorded within the State, County Galway and the Study Area during the 2016 Census are shown in Table 5-2.

Table 5-2 Population Density in 2016 (Source: CSO)

Area	Population Density (Persons per square kilometre)	
	2011	2016
State	67.49	70.05
County Galway	28.47	29.16
Study Area	20.1	19.87

The population density of the Study Area recorded during the 2016 Census was 19.87 persons per square kilometre (km^2). This figure is lower than the national figure of 70.05 persons per km^2 and the figure of 29.16 persons km^2 recorded for County Galway.

Similar to the trends observed in population, the population density recorded across the Study Area varies between EDs. Clonberne ED, where the proposed site is situated, has the lowest population density, at 14.3 persons per km^2, while Hillsbrook ED has the highest population density, at 29.1 persons per km^2.

5.2.4 Household Statistics

The number of households and average household size recorded within the State and County Galway during the 2011 and 2016 Censuses are shown in Table 5-3.

Table 5-3 Number of Household and Average Household Size 2011 – 2016 (Source: CSO)

Area	2011		2016	
	No. of House-holds	Avg. Size (persons)	No. of House-holds	Avg. Size (persons)
State	1,654,208	2.73	1,702,289	2.75
County Galway	60,952	2.9	63,040	2.8
Study Area	326	2.5	341	2.5

In general, the figures in Table 5-3 show that while the number of households at State, County and Study Area level continues to increase, the average number of people per household has remained the same, i.e. there are more households and the same amount of people per house. Average household size recorded within the Study Area during the 2011 and 2016 Censuses are slightly lower than that observed at State and County level during the same periods.

5.2.5 Age Structure

Table 5-4 presents the percentages of the State, County Galway and Study Area population within different age groups as defined by the Central Statistics Office during the 2016 Census. This data is also displayed in Figure 5-3.

Table 5-4 Population per Age Category in 2016 (Source: CSO)

Area	Age Category				
	0 - 14	15 – 24	25 - 44	45 - 64	65 +
State	21.1%	12.1%	29.5%	23.8%	13.4%
County Galway	22.5%	10.9%	26.3%	25.6%	14.5%
Study Area	**17.6%**	**11.4%**	**21%**	**42.2%**	**18.4%**

The proportion of the ED Study Area population within each age category is similar to those recorded at national and county level for most categories. Within the Study Area, the highest population percentage occurs within the 45 - 64 age category.

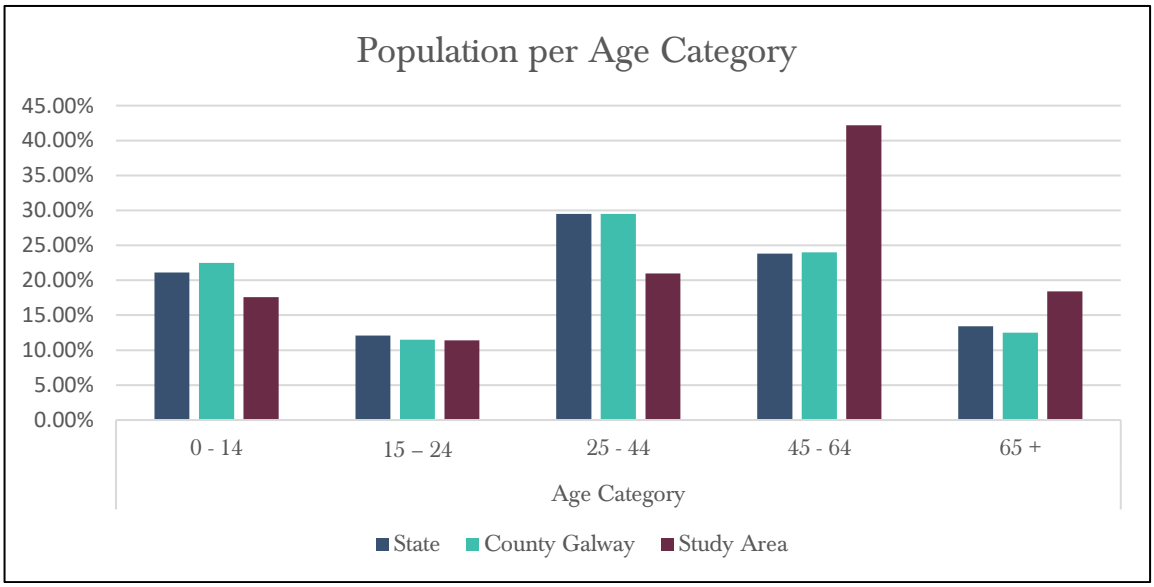

Figure 5-3 Population per Age Category in 2016 (Source: CSO)

5.2.6 Employment and Economic Activity

5.2.6.1 Employment by Socio-Economic Group

Socio-economic grouping divides the population into categories depending on the level of skill or educational attainment required. Figure 5-4 shows the percentages of those employed in each socio-economic group in the State, County Galway and the Study Area during 2016.

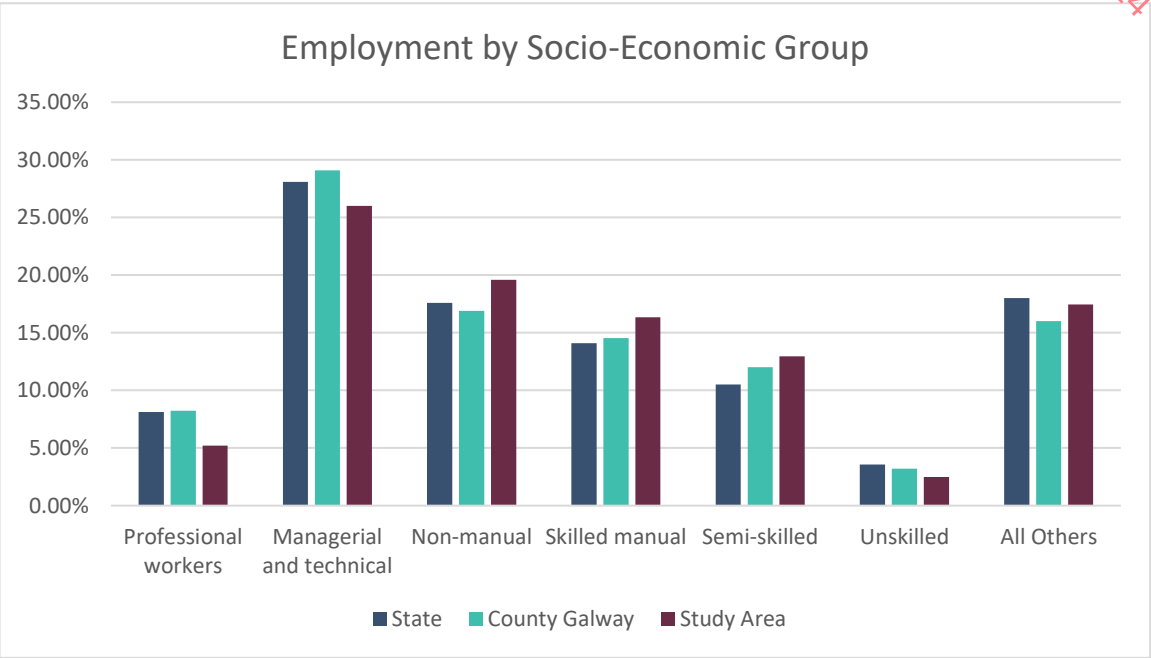

Figure 5-4 Employment by Socio-Economic Group in 2016 (Source: CSO)

The highest levels of employment within the Study Area were recorded in the managerial and technical category. The levels of employment within the Non-Manual, Skilled Manual and Semi-Skilled in the Study Area were marginally higher than those recorded for the State and County Galway, while those recorded within the Professional Workers and Unskilled categories were lower.

The CSO figures for socio-economic grouping have a limitation of including the entire population, rather than just those who are in the labour force. It is likely that this is what gives rise to the high proportion of the population shown to be in the 'Other' category in Figure 5-4.

5.2.7 Land Use

Land use in the area is primarily agricultural with some areas of forestry and quarrying operations.

The total area of farmland within the Study Area measures approximately 14,150 hectares or 75% of the Study Area, according to the CSO Census of Agriculture 2020. There are 542 farms located within the Study Area.

Within the Study Area, the majority of farms are family-owned and run. Table 5-5 shows the breakdown of farmed lands within the wider Study Area used for this section of the EIAR. Grassland accounts for the largest proportion of farmland, followed by cereals.

Table 5-5 Farm Size and Classification within the area of the Proposed Development in 2020 (Source: CSO)

Characteristic	Value
Size of Study Area	19,269 hectares
Total Area Farmed within Study Area	14,150 hectares
Farmland as % of Study Area	75%
Breakdown of Farmed Land	**Area (hectares)**
Total Grassland	13,680 ha
Total Cereals	83 ha

5.3 Tourism

5.3.1 Tourist Numbers and Revenue

Tourism is one of the major contributors to the national economy and is a significant source of full time and seasonal employment. During 2019, total tourism expenditure in Ireland was estimated to be €9.4 billion. In 2019, more holiday makers visited Ireland from North American than from Britain. (*'Tourism Facts 2019'*, Fáilte Ireland, September 2019).

Ireland is divided into seven tourism regions. Table 5-6 shows the total revenue and breakdown of overseas tourist numbers to each region in Ireland during 2019 ('Tourism Facts 2019').

Table 5-6 Overseas Tourists Revenue and Numbers 2018 (Source: Failte Ireland)

Region	Total Revenue (€m)	Total Number of Overseas Tourists by Region(000s)
Dublin	€2,601	6,644
Mid-East/Midlands	€640	954
South-East	€594	945
South-West	€1,506	2,355
Mid-West	€697	1,432
West	€1,071	1,943
Border	€611	768
Total	**€7,720**	**15,041**

The West region, in which the Proposed Development site is located, comprises Counties Galway, Mayo and Roscommon. This Region benefited from approximately 13% of the total number of overseas tourists to the country and approximately 13.87% of the associated tourism income generated in Ireland in 2018.

5.3.2 Tourist Attractions

There are no key identified tourist attractions pertaining specifically to the site of the Proposed Development itself.

The nearest designated walking routes and nature reserve is the Richmond Esker Nature Reserve, located approximately 7 kilometres to the southeast of the Proposed Development site at its nearest point.

The nearest tourist attraction to the Proposed Development site is Dunmore Castle and Dunmore Abbey, which is located approximately 8 kilometres and 7 Kilometres northwest of the site. Tourist attractions within the Abbey includes a medieval Augustinian friary and National Monument

County Galway has a wide range of nationally significant tourism assets which include the following:

- The Connemara National Park- a walking, cycling, sightseeing, fishing destination and other outdoor activities.
- Kylemore Abbey- A Gothic Church with Victorian Walled Gardens, Craft Shop, Pottery studio, Restaurant and Tea Rooms as well as the Lake and Woodland walks.
- The River Corrib and Lough Corrib – important recreational amenity and fisheries areas.
- Mountain ranges including: the Twelve Bens, Mweelrea Mountains and Maumturk Mountains– important centres for walking, cycling and adventure related activities.
- The Coastline along the Wild Atlantic Way– Scenic coastline and peninsulas and marine related activities including some fine blue flag beaches.
- The Gaeltacht areas which are of significant cultural heritage value and frequently visited by tourists.
- Galway City Museum located in Galway City's famous Spanish Arch has significant cultural heritage and Folklore
- Salthill Promenade Galway City- Blue Flag Beaches and outdoor activities
- The West Galway Peninsula of Renvyle – with its unique visual amenity and landscape character offer potential for walking and cycling and other outdoor activities.
- Aran and Inishbofin Islands and all the other uninhabited islands along the County's coast.
- Galway has rich fertile agricultural land and many bogs and peatlands with a higher than national average land mass of forest and woodland area.
- The Towns and Villages of County Galway where there is significant potential for heritage led tourism.

The Study Area is not within any of the strategic tourism areas identified in the County Development Plan nor does it impact on any of the sites of existing tourism attractions.

The potential for visual effects arising from the Proposed Development on the wider landscape and scenic roads is assessed in Chapter 11 of this EIAR.

5.4 Human Health

The consideration of potential effects on human health are examined separately in the Air & Climate, Noise & Vibration, Geology and Soils, Hydrology & Hydrogeology and Traffic Sections of the EIAR. These chapters should be consulted for detailed information on potential effects, however a brief summary of the key information is provided in Section 5.6 below. Potential issues relating to health and safety, and amenity concerns are also discussed below.

5.4.1 Vulnerability of the Project to Natural Disaster and Major Accidents

There is limited potential for significant natural disasters to occur at the proposed site. Ireland is a geologically stable country with a mild temperate climate. The potential natural disasters that may occur are therefore limited to flooding and fire. The risk of flooding is addressed in Chapter 8 Hydrology & Hydrogeology. It is considered that the risk of significant fire occurring, affecting the Proposed Development and causing the works to have significant environmental effects is limited. There are no significant sources of pollution associated with the works with the potential to cause environmental or health effects.

Major industrial accidents involving dangerous substances pose a significant threat to humans and the environment; such accidents can give rise to serious injury to people or serious damage to the environment, both on and off the site of the accident. The Proposed Development is not regulated or connected to or close to any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations i.e. SEVESO sites and so there is no potential effects from this source.

The vulnerability of the Proposed Development to Natural Disasters and Major Accidents is further discussed in Chapter 14 – Major Accidents and Natural Disasters of this EIAR.

5.5 Property Values

Property values are not likely to be affected by the Proposed Development, as it is located in a rural area that is area screened by topography and vegetation. Further screening will also be provided by the installation of berms adjacent to the proposed sites boundary. The Proposed Development site is screened by topography and vegetation.

5.6 Likely and Significant Effects and Associated Mitigation Measures

5.6.1 Characteristics of the Proposed Development

The Proposed Development being applied for under this current planning application includes for the extraction of sand over an area of approximately 6.2 ha, processing plant and all other related infrastructure.

Initial site enabling works for the proposed development will primarily consist of topsoil/overburden removal and installation of site infrastructure. It is estimated that the site enabling works required will take approximately 1-3 months to complete and will include the following:

- Preparation of site for construction.
- Pouring of concrete for refuelling area foundation and foundation for processing plant and associated components;
- Installation of site office:
- Construction of new drainage network and fuel/oil interceptor at refuelling area;
- Installation of new site entrance and road reprofiling works, and
- Installation of a weighbridge and wheelwash.

Minor excavations will be required for the installation drainage pipework. It is proposed that excavated soil and appropriate overburden material will be reused onsite primarily for the construction of berms along the site boundary.

The operational phase of the Proposed Development will comprise of the excavation, washing, storage and distribution of sand.

It is also proposed to install a new entrance on to the L2232 road which runs in a north-south direction adjacent to the proposed sites eastern boundary. In order to achieve the necessary visibility and sightlines from this new entrance it is proposed to carry out reprofiling works on the section of the road adjacent to the location of the new site entrance. The length of road where these reprofiling works will be carried out is approximately 41m. It is proposed to lower the height of the road at this section by 0.6m.

5.6.2 Do-Nothing Scenario

If the Proposed Development were not to proceed, there would be no change to the existing environment. Existing hedgerows and treelines would remain unaltered, and the site would continue to be used for low input agriculture in the form of pastural grazing. The site would remain largely unaltered as a result of the Do-Nothing Scenario. The potential for additional investment and employment in the area in relation to the operation of the quarry would be lost.

5.6.3 Construction and Operational Phase

5.6.3.1 Health and Safety

The operation of heavy machinery during both the construction and operational phase poses a potential health and safety risk to the employees of the Proposed Development.

The presence and operation of heavy machinery at the subject site also poses a potential risk to members of the public that might access the site from the main site entrance off the L2232 at the eastern end of the site.

The presence of working faces and open quarried edges may pose a risk to employees of the quarry and members of the public who may enter the site.

These are considered to be Medium-term Potential Significant Negative Effects.

Mitigation

- A site-specific Health and Safety Plan will be in place for the proposed facility. All site staff will be made aware of and adhere to the company Health and Safety Plan.
- Only appropriately qualified and trained personnel will be permitted to operate machinery onsite.
- Appropriate barriers and signage will be used.
- The Proposed Development site will not be accessible to members of the public.
- The site will also be secure to prevent the risk of trespass through signage and provision of barriers.
- The Site Manager or equivalent will act as a Community Liaioson Officer (CLO) throughout the construction, operational and decommissioning phase of the Proposed Development.

Residual Effects

Following implementation of mitigation measures as outlined above, residual effects of the Proposed Development on population and human health will have a medium-term Imperceptible Negative Effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.3.2 Employment and Investment

The Proposed Development will result in the creation of permanent full and part-time employment positions in the area. Those to be employed at the site will be from the local community so any increased revenue from this employment returns directly to the local community.

Both the construction and operational phase will require the hiring of those with specialist skills, which could result in the transfer of these skills into the local workforce, thereby having a long-term moderate positive effect on the local skills base.

Residual Effect

No effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.3.3 Population

The construction and operational phase of the Proposed Development will have no effect on the population of the Study Area with regards to changes to trends, population density, household size or age structure.

Residual Effect

No effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.3.4 Tourism

The construction and operational phase of the Proposed Development will have no effect on tourism within the local or regional area. Where the development is viewed in the context of scenic areas, the profile will be mitigated by the landscape measures as outlined in Chapter 11 of this EIAR. Both the construction, operational and decommissioning phase will include dust control and noise mitigation measures.

Residual Effect

No effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.3.5 Land Use

Whilst there will be a change of land use to facilitate the development, this is an acceptable and unavoidable part of the Proposed Development which would result in a Medium Term Moderate Negative Effect on land-use. The restoration of the site will return the site area to a land use which is in keeping with its surrounds which will result in a Permanent Moderate Positive Effect on land-use.

5.6.3.6 Noise

Noise levels from the proposed development will be lower than the 55 dB criterion, and impacts will be imperceptible at receptors. Stripped topsoil and appropriate overburden material will be stored perimeter berms throughout the project, extended with each phase, and this represents the chief mitigation measure. The applicant additionally proposes to apply the following general mitigation measures during the construction and operational phases:

- Plant used onsite will be maintained in accordance with manufacturer specifications. In particular, exhaust silencers will be maintained in a satisfactory condition.
- Communication through plant horns will be prohibited.
- Unnecessary revving of truck engines will be prohibited.
- Site haul roads will be maintained in a satisfactory condition, and free from surface defects that may generate rattles in empty truck bodies.
- Machinery not in active use will be shut down.

Residual Effect

The assessment of impacts on human health is typically undertaken by reference to WHO guidance as discussed above, which has been revised over the last four decades according as noise and health studies have been published. The WHO currently recommends that a daytime-evening $L_{Aeq\ 16\ h}$ level of 55 dB is an indicator of serious annoyance. Noise levels associated with the proposed development will be lower than this criterion. On this basis, it is considered that there will be no adverse noise impact on the local population or on human health.

The expected noise effects for the operational phase can be summarised as follows:

Negative quality, Imperceptible and of Medium-Term duration.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.3.7 Dust and Air Quality

Potential dust and vehicle emission sources during the construction and operational phases of the Proposed Development include the use of machinery and plant and on-site vehicular traffic. The entry and exit of vehicles from the site may result in the transfer of dust to the public road, particularly if the weather is wet. This may cause nuisance to residents and other road users, thereby creating a Medium-term Slight Negative Effect.

Mitigation

The following measure will be enforced to ensure that dust and vehicle emission nuisance during the construction and operational phases beyond the site boundary is minimised.

- All on-site plant and vehicles will be maintained in good operational order, thereby minimising any emissions that arise.
- Fixed plant will be turned off when not in use.
- When stationary, delivery and on-site vehicles will be required to turn off engines.
- Users of the site will be required to ensure that all delivery vehicles are suitably maintained to ensure that emissions of engine generated pollutants is kept to a minimum.
- The hardstanding/roads adjacent the site will continue to be regularly inspected by the Site Manager for cleanliness, and cleaned as necessary.
- Water spraying of conveyors and stockpiles will be carried out when necessary to reduce the production of dust.
- Water sprays will be used as required during transfer and loading activities, during dry and/or windy conditions.
- Any hardstanding areas/site roads with the potential to give rise to dust will be regularly watered, as appropriate, during dry and/or windy conditions.
- Water bowser movements will be carefully monitored, as the application of too much water may lead to increased runoff.
- The transport of material, which has significant potential to cause dust, will be undertaken in tarpaulin-covered vehicles.
- All plant and machinery will be maintained in good operational order while onsite.

Residual Effect

Following implementation of mitigation measures as outlined above, residual effects from potential sources of dust will have a Medium-term Imperceptible Negative Effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.3.8 Traffic

Traffic on site will be controlled by the Site Manager. Signs on site will indicate maximum permissible speeds and directional information. The Site Manager operator will provide the primary means of marshalling traffic. Traffic control at the site will involve restricting the number of vehicles entering the quarry void at any one time. No queuing of vehicles will be allowed outside the entrance to the quarry on the L2232. All vehicles leaving the site will be weighed to ensure delivery loads are in compliance with the relevant Road Traffic Regulations.

The Traffic and Transport Assessment, as presented in Chapter 13 of the EIAR and in Appendix 13-1, establishes that the relatively low volumes of additional traffic that will be generated by the proposed development, will be accommodated with modest impacts on the surrounding road network.

Further details on the traffic and transportation impact assessment are presented in the Traffic and Transport Assessment (TTA which is in Appendix 13-1) and Chapter of this EIAR.

5.6.4 Decommissioning Phase and Site Restoration

The Proposed Development will be operational for 10 years. Following the end of the operational phase, the processing plant and all associated infrastructure will be decommissioned and removed from the site.

Following the removal of all site infrastructure, the site will be levelled and reseeded with an appropriate seed mix and returned to agricultural use.

The works required during the decommissioning phase are described in Section 4.4.4 in Chapter 4: Description of the Proposed Development.

Any impact and consequential effect that occurs during the decommissioning will be similar to that which occurs during part of the construction phase when the site is being set up. The impacts and associated effects will be materially less than during both the construction phase and operational phase as significant excavation works are not required for the decommissioning.

The decommissioning and restoration phase will have no impact on residential amenity, employment, tourism or health & safety once all standard mitigation measures described above and within the Environmental Management Plan are implemented.

5.6.4.1 Health and Safety

The operation of heavy machinery during the decommissioning phase poses a potential health and safety risk to the employees of the Proposed Development.

The presence and operation of heavy machinery at the subject site also poses a potential risk to members of the public that might access the site from the main site entrance off the L2232 at the eastern end of the site.

The presence of working faces and open quarried edges may pose a risk to employees of the quarry and members of the public who may enter the site.

These are considered to be Temporary-term Potential Significant Negative Effects.

Mitigation

- A site-specific Health and Safety Plan will be in place for the Proposed Development. All site staff will be made aware of and adhere to the company Health and Safety Plan.
- Only appropriately qualified and trained personnel will be permitted to operate machinery onsite.
- Appropriate barriers and signage will be used.
- The Proposed Development site will not be accessible to members of the public.
- The site will also be secure to prevent the risk of trespass through signage and provision of barriers.

Residual Effects

Following implementation of mitigation measures as outlined above, residual effects of the Proposed Development on population and human health will have a Temporary-term Imperceptible Negative Effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.4.2 Employment and Investment

The Proposed Development will result in the creation of medium-term full and part-time employment positions in the area. Those to be employed at the site will be from the local community so any increased revenue from this employment returns directly to the local community.

Residual Effect

No effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.4.3 Population

The decommissioning phase and restoration works of the Proposed Development will have no effect on the population of the Study Area with regards to changes to trends, population density, household size or age structure.

Residual Effect

No effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.4.4 Tourism

The decommissioning phase and site restoration works of the Proposed Development will have no effect on tourism within the local or regional area. Where the development is viewed in the context of scenic areas, the profile will be mitigated by the landscape measures as outlined in Chapter 11 of this EIAR. The decommissioning phase will also include dust control and noise mitigation measures as outlined in the EIAR and accompanying Environmental Management Plan (EMP included in Appendix 4-2).

Residual Effect

No effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.4.5 Land Use

Whilst there will be a change of land use to facilitate the development, this is an acceptable and unavoidable part of the Proposed Development which would result in a Medium Term Moderate Negative Effect on land-use. The restoration of the quarry void will return the site area to a land use which is in keeping with its surrounds which will result in a Permanent Moderate Positive Effect on land-use.

5.6.4.6 Noise

Noise levels from the proposed development will be lower than the 55 dB criterion, and impacts will be imperceptible at receptors. Stripped topsoil and appropriate overburden will be stored in perimeter berms throughout the project, extended with each phase, and this represents the chief mitigation

measure. The applicant additionally proposes to apply the following general mitigation measures during the construction, operational and decommissioning phases:

- Plant used onsite will be maintained in accordance with manufacturer specifications. In particular, exhaust silencers will be maintained in a satisfactory condition.
- Communication through plant horns will be prohibited.
- Unnecessary revving of truck engines will be prohibited.
- Site haul roads will be maintained in a satisfactory condition, and free from surface defects that may generate rattles in empty truck bodies.
- Machinery not in active use will be shut down.

Residual Effect

The assessment of impacts on human health is typically undertaken by reference to WHO guidance as discussed above, which has been revised over the last four decades according as noise and health studies have been published. The WHO currently recommends that a daytime-evening $L_{Aeq\ 16\ h}$ level of 55 dB is an indicator of serious annoyance. Noise levels associated with the proposed development will be lower than this criterion. On this basis, it is considered that there will be no adverse noise impact on the local population or on human health.

The expected noise effects for the operational phase can be summarised as follows:

Negative quality, Imperceptible and of Medium-Term duration.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.4.7 Dust and Air Quality

Potential dust and vehicle emission sources during the decommissioning phase and site restoration works of the Proposed Development include the use of machinery and plant and on-site vehicular traffic. The entry and exit of vehicles from the site may result in the transfer of dust to the public road, particularly if the weather is wet. This may cause nuisance to residents and other road users, thereby creating a Temporary-term Slight Negative Effect.

Mitigation

The following measure will be enforced to ensure that dust and vehicle emission nuisance during the decommissioning phase beyond the site boundary is minimised.

- All on-site plant and vehicles will be maintained in good operational order, thereby minimising any emissions that arise.
- Plant will be turned off when not in use.
- When stationary, on-site vehicles will be required to turn off engines.
- Users of the site will be required to ensure that all vehicles are suitably maintained to ensure that emissions of engine generated pollutants is kept to a minimum.
- The hardstanding/roads adjacent the site will continue to be regularly inspected by the Site Manager for cleanliness, and cleaned as necessary.
- Water sprays will be used as required during transfer and loading activities, during dry and/or windy conditions.
- Water bowser movements will be carefully monitored, as the application of too much water may lead to increased runoff.

- The transport of material, which has significant potential to cause dust, will be undertaken in tarpaulin-covered vehicles.

Residual Effect

Following implementation of mitigation measures as outlined above, residual effects from potential sources of dust will have a Temporary-term Imperceptible Negative Effect.

Significance of Effects

Based on the assessment above there will be no significant effects.

5.6.4.8 Traffic

Traffic on site will be controlled by the Site Manager. Signs on site will indicate maximum permissible speeds and directional information. The Site Manager operator will provide the primary means of marshalling traffic. Traffic control at the site will involve restricting the number of vehicles entering the quarry void at any one time. No queuing of vehicles will be allowed outside the entrance to the quarry on the L2232. All vehicles leaving the site will be weighed to ensure delivery loads are in compliance with the relevant Road Traffic Regulations.

The Traffic and Transport Assessment, as presented in Chapter 13 of the EIAR and in Appendix 13-1, establishes that the relatively low volumes of additional traffic that will be generated by the Proposed Development, will be accommodated with modest impacts on the surrounding road network.

5.6.5 Cumulative Effect

The potential cumulative effects between the Proposed Development and the other projects described in Chapter 2 of this EIAR, hereafter referred to as the other projects, have been considered in terms of effects on human beings.

5.6.5.1 Health and Safety

Any potential cumulative effects between the Proposed Development and the other projects in terms of health and safety will be mitigated by the requirement for all projects to adhere to Health & Safety legislation.

5.6.5.2 Dust and Noise

Potential cumulative effects associated with dust and noise are addressed in Chapters 9 and 10 of this EIAR respectively and conclude that there will be imperceptible effects.

5.6.5.3 Traffic

Potential cumulative effects associated with traffic are addressed in Chapter 13 of this EIAR and the Traffic and Transport Assessment (TTA). The findings of the assessment establish that the relatively low volumes of additional traffic that will be generated as a result of the Proposed Development will be accommodated with only temporary imperceptible impacts on the surrounding road network. In addition, it is considered that the 2 improvements proposed, including the provision of one passing place on the L-2232 and the removal of an existing crest adjacent to the proposed access junction, will provide benefits to all existing traffic.

5.6.5.4 Employment and Investment

In terms of employment and economic benefit, there will be a significant, medium-term, positive cumulative effect between the Proposed Development and the other projects due to the majority of workers and materials being sourced locally, thereby helping to sustain employment in the area.

The injection of money in the form of salaries and wages to those employed during the operational phases of the other projects and the construction and operational phases of the Proposed Development has the potential to result in a slight increase in household spending and demand for goods and services in the local area. This would result in local retailers and businesses experiencing a medium-term positive effect on their cash flow.

5.6.5.5 Population

Those working on the Proposed Development and the other projects in the area will travel daily to the site from the wider area. These projects will have no effect on the population of the Study Area in terms of changes to population trends or density, household size or age structure.

5.6.5.6 Land Use

The surrounding land-uses of agriculture and residential will continue during both the construction and operational phases of the development.

The effect of the Proposed Development is not significant as the site will be reinstated once operations cease on site.

5.6.5.7 Tourism and Amenity

There are no key identified tourist attractions pertaining specifically to the site of the Proposed Development itself.

Notwithstanding this, there will be no cumulative operational phase effects on tourism between the Proposed Development and other projects in the area once the mitigation measures in Chapter 4 are implemented. Therefore, the potential for cumulative effects with the projects and plans are not significant.