

NON-TECHNICAL SUMMARY

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Introduction

This Environmental Impact Assessment Report (EIAR) has been prepared by McCarthy Keville O'Sullivan Ltd. (MKO) on behalf of Newtown Farming Limited, who intend to apply to Galway County Council for planning permission for the development and operation of a proposed sand quarry and all associated site works at Lomaunaghbaun, Tuam, Co. Galway.

The Proposed Development is contained within a site area of 6.2 hectares (ha). The proposed development site is located within the townland of Lomaunaghbaun in north-east county Galway. The town of Tuam is located approximately 8.6km to the south-west and the village of Clonberne is located approximately 4.7km to the east. The grid reference coordinates for the centre of the site are X 552253, Y 756481.

This EIAR complies with the EIA Directive 2011/92/EU as amended by Directive 2014/52/EU. The Environmental Impact Assessment (EIA) of the proposed project will be undertaken by Galway County Council as the competent authority.

Applicant

Newtown Farming Ltd. are the applicants for the Proposed Development. The applicant has over 15 years of experience in the operation and management of quarrying activities within Ireland.

Brief Description of the Proposed Development

As per the Planning Notice, the Proposed Development is as follows:

The development of a quarry for the extraction of sand in a phased basis over an area of c. 6.2 ha by an average depth of 3m from existing ground levels in the townland of Lomaunaghbaun, Co. Galway. The Proposed Development also includes the following:

- Installation of processing plant and equipment
- Stockpiling of topsoil removed during quarrying for future implementation of a restoration plan
- Construction of refuelling area
- Installation of site office
- Installation of weighbridge and wheelwash
- Installation of new site entrance along with road reprofiling works on the L2232
- Associated works to include installation of groundwater well, upgrade of drainage infrastructure including new fuel/oil interceptor and surface drains on hardstanding
- Site Restoration following cessation of sand extraction works.

Need for the Proposed Development

The extractive industries and quarrying operations such as the Proposed Development, make a significant contribution to economic development in Ireland. The products and by-products of the industry are vital to the construction, transport, and infrastructural sectors, in providing basic materials essential for construction and day-to-day life.

As the intrinsic value of this natural resource is often low, it is essential that such extraction sites can be located where the resource is found or close to the markets they serve. The Proposed Development site will supply high-quality bulk sand to the local and regional markets, keeping the cost of this sand competitive for the end users given the location of the extraction site and proximity to the markets and

outlets for the product. The recent upturn in the economy and the construction industry has led to an increase in demand for high-quality sand, which is already a scarce commodity both in Galway and nationwide.

The Proposed Development (if permitted) will provide both mortar and plaster sand to the construction industry at a time when the demand for such materials is high.

Purpose and Structure of the EIAR

The purpose of this EIAR is to document the current state of the environment in the vicinity of the Proposed Development site and to quantify the likely significant effects of the Proposed Development on the environment in accordance with the requirements of the EIA Directive, as amended. The compilation of this document served to highlight any areas where mitigation measures may be necessary in order to protect the surrounding environment from the possibility of any negative impacts arising from the Proposed Development.

It is important to distinguish the Environmental Impact Assessment (EIA) to be carried out by the competent authority, i.e., County Council or An Bord Pleanála, from the EIAR and the accompanying planning application. The EIA is the assessment carried out by the competent authority, which includes an examination that identifies, describes and assesses in an appropriate manner, in the light of each individual case and in accordance with Articles 4 to 11 of the Environmental Impact Assessment Directive, the direct and indirect effects of the Proposed Development on the following:

- a) *Population and Human Health*
- b) *Biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC*
- c) *Land, Soil, Water, Air and Climate*
- d) *Material Assets, Cultural Heritage and the Landscape*
- e) *Interaction between the factors referred to in points (a) to (d)*

The EIAR submitted by the applicant provides the relevant environmental information to enable the EIA to be carried out by the competent authority. The information to be contained in the EIAR is prescribed Article 5 of the revised EIA Directive described in Section 1.6 of the EIAR.

Background to the Proposed Development

This chapter of the EIAR presents information on the strategic planning context for the Proposed Development. This chapter includes a description of the Proposed Development site and its planning history, relevant policy that guides the site, scoping and consultation, and the cumulative impact assessment process.

The proposed development site is located within the townland of Lomaunaghbaun in north-east county Galway. The town of Tuam is located approximately 8.6km to the south-west and the village of Clonberne is located approximately 4.7km to the east. The grid reference coordinates for the centre of the site are X 552253, Y 756481. The existing site is comprised of green fields in agricultural use.

National Policy

The National Planning Framework (NPF), published in February of 2018, aims to shape and guide the future growth and development of Ireland up to 2040. The NPF supersedes the National Spatial Strategy 2002-2020 (NSS) and includes a focus on economic development and investment in housing, water services, transport, communications, energy, health and education infrastructure. The new framework sets out five strategic actions:

- Developing a new region-focused strategy for managing growth;

- Linking this to a new 10-year investment plan, the Project Ireland 2040 National Development Plan 2018-2027;
- Using state lands for certain strategic purposes;
- Supporting this with strengthened, more environmentally focused planning at local level; and,
- Backing the framework up in law with an Independent Office of the Planning Regulator.

The NPF forms the top tier of the national planning policy structure, accordingly, establishing the policy context for the Regional Spatial and Economic Strategies and local level development plans. In an effort to move away from developer led development to one informed by the needs and requirements of society, a number of objectives and policies have been put in place in order for the country to grow and develop in a sustainable manner. The Framework notes that while the overall quality of the country's environment is good, it is not without challenges. It notes that the manner in which we plan for the potential issues is important to challenging them creating a sustainable environment for the future.

Regional Policy

The Regional Spatial and Economic Strategy 2020-2032: Northern and Western Regional Assembly (RSES) was adopted in 2020 and provides a high-level development framework for the Northern and Western Region that supports the implementation of the NPF. The focus of the RSES is on the counties of Mayo, Galway, Roscommon, Sligo, Leitrim, Cavan, Monaghan, and Donegal. The RSES document is structured around 5 No. growth ambitions, all of which are supportive of sustainable growth and expansion of existing industries. The growth ambitions of the RSES are as follows:

1. Growth Ambition 1 – Economy and Employment – Vibrant Region
2. Growth Ambition 2 – Environment – Natural Region
3. Growth Ambition 3 – Connectivity – Connected Region
4. Growth Ambition 4 – Quality of Life – Inclusive Region
5. Growth Ambition 5 – Infrastructure – Enabling our Region

Objective 9.3 – Planning for a Vibrant Economy

“Nurturing the rural economy through protecting and promoting the sense of place and culture and the quality, character and distinctiveness of the rural landscape, whilst facilitating the appropriately scaled development of rural enterprise initiatives”.

Quarries play a role in rural economies, not only in the winning of materials for the construction industry, but also for employment. It is therefore considered that this objective is supportive of the development proposed.

Local Policy

The Galway County Development Plan 2022-2028 (GDP) was adopted on the 24th of November 2022, and it came into effect on the 4th of January 2023. The GDP provides guidance as well as policy and objectives for the overall development of County Galway and includes key policy relating to the Proposed Development.

There has traditionally been a strong extractive industry sector in County Galway. Quarrying in the County is largely divided between sand and gravel supplies, as well as crushed rock. Quarrying is considered to be an important sector both in terms of employment and as a local source of raw materials. The Council supports the continued development of the extractive industries sector and aims to ensure that development is carried out in a manner which has full regard to the principles of sustainability. The Authority will note that this application represents a proposal which has full regard to the principles of sustainability.

Planning History

The relevant planning history of the Proposed Development site, the planning applications in the vicinity of the site along with other applications within the wider area are set out at Section 2.2 of this EIAR.

Scoping and Consultation

Scoping is the process of determining the content, depth and extent of topics to be covered in the environmental information to be submitted to a competent authority for projects that are subject to an Environmental Impact Assessment (EIA). This process is conducted by contacting the relevant authorities and Non-Governmental Organisations (NGOs) with interest in the specific aspects of the environment likely to be affected by the proposal. These organisations are invited to submit comments on the scope of the EIAR and the specific standards of information they require. Comprehensive and timely scoping helps ensure that the EIAR refers to all relevant aspects of the Proposed Development and its potential effects on the environment. In this way, scoping not only informs the content and scope of the EIAR, but it also provides a feedback mechanism for the proposed design itself.

A scoping document providing details of the application site and the Proposed Development, was prepared by MKO and circulated in February 2023 to relevant parties. The scoping responses are outlined in the full Chapter 2 of this EIAR.

3 no. pre-application meetings were also held between Galway County Council and the design team to discuss the design evolution of the Proposed Development. A summary record of these meetings is set out in Section 2.4.2 of Chapter 2.

Cumulative Impact Assessment

This EIAR, which includes a description of likely significant impacts of the project, includes an assessment of cumulative impacts that may arise. The factors considered in relation to cumulative effects include human beings, flora and fauna, soil, water, climatic factors, ecology, landscape, cultural heritage and material assets.

The potential for cumulative impacts arising from the Proposed Development in combination with other projects has therefore been fully considered throughout this EIAR. This section of the EIAR provides an overview of other projects located within the wider area that have been considered within the cumulative impact assessments.

Consideration of Reasonable Alternatives

This chapter of the EIAR includes a description of the reasonable alternatives studied by the developer which are relevant to the project and its specific characteristics and an indication of the main reasons for the option chosen, taking into account the environmental effects. The consideration of alternatives typically refers to alternative design, technology, location, size and scale. A 'Do Nothing Scenario' i.e., an outline of what is likely to happen to the environment should the Project not be implemented, should also be included.

Alternative Site Locations

The only alternative to the use of the proposed location is to develop a greenfield site for use as a quarry at an alternative location in Co. Galway which would require a significant period or time to acquire land and prepare a planning application and accompanying EIAR.

In considering alternative locations the EIAR noted that aggregates can only be worked where they occur and as a relatively low-value, high-density material, must be located within reasonable distance of

key markets in order to make transport costs economically viable. The site has the benefit of being strategically located.

In terms of size and scale the Proposed Development is dictated by the physical dimensions of the landholding, and the accessibility and extractability of the resource. Site enabling works and extraction of materials will be carried out within the proposed development area only and this is considered to best minimise the potential impacts on the environment from noise, dust and visual impacts.

Processing will occur in the proposed processing plant which will be located in the south-eastern section of the site. There are no viable alternatives to this widely used and conventional method of quarrying.

When assessing the alternatives available, the site at Lomaunaghbaun is the most suitable for a number of reasons. It has a proven aggregate resource. It is located within a central area in Galway County and is well placed to serve local and national markets at a time when demand for such building materials is extremely high.

The local road network providing access to the site has a number of constraints, which are outlined in the accompanying Traffic and Transport Assessment (TTA) and in Section 13 of the EIAR. Remedial measures would be required along Route A to the north of the site towards Gorteen Cross. Route B to the south of the site along the L2232 and L2223 to the R328 will provide the primary access route for the site. This route provides ample connectivity to all areas within Galway, and beyond which would allow for easy distribution of the product. Proposed haul routes and alternatives are outlined further in Section 3.2.5 of Chapter 3.

Further to this, the environmental assessments undertaken as part of this EIAR have proved that there will be no demonstrable impact to the environment, built or archaeological heritage or human health that cannot be prevented or controlled by mitigation measures.

Detailed conclusions on the site being the preferred/optimum is outlined further in Section 3.2 of Chapter 3 of the EIAR.

Description of the Proposed Development

The overall layout of the Proposed Development is shown on Figure 4-1 and Figure 4-2 in Chapter 4 of the EIAR. This drawing shows the proposed locations of the proposed infrastructure. Detailed site layout drawings of the Proposed Development are included in Appendix 4-1 of this EIAR.

The planning application (red line) boundary area measures approximately 6.2 hectares (ha).

Current land-use on the subject site comprises agricultural activities in the form of low input extensive grazing. The Proposed Development site is subdivided by hedgerows, treelines and stone walls. The topography of the site is undulating in nature with ground levels ranging from 84mAOD to 96mAOD.

The boundaries of the site are comprised of hedgerows, treelines and stone walls. The site is accessed via a gateway which is adjacent to the local L2232 road which runs in a north-south direction parallel to the site's eastern boundary.

The site is bounded by agricultural land to the north, west and south. The L2232 road bounds the site to the east and agricultural land lies beyond. The landscape around the Proposed Development site is characterised by one-off housing. Land use in the area is primarily agricultural with some areas of forestry and quarrying operations.

The R328 regional road is located approximately 3.9km to the north and is connected to the site via the L2232 local road. The N83 national road is located approximately 8.1km to the north-west via the R328

and L2232. Access to the R328 is also available to the south at an approximate distance of 6.5km via the L2223.

There are no existing watercourses within the Proposed Development site. The nearest surface water feature to the site is the Dunblaney Stream (EPA Code: 30D34 – Order 1) which is at its closest to the site approximately 605 metres to the east. Levalley Lough is located approximately 2.7km to the south.

A site office, weighbridge, wheelwash, staff welfare unit and processing plant will also be installed at the site. These components will be located in the south-east corner of the site. The site office, staff welfare unit and many of the components of the processing plant are modular in nature. They will be brought to the site on a flat bed truck prior to being lifted with a crane before being placed in their respective locations.

The Proposed Development will utilise standard infrastructure and plant which are commonly used for such operations. It is proposed to install a processing plant in the south-eastern section of the site, the layout of which will be primarily comprised of the following components.

- > Feed Hopper;
- > Screen Box;
- > Sand Dewatering Unit;
- > Deep Cone Thickener/Settlement Tank;
- > Silt Buffer Tank;
- > Recycled Water Holding Tank;
- > Filter Press;
- > Crusher;
- > Generator, Well, Control Panels;
- > Conveyor Belts.

It is anticipated that the following machinery and plant will be utilised at the site:

- > 1 no. 35 tonne excavator;
- > 1 no. dump truck;
- > Loading Shovel;
- > Wheel wash/Wash Cleaner
- > Fuel Truck;
- > Weighbridge
- > Water Bowser

Excavation will initially take place in the south-eastern corner of the site where the processing plant will be installed. Materials will be excavated and stored within the Phase 1 area to allow for the installation of the processing plant. Once the processing plant has been installed, the excavated material from Phase 1 will be processed for supply by the processing plant. Once the materials have been excavated from the Phase 1 area, excavation of Phase 2 will begin. The Phase 2 area will be reinstated prior to extraction of Phase 3. Reinstatement works will comprise hedgerow planting to replace loss of hedgerow during the extraction works along with site levelling and reseeded. The total excavation volume of sand and aggregate material at the site is calculated to be 154,000m³.

In order to achieve a high-quality end product, the excavated sand will be washed within the processing plant. The processing plant will be located in the south-east corner of the site. The processing plant will be modular in design and the majority of the components will be transported to the site on the back of a truck before being lifted off by a crane. Excavated material will be fed into the feed hopper. This material will then travel along a conveyor belt to the screen box. Here, water will be introduced to aid in screening and washing. Any material larger than 3mm will be screened out and transported via a conveyor belt to a crusher unit, which will reduce material to the appropriate size prior to being reintroduced back to the screen box. Material smaller than 3mm will be washed down through the screen box to the sand dewatering unit. Here, water will be separated from the sand by means of a

centrifuge. Clean washed sand will pass out an outlet chute for storage and sale and the separated water will flow to a settlement tank for further treatment.

Water usage for the washing element of the sand processing plant during the operational phase will be within a closed loop system. All water used for washing will be recycled back through the plant and reused on a continuous basis. Initially, water will be extracted from the proposed on-site groundwater well and pumped to the recycled water holding tank. It is estimated that the initial volume of water to be extracted from the groundwater well will be 220m³. The tank will not be filled to the top to allow capacity for ingress of rainwater etc. It should be noted that during the initial filling of the recycled water holding tank, extraction rates from the groundwater well will not exceed 25m³ per day.

Once the recycled water holding tank has been filled to the appropriate level, water will be pumped to the screen box to be used to wash the sand on an as needed basis. Water separated from the sand in the sand dewatering unit will flow to a deep cone thickener where coagulant will be added to aid settlement of silt out of the water column. Silt suspended within the water column would then flow out the bottom of the deep cone thickener to the silt buffer tank before flowing to the filter press for final processing. The silt material produced as a result of the sand washing process will be stored on-site to be used for site reinstatement or sold for use as aggregate material.

Water separated from the silt in the deep cone thickener will then flow to the recycled water holding tank to be reused for screening as required.

As all water will be reused on a continuous basis within the material processing plant there will be no requirement for the installation of settlement ponds within the site as is the commonly the case with many other sand extraction sites.

Water which will be used for dust suppression and at the wheel wash will be sourced from the proposed recycled water holding tank. Wastewater from the wheelwash will flow via new drainage infrastructure to a fuel/oil interceptor before flowing back to the recycled water holding tank.

All site refuelling will be carried out in a designated refuelling area within the confines of the site boundary. The refuelling area will be located upon an area of concrete hardstanding which will be installed during the construction phase as part of site enabling works. Appropriate falls will be in the hardstanding area so as to direct any fugitive fuel spills to the fuel/oil interceptor which will be installed adjacent to the refuelling area. It should be noted that there are no existing drains or watercourses located within the confines of the site or even in close proximity to the site's boundary.

Population and Human Health

One of the principal concerns in the development process is that individuals or communities, should experience no significant diminution in their quality of life from the direct or indirect 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, neutral, positively and negatively. The key issues examined in this chapter of the EIAR include population, human health, employment and economic activity, land-use, residential amenity, community facilities and services, tourism, noise and health and safety.

The proposed development site is located in the townland of Lomaunaghbaun to the north-east of the town of Tuam.

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, as shown in Figure 4-1. The following seven EDs have also been included in the Population Study Area due to their proximity to the site:

- > Carrowrevagh ED
- > Doonballey ED
- > Carrownagur ED
- > Raheen ED
- > Cloonkeen ED
- > Hillsbrook ED
- > Levalley ED

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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 population of the Study Area decreased by -3.2% between 2011 and 2016, falling from 3,882 to 3,830 persons respectively.

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.

Impacts on human beings during the construction and operational phase of the Proposed Development are described in Chapter 5 in terms of health and safety, employment and investment, population, land-use, tourism and amenity, noise, dust and traffic. Where a negative impact was identified, the appropriate mitigation measures will be put in place to ensure that there will be No Adverse Impacts on human health in the surrounding area.

Following consideration of the residual effects (post-mitigation), the Proposed Development will not result in any significant effects on population and human health. Provided that the Proposed Development is constructed and operated in accordance with the design, best practice and mitigation that is described within this application, significant effects on population and human health are not anticipated at international, national or county or local scale.

Biodiversity

This chapter assesses the likely significant effects (both alone and cumulatively with other projects) that the proposed quarry (Proposed Development) located in the townlands of Lomaunaghbaun may have on Biodiversity, Flora and Fauna and sets out the mitigation measures proposed to avoid, reduce, or offset any potential significant effects that are identified.

Comprehensive ecological surveys of the Proposed Development site were carried out by MKO ecologists in 2022 and focused on the footprint of the Proposed Development. Dedicated bat surveys of the site were also carried within the 2022 bat survey season. Habitats were classified according to the guidelines set out in 'A Guide to Habitats in Ireland' (Fossitt, 2000), which classifies habitats based on the vegetation present and management history.

A description of the Proposed Development is fully detailed in Chapter 4 of this EIAR.

The EIAR Site Boundary is an agricultural greenfield site separated into seven fields of variable size and form, separated by mature hedgerows and stone walls. The fields are best categorised as Dry Calcareous and Neutral Grassland (GS1)/Improved agricultural grassland (GA1). Some areas within these fields showed indications of recent scrub removal, within which there was greater diversity of flora species. However, these areas also supported high levels of immature blackthorn regrowth and bracken, indicating encroachment of the scrub which had been cleared in recent years. The site is bounded by Stone walls (BL1) in association with a series of Hedgerows (WL1) dominated by hazel, blackthorn, and

hawthorn, with bracken and bramble Scrub (WSI) growing along the field boundaries in places. Occasional individual ash trees occur throughout the dense hedgerow network. No watercourses were recorded within or adjacent to the Proposed Development site.

The Proposed Development will result in the loss of approximately 5.5 ha of Dry Calcareous and Neutral Grassland (GS1)/Improved agricultural grassland (GA1) habitat, and approximately 710m of hedgerow habitat, as a result of both the construction and operational phases of the development. The Proposed Development provides a site reinstatement and management plan which provides for the reestablishment of these habitats within the site. As the Proposed Development will be a phased operation, habitat reinstatement will be undertaken in areas previously worked, prior to site clearance works in the next phase. For grassland reinstatement, soil scraped back to allow for operation will be reused to ensure the same seedbank is present within and prescribed management measures will ensure a higher biodiversity grassland post operation. There will be a total of approximately 830m of hedgerow habitat reinstated within the site, negating the loss of 710m.

In addition to the reinstatement plan, an ex-situ 5.5 ha parcel of land approximately 4.5 km south west of the Proposed Development site has been provided by the client, within which grassland management will be undertaken to establish dry calcareous grassland, mitigating the losses of such habitat during the operation of the development.

In general, given the modified nature of the habitats within the EIAR Site Boundary, limited suitable habitat occurs on site for protected faunal species and no significant supporting habitat for any protected species was identified. No breeding sites for badger were identified and no potential roosting bat features were recorded within or adjacent to the EIAR Site Boundary. No significant supporting habitat for Marsh Fritillary was present within the site. No signs of any additional protected fauna were recorded within the study area during the field surveys.

No watercourses were recorded within or adjacent to the footprint of the Proposed Development. However, considering the nature of the Proposed Development, potential for impacts on ground water quality were considered in the EIAR and robust and detailed mitigations are provided in Chapter 6; Biodiversity, Chapter 9; Hydrology, and in the Environmental Management Plan (EMP) which is included as a technical appendix of this EIAR.

Provided that the proposed development is constructed and operated in accordance with the design, best practice and mitigation that is described within this application, significant impacts on ecology are not anticipated.

Land, Soils and Geology

This chapter assesses the likely significant effects that the Proposed Development may have on land, soils and geology and sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified.

The Proposed Development site has an elevation range of between approximately 96 metres above Ordnance Datum (mOD) and 84mOD. Highest elevations are found near the western boundary with the slope easterly towards the L2232 local road which defines the eastern boundary. The Proposed Development site is bounded by grassland on all other sides. The local surrounding area, including the Proposed Development site itself has an undulating topography.

Site investigations carried out at the Proposed Development site consisted of trial pitting and borehole drilling. Subsoils at the Proposed Development site comprise mainly sand and gravel along with some silt dominated subsoils. The confirmed depth of overburden at the site ranges from 1.1 to 6.1m. The deepest deposits are on the east of the Proposed Development site. The overburden is underlain by limestone bedrock which was found to be strong and competent.

The Proposed Development site is not located within or adjacent to any designated site (i.e. SAC, SPA, NHA, pNHA etc) or geological heritage site. The closest designated site to the Proposed Development site is Drumbulcaun Bog pNHA which located approximately 0.5km to the west of the Proposed Development. The closest European designated site is Levally Lough SAC (Site Code: 000295) which is located 2.7km to the south of the Proposed Development.

The Proposed Development being applied for under this current planning application includes for the extraction of sand and gravel over almost the full site area (i.e. 6.2ha). It is proposed to excavate the site down by an average depth of 3 metres from the existing ground levels.

The Proposed Development will have a permanent effect on geology due to sand and gravel excavation however, this is seen as an acceptable and unavoidable consequence of the proposed development.

Storage and handling of hydrocarbons/chemicals will be carried out using best practice methods and will mitigate against soil and bedrock contamination throughout all phases of the Proposed Development. Measures to prevent soil and subsoil erosion during excavation will also be undertaken to prevent water quality impacts.

The Proposed Development will result in the temporary loss of ~6.2ha of agricultural land and will result in local topographic changes. These impacts will be localised to within the Proposed Development footprint and there will be no effects on the surrounding lands.

Upon completion of the proposed sand and gravel extraction a restoration plan will be implemented which will consist of levelling of extracted topsoil and overburden and replanting of hedgerows, reseeded and returning to agricultural grassland.

An assessment of potential cumulative effects associated with the Proposed Development and other developments on land, soils and geology has been completed. The Land, Soils and Geology Assessment confirms there will be no significant cumulative effects on land, soil and geology as a result of the Proposed Development.

Hydrology and Hydrogeology

This chapter assesses the likely significant effects that the Proposed Development may have on hydrology and hydrogeology and sets out the mitigation measures proposed to avoid, reduce or offset any potential significant effects that are identified.

In terms of regional hydrology, the Proposed Development site is located in the Lough Corrib surface water catchment. Locally, the Proposed Development site is located in the River Clare sub-catchment. The immediate area of the Proposed Development site drains to the east towards the Levally Stream which is tributary of the Grange River. The Levally Stream flows in a southerly direction approximately 0.7km to the east of the Proposed Development site. There is no surface water connection/land drainage between Levally Stream and the Proposed Development site.

The Proposed Development site is underlain by a Regionally Important Aquifer – Karstified aquifer. However, site investigations have revealed an absence of karst features in the limestone bedrock at the site. Groundwater monitoring at the site shows that the elevation of the local groundwater table reflects surface topography and slopes to the east.

The Proposed Development will involve the extraction of sand and gravel deposits above the groundwater level.

Water usage for the washing element of the sand processing plant during the operational phase will be contained within a closed loop system. As all water will be reused on a continuous basis within the

material processing plant there will be no requirement for the installation of settlement ponds within the site as is the commonly the case with many other sand extraction sites. The system will be topped up using a proposed on-site groundwater well. Water for the wheel wash and for dust suppression will also be sourced from the well.

No significant effects to surface water (quality and flows) and groundwater (quality and quantity, and any local groundwater wells) will occur as a result of the Proposed Development as no discharges are proposed. Nevertheless, the EIAR presents proven and effective mitigation measures to protect surface and groundwaters.

A hydrological assessment of potential impacts on local designated sites was undertaken. Lough Corrib SAC is the only designated site downstream of the Proposed Development site. The only pathway for potential contaminants from the Proposed Development site to reach Lough Corrib SAC is via groundwater baseflow followed by surface water flows in the Levally Stream. There are no drains or streams connecting the Proposed Development site to the Levally Stream.

Following implementation of the appropriate mitigation measures as outlined in the EIAR no significant impacts on this designated site will occur as a result of the proposed development.

A Water Framework Directive (WFD) Compliance Assessment has been completed for all waterbodies (surface water and groundwater bodies) with the potential to be impacted by the Proposed Development. With the implementation of the mitigation measures detailed in this EIAR there will be no change in the WFD status of the underlying groundwater body or downstream surface waterbodies as a result of the Proposed Development. The Proposed Development has been found to be fully compliant with the WFD and will not prevent any waterbody from achieving its WFD objectives.

The Proposed Development site is mapped by the GSI to be inside the Gallagher Group Water Scheme groundwater source protection area. However, hydrogeological investigations completed at the Proposed Development site have revealed that local groundwater flow is to the east towards the Levally Stream. Groundwater from the area of the Proposed Development site will not flow towards the source of the Gallagher GWS which is to the southwest.

An assessment of potential cumulative effects associated with the Proposed Development and other developments on the hydrological and hydrogeological environment has been completed. Firstly, it needs to be stated that potential for the Proposed Development to contribute to cumulative effects is very low due to the absence of any discharges, the lack of surface water flowpaths/land drainage between the Proposed Development site and downstream river waterbodies (i.e. Levally Stream). Also, Due to the localised groundwater flow pattern at the Proposed Development site, which is towards the Levally Stream, groundwater cumulative effects are also unlikely.

Nevertheless, with the implementation of the mitigation measures detailed in this EIAR, the cumulative assessment found that there will be no significant effects on the hydrological and hydrogeological environments.

Air and Climate

Air

This chapter identifies, describes and assesses the potential significant direct and indirect effects on air quality and climate arising from the construction, operation and decommissioning of the Proposed Development.

The Environmental Protection Agency (EPA) has designated four Air Quality Zones for Ireland:

- Zone A: Dublin City and environs

- Zone B: Cork City and environs
- Zone C: 16 urban areas with population greater than 15,000
- Zone D: Remainder of the country.

These zones were defined to meet the criteria for air quality monitoring, assessment and management described in the Clean Air for Europe (CAFE) Directive (as amended) and the Fourth Daughter Directive. The site of the Proposed Development lies within Zone D, which represents rural areas located away from large population centres.

The construction of the Proposed Development will require the use of machinery and plant, thereby giving rise to exhaust emissions. This is a temporary-term slight negative effect, which will be reduced through the use of best practice mitigation measures. The transport of construction materials to the site will also give rise to exhaust emissions associated with the transport vehicles. This constitutes an imperceptible negative impact in terms of air quality.

The Proposed Development will give rise to dust emissions during the construction and operational phase. Any potential emissions from dust will be mitigated by measures outlined in the Environmental Management Plan (EMP) (see Appendix 4-5 of the ELAR) and includes dust suppression measures.

Exhaust emissions associated with the construction and operational phases of the Proposed Development will arise from machinery and vehicles, such as excavators. This will give rise to a medium-term slight negative effect.

Climate

Climate change is one of the most challenging global issues facing us today and is primarily the result of increased levels of greenhouse gases in the atmosphere. These greenhouse gases come primarily from the combustion of fossil fuels in energy use. Changing climate patterns are linked to increased frequency of extreme weather conditions such as storms, floods and droughts. In addition, warmer weather trends can place pressure on animals and plants that cannot adapt to a rapidly changing environment. Moving away from our reliance on coal, oil and other fossil fuel-driven power plants is essential to reduce emissions of greenhouse gases and combat climate change.

In June 2023, the Environment Protection Agency released 'Ireland's Greenhouse Gas Emissions Projections 2022-2040'. The EPA has produced two scenarios in preparing these greenhouse gas emissions projections: a "With Existing Measures" (WEM) scenario and a "With Additional Measures" (WAM) scenario. These scenarios forecast Ireland's greenhouse gas emissions in different ways. The WEM scenario forecasts Ireland emissions including all national policies and measures implemented by the end of 2021, the latest inventory year. The WAM scenario has a higher level of ambition and includes government policies and measures to reduce emissions, such as those in Ireland's Climate Action Plan 2023 (CAP 23), that are not yet implemented. As implementation of policies and measures occurs, they will be migrated into the WEM Scenario.

The projections show that implemented policies and measures in the WEM scenario can deliver an 11% reduction in greenhouse gas emissions by 2030 compared to the 2018 level. The WAM scenario, including policies and measures from CAP23, is projected to deliver a 29% emissions reduction over the same period. This is well short of the legally binding commitment to achieving a 51% reduction in GHG emissions from 2021 to 2030, and to achieving net-zero emissions no later than 2050. Ireland's new 2030 target under the EU's Effort Sharing Regulation (ESR) is to limit its greenhouse gas emissions by at least 42% by 2030. This target was set in April 2023 upon amendment of the Emissions Sharing Regulation. For Ireland to achieve its national and international climate targets, it will require a full and rapid implementation of CAP23 measures and further measures to be implemented. '

Following the construction and operational phases of the Proposed Project, there will be a Permanent Imperceptible Negative Effect on Climate as a result of greenhouse gas emissions from plant and vehicles, embodied carbon associated with the construction materials. Operation of the Proposed

Project will have a Direct Medium-Term Imperceptible Negative Effect on climate as a result of greenhouse gas emissions from the site.

Noise and Vibration

Extensive sand and gravel deposits in the local area have resulted in the development of a number of sand and gravel pits in recent decades. The nearest pit, on a site to the immediate east, is now closed, and the site has been returned to agriculture. Several active and closed pits lie to the southwest of the site. The nearest of these, at 750 m, represents the chief active pit in the local area.

The nearest dwelling to the Proposed Development site is a house 190 m northeast, adjacent to the now-restored pit opposite the site. The dwelling is accessed from the L2232. The dwelling is in the ownership of the applicant, and is not a noise sensitive receptor. There are six habitable dwellings within 500 m of the site, with two more dwellings located just outside the 500 m offset. All receptors in the surrounding area consist of dwellings. No other receptors such as creches, schools, care centres or nursing homes have been identified in proximity to the site.

The local soundscape is rural in character, with the chief source of noise being occasional local road traffic. Noise emissions from an existing sand and gravel pit to the southwest of the Proposed Development site are audible in the vicinity of this pit.

At all receptors, noise levels attributable to extraction operations will be lower than the daytime 55 dB criterion recommended by the Department of the Environment, Heritage and Local Government with respect to aggregate extraction. Using guidance set out by the Institute of Environmental Management and the Environmental Protection Agency, it is concluded that noise impacts at receptors will be imperceptible. The Proposed Development will be consistent with the local and historic soundscape. Traffic noise impacts will be imperceptible to not significant.

At a cluster of three dwellings in proximity to both the Proposed Development site and an existing sand and gravel pit to the southwest, cumulative noise impacts will be imperceptible. In relation to cumulative impacts due to operation of the proposed quarry in tandem with extraction at the proposed Clonberne Wind Farm borrow pit, cumulative impacts will be slight negative at the nearest receptors, due almost entirely to borrow pit activity. Cumulative truck noise impacts at two dwellings on the L2232 will be moderate negative where these activities occur simultaneously. Cumulative noise impacts will be imperceptible if the proposed wind farm becomes operational during the lifetime of the proposed quarry.

Landscape

The Proposed Development will cause landscape and visual effects highly localised to the landscape of the site itself. Proposed excavation activities will occur at surface level or sub-surface level and will be enclosed by both the existing topography of the site and proposed berms to be created along the northern, southern and western boundaries of the site. The proposed Processing Plant will be installed following preliminary excavation activity, consequently only a very small proportion of this infrastructure will protrude above existing ground level, limiting the visual exposure of this infrastructure within the landscape.

The area surrounding the Proposed Development is a sparsely populated, rural landscape. It is generally characterised as a modified working landscape where land use is typically dominated by agriculture (livestock), forestry, and other extractive quarrying activities. An LVIA Study Area was established to 2km from the EIAR Study Area. The landscape of the site and LVIA Study Area has an absence of designated sensitive landscape and visual receptors in the Galway County Development Plan 2022-2028. An assessment of the local landscape character did not identify any features of the site or wider setting of any particularly high or unique landscape value. Considering the modified nature of the landscape and absence of any sensitive policy designations in the LVIA Study Area, the

susceptibility of this landscape to change was deemed to be low. On balance the landscape of the site is deemed to be of Low sensitivity. The magnitude of change will be greatest on the site where the landscape will directly change as a result of the Proposed Development. Long term effects on the landscape of the site will be mitigated by the phased landscape restoration plan. Due to the limited visibility of the Proposed Development beyond the immediate proximity of the site itself, change to the character of the wider landscape and its visual aesthetic are anticipated to be Not Significant. In mind of all mitigating factors, no significant landscape effects are likely to occur as a result of the Proposed Development.

In a general sense, and at a macro scale, the LVIA Study Area (area within 2km) is relatively flat, with only approximately 40 metres difference in elevation between the highest and lowest points. However, at a local scale it comprises hummocky ridges and undulations, this localised variation in topography does provide a sense of visual containment in the landscape, which was very evident when conducting the visibility appraisals reported in the Chapter. Visibility appraisals conducted on site determined that in reality the Proposed Development Site will only be visible from locations in very close proximity as screening elements such as localised topography undulations and vegetated field boundaries will restrict long-ranging views towards the Proposed Development Site. Local residents and the local road network were the only sensitive receptors identified with any potential visibility of the Proposed Development. The wider landscape surrounding the site is considered to be an area of relatively low population density and there is substantial set back distance and physical landscape buffers between the Proposed Development Site and residential properties. Visibility of the development from these residential receptors is expected to be very minor amounting to a negligible degree of change and no significant visual effects are likely to occur.

After care proposals following the completion of extraction activities include dedicated site and landscape restoration plans which will mitigate any of the highly localised landscape and visual effects that will occur during the operational phase. These measures ensure long-term landscape and visual effects are deemed to be Not Significant.

Archaeology and Cultural Heritage

An assessment of the potential impact of a proposed quarry at Lomaunaghbaun, Co. Galway on the Cultural Heritage resource was carried out. Cultural heritage includes archaeology, architectural heritage and any other tangible assets. The assessment was based on comprehensive desktop research and field inspection of the proposed extraction area and the potential direct and indirect effects of the Proposed Development on the surrounding cultural heritage landscape were assessed.

No recorded monuments, Protected Structures, NIAH structures or historic gardens are located within the Proposed Development site or in the immediate vicinity of same. No significant direct or indirect impacts to the recorded cultural heritage resource have been identified. A potential direct impact to sub-surface archaeological sites or features, should they exist within the Proposed Development site, is noted. Mitigation in the form of pre-development archaeological testing of the proposed extraction area is recommended. Any potential direct impacts to the archaeological resource will be effectively mitigated through the implementation of the recommended mitigation measures.

No significant visual effects to the setting of recorded cultural heritage assets as a result of the Proposed Development will occur. Potential cumulative direct and indirect effects were also assessed with no significant cumulative effects noted.

Material Assets

Roads, Traffic, Transport & Access

It is proposed to construct and operate a quarry for the excavation of sand for a 10 year period between 2024 to 2034. The proposed site is located within the townland of Lomaunaghbaun in County Galway and is approximately 8.6 kms northeast of Tuam and 4.7 kms west of Clonbern.

The Proposed Quarry is situated on the west side of the L-2232 and may be accessed from 2 routes from the R328 regional road. From the R328, Route Option A is the most direct route to the site, which is located approximately 4.0km south on the L-2232 from the junction with the R328 at Gorteen Cross.

Route B accesses the site from the R328 to the southeast of the Proposed Quarry, providing access via the L-2223 and L-2232 local roads. This route is approximately 6.5kms from the R328 to the site

Based on traffic count surveys undertaken in 2023 it was established that existing traffic volumes on the local road network are very low. It was also established that the trip generation of the Proposed Quarry will be low during the week long construction period, and the 10 year operational phase. It is estimated that the Proposed development will generate a maximum of 4 car trips to and from the site per day, and 15 HGV trips per day, or 2 per hour. In terms of link and junction capacity it was established that the Proposed Quarry will have a slight impact on the local road network.

A detailed geometric assessment was undertaken for both routes. While both routes are considered feasible, Route Option B was established to have more passing opportunities for opposing vehicles compared to Option A.

The access junction that will serve the Proposed Quarry will be implemented in accordance with current design guidelines and will include the removal of an existing crest on the L-2232, which will benefit all traffic on the route.

It is concluded from the above assessment that Route Option B will accommodate the additional traffic that will be generated by the Proposed Quarry. It is noted that Route Option A may be considered in the future with the implementation of improvements to the R348 / L-2232 junction and a passing bay identified on the L-2232.

Utilities and Services

This section considers the likely effects of the Proposed Development upon a range of services and infrastructure, including water supply networks, electricity network, data and telecommunications networks (including phone and broadband), foul effluent networks, and land use. Best practices will be implemented to ensure that there are no impacts on these services, and to ensure safety of the site workers. The relevant national and regional authorities and bodies were consulted to identify any potential impact on material assets. Connection to and upgrade of the aforementioned services was deemed to be feasible by the relevant providers.

An Environmental Management Plan (EMP) has been prepared for the Proposed Development to ensure waste management prescriptions that adhere to a waste management hierarchy are implemented at the site. The EMP is found in Appendix 4-2 of the EIAR.

Vulnerability of the Project to Major Accidents and Natural Disasters

This section of the Environmental Impact Assessment Report (EIAR) describes the likely significant effects on the environment arising from the vulnerability of the Proposed Development as detailed in Chapter 14 to risks of major accidents and/or natural disasters.

Major accidents or natural disasters are hazards which have the potential to affect the Proposed Development and consequently have potential impacts on the environment. These include accidents during construction and operation caused by operational failure and/or natural hazards. The assessment of the risk of major accidents and/or disaster considers all factors defined in the EIA Directive that have been considered in this EIAR, i.e., population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and the landscape.

A desk-study has been completed to establish the baseline environment for which the proposed risk assessment is being carried out. This will influence both the likelihood and the impact of a major accident or natural disaster. Local and regional context has been established prior to undertaking the risk assessment to develop an understanding of the vulnerability and resilience of the area to emergency situations.

Further detail on the baseline environment, i.e. pre-identified risks identified in County Galway, is provided in Chapter 14 of this EIAR. The scenario with the highest risk score in terms of the occurrence of major accidents and/or disasters was identified to be Fire or Gas Explosions during the construction or operational phase and Contamination through spillage of hydrocarbons over the construction phase of the Proposed Development.

The Proposed Development will be designed and built in line with current best practice and, as such, mitigation against the risk of major accidents and/or disasters will be embedded through the design.

The risk of a major accident and/or disaster during the construction of the Proposed Development is considered 'low' in accordance with the 'Guide to Risk Assessment in Major Emergency Management' (DoEHLG, 2010).

Interactions of the Foregoing

Chapters 5 to 13 of this EIAR identify the potential significant environmental effects that may occur in terms of Population and Human Health, Biodiversity, Land, Soils and Geology, Water, Air, Climate, Noise and Vibration, Landscape and Visual, Cultural Heritage and Material Assets, as a result of the Proposed Development. All of the potential significant effects of the Proposed Development and the measures proposed to mitigate them have been outlined in the main EIAR. For any development with the potential for significant environmental effects there is also the potential for interaction between these potential significant effects. The result of interactive effects may exacerbate the magnitude of the effects or ameliorate them or have a neutral effect. A matrix is presented in Chapter 15 of the EIAR to identify interactions between the various aspects of the environment already discussed in the EIAR. The matrix highlights the occurrence of potential positive or negative impacts during the construction and operational phase of the Proposed Development. Where any potential interactive impacts have been identified, appropriate mitigation is included in the relevant sections (Chapters 5–13) of the EIAR.