

CHAPTER 8

AIR

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INTRODUCTION

This chapter forms part of the Environmental Impact Assessment Report prepared in support of a Planning application for the continued importation and recycling of inert material. This chapter relates to the potential impacts the proposed development could have on air in the vicinity of the quarry.

Information was gathered from various online sources and from onsite field studies.

Monitoring locations

The closest air quality monitoring location in operation to the site is located in Clonmel, Co. Tipperary.

This monitoring station provides automated results for particulate matter, PM₁₀ and PM_{2.5}.

The most recent results indicate that there have been no exceedances at the monitoring site in 2019 to date.

Background

Due to the nature of the activities carried out at the site, the potential effects of the proposed development on air relate to dust. Odorous emissions are and will not be an issue on the site due to the nature of activities taking place.

In relation to rural areas i.e. Kereen Lower and Woodstock, the primary source of PM₁₀ would be residential solid fuel emissions and local agricultural or rural based activities for deposited dust.

Impact Assessment

Fugitive dust emissions and particulate matter arising from the application site extraction and restoration activities has the potential to affect existing sensitive receptors in the area due to a potential increase in airborne dust deposition.

Combustion emissions from plant machinery may also impact the local air quality

Scope of works

This chapter of the report is to assess the potential impact on the local amenity from increases fugitive emissions and particulate matter from the proposed development.

Mitigation measures and identified where required to eliminate or reduce any potential impacts.

Contributors/ Authors(s)

NRGE Ltd carried out the impact assessment presented in this chapter on behalf of Kereen Quarries Ltd. The lead author for the study was Liam McEniry BSc, PGDip Chem Eng.

Legislation

The Government's policy on air quality within Ireland is set out in the Air Quality Standards (AQS) Regulations 2022 and sets out a framework for reducing hazards to health from air pollution and ensuring that international commitments are met in Ireland.

The AQS set standards and objectives for pollutants. The pollutants monitored and controlled are: Nitrogen oxides, Sulphur dioxide, Carbon monoxide, Ozone, Particulate matter (PM10, PM2.5 and black smoke), Benzene, VOC's, Heavy metals, polycyclic aromatic hydrocarbons.

These pollutants are monitored at 32 stations across the country.

Existing limit values

As per condition No. 5 of the Planning Permission Ref: 17160, dust emissions from the site shall not exceed 130 mg/m² per day averaged over a continuous period of 30 days, measured as deposition of insoluble particulate matter at any position along the site boundary

Dust monitoring is carried out, the locations of which are indicated as N1 to N6 on the location maps attached.

If dust levels exceed 350 mg/m²/day, water is sprayed from a tanker to mitigate possible impacts

It should be noted that the 130mg/m²/day is related to outdated methodology (Frisbee Method). Current guidelines now recommend a limit of 350mg/m²/day using the Bergoff Method. The increased limit does not represent any real or actual increase in ambient dust level, but merely a difference in methodologies used to monitor dust deposition levels.

EPA released a report in 2019 Air quality in Ireland 2019. Table 8.1 describes the monitoring and exceedance of the WHO guideline values for Ozone, PM10, PM2.5, NO₂, SO₂, PAH, Dioxins, All other pollutants.

Pollutant ($\mu\text{g}/\text{m}^3$)	WHO Air Quality Guideline level (AQG) in 24hrs	Number of exceedances
PM10	45	14/30
PM2.5	15	25/30
NO ₂	25	1/30
SO ₂	40	1/30
CO	4	No data
Ozone	100 (in 8hrs)	2/30

Table 8. 1 monitoring of WHO air quality guidance

Receiving environment

Study Area

The site is located in the townland of Kereen Lower & Woodstock, approximately 3Km from Aghlish, Co. Waterford off the R671.

The proposed development is in relation importation of inert material and the recycling of aggregates. The quarrying area to the north of the site is not part of the application. This application relates only to the area where recycling of aggregates and inert material takes place.

Baseline Study Methodology

The closet monitoring station to the site is Clonmel, Co. Tipperary. PM10 of 23.36 $\mu\text{g}/\text{m}^3$ AND Pm2.5 of 12.31 $\mu\text{g}/\text{m}^3$ was used as baseline values. As this is the closest data set to the proposed development it is selected for the assessment of air quality baseline concentrations.

Dust monitoring was carried out on the site in August 2020. Total dust deposition was measured at the site using the bergerhoff gauges specified in the german engineering institute VDI 2119 document entitled '*measurement of dust fall using the Bergerhoff instrument (standard method)*'.

Dust Deposition Monitoring

Dust deposition monitoring was carried out in August 2020, 4 locations along the site boundary were used for monitoring locations. Figure 8.1 details the locations of the monitoring locations.

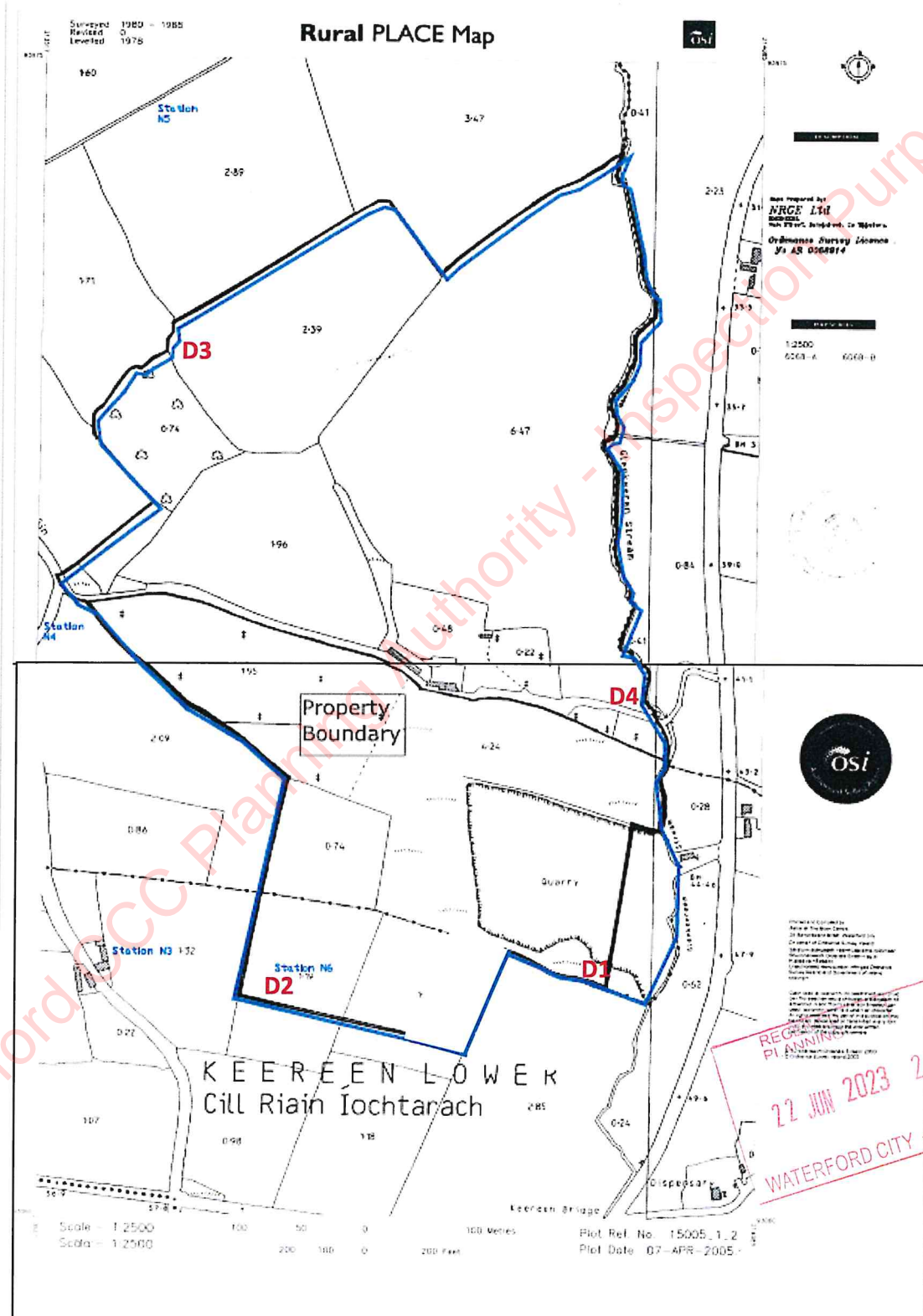


Figure 8. 1 Dust Monitoring Locations

Table 8.2 details the results from the monitoring points in August 2020.

Monitoring Location	D1	D2	D3	D4	Limit Value
Dust Depositiong mg/m ² /day	111	247	177	203	350
ITM Co-ordinates for station	613938, 593288	613622, 593248	613578, 593808	613926, 593521	

Table 8. 2 Dust monitoring values and locations

All of the monitoring points recorded dust deposition rates of less than the recommended 350 mg/m²/day.

Sensitive Receptors

There are no sensitive Ecological receptors located in the vicinity of the proposed development. The closest sensitive receptor is the Blackwater River (Cork/Waterford) SAC is located 1.4Km to the North and 4.1Km to the West of the site.

Sensitive locations also include areas were humans may be exposed to dust from either the existing or proposed development. There are no high sensitivity areas located in the vicinity of the proposed development. There are 10 sensitive receptors within 500m of the proposed development.



Figure 8. 2 Sensitive receptors

Impact Assessment -Methodology

Fugitive dust emissions from the site has the potential to result in the impairment of, or interference with amenities or environment surrounding the site.

Given the proposed development is a continuation of current activities and as previous dust monitoring indicates dust emissions form the site are well below limit values. The magnitude of release will be low.

Combustion emissions from site machinery has the potential to contribute to local air pollution.

This assessment makes comparisons of baseline data against air quality impacts results from the development. In combination effects with other sources of air pollution in the area are also considered.

Assessment Impacts

Restoration & Recycling of Aggregates – Assessment

The sources and processes associated with the proposed development and its potential for dust deposition is detailed in Table 8.3

Activity	Source	Emission Potential	Comments
Recycle of aggregates	Crushers, conveyors, Excavators	High- Dry material may emit fugitive emissions during windy weather	Variable weather conditions will effect the potential emission impacts.
		Low- Large material during wet, calm weather	

Table 8. 3 Potential dust deposition sources.

During recycling process traffic will leave the paved areas, this time is minimal, however vehicles have the potential to emit dust as a result.

Although the risk is deemed to be negligible, given ideal meteorological conditions there is the potential for fugitive dust emissions to potentially cause nuisance in the locality. As such mitigation measures must be put in place.

Cumulative impacts

Desktop research of Waterford Co. Co planning files indicated there are no site within the vicinity of the proposed development which has the potential for significant cumulative impacts on air quality in the area.

Dust monitoring carried out at the site boundary in August 2020 indicated that all monitoring locations has deposition values well below the limit values. As the proposed development is a continuation of the existing development it is not envisaged to have any negative in combination effect on air quality.

Interactions with other impacts

The proposed developments potential impacts on air quality effecting sensitive receptors including ecological receptors has been assessed in this chapter. The overall impact of the development on these receptors is also considered and assessed in Chapter 4 & 5.

Mitigation Measures

A range of mitigation measures to mitigate against any potential adverse effect on the air quality in the area is detailed in table 8.4

Source	Emission Potential	Mitigation Measure
Excavators	High- Dry material may emit fugitive emissions during windy weather	Minimise drop heights when handling material. Avoid working in windy conditions
	Low- Large material during wet, calm weather	
Site Vehicles	High- when travelling off-road in dry conditions	Restrict traffic speeds
		Minimise time of haulage vehicles travelling off road
		Use water sprays/ tractor and bowser to moisten surfaces where necessary.
Haulage Vehicles	Low/moderate on paved surfaces	Restrict traffic speeds
		Ensure maintenance of paved road to recycling area.
Stockpiles	High- dry of fine material being stored/ handled in windy weather.	Minimise mechanical disturbances to fine particles stockpiles.
Processing Equipment	High-during dry/ windy weather.	Locate plant equipment in low lying area to shelter from wind.
		Ensure proper maintenance of equipment
		Avoid working in adverse weather conditions where possible.

Table 8. 4 Mitigation Measures

Residual Impacts

From the range of mitigation measures detailed in Table 8.4 it is determined that the risk of dust impact at sensitive receptors to be negligible.

As a result of the assessment of potential adverse effects of the development, it is determined there will be no adverse effect on air quality for humans and or ecological

receptors. The overall effects of the proposed development on air quality in the Kereen Lower are negligible.

Monitoring

Dust monitoring locations will be reviewed as appropriate. The results of dust monitoring will be submitted to Waterford County Council on regular basis for review and recording.

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CHAPTER 9 CLIMATE

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Background

This chapter forms part of the Environmental Impact Assessment Report prepared in support of a planning application for the continued importation and recycling of inert material. This chapter was prepared by NRG E Ltd. It relates to the potential impacts on the climate from the proposed development.

Information was gathered from various online sources and from onsite field studies.

The development site is confined to 0.42 hectares. This holding is used for the recycling of construction aggregates.

Scope of Works

Subsequent sections of this chapter detail the potential climatic impacts which may be caused by the proposed development. The following sections will be assessed.

- Climate change legislative frameworks
- Analysis of baseline trends
- Identification of climate change concerns in relation to the proposed development
- Assessing effects
- Identify mitigation measures

Contributors/ Authors

NRGE Ltd carried out the impact assessment presented in this chapter on behalf of Kereen Quarries Ltd. The lead author for the study was David Wynne BSc (Env Sc).

Legislative Framework

The production of recycled aggregates from construction and demolition wastes/ mineral exploration sector was not included under the National Adaptation Framework to prepare adaptation plans in line with the requirements of the Climate Action Plan 2023.

Paris Agreement

A global agreement on climate change was agreed in Paris in 2015. The aim of the agreement is to prevent global temperature rise 2°C above pre-industrial levels and aim for 1.5°C increase. The Paris agreement aims to tackle 95% of global emissions. The EU target of a minimum 40% reduction in greenhouse gas emissions by 2030.

Kyoto Protocol

The EPA holds responsibility for national greenhouse gas inventory in Ireland's national system, which was established in 2007 under the Kyoto protocol. The EPA undertakes all aspects of inventory preparation and management, as well as reporting Ireland's submissions annually.

Catchment Flood Risk Assessment and Management Programme (CFRAM)

The CFRAM programme is the method through which climate change actions will be implemented. The future scenario floodmaps modelled under the CFRAM programme will facilitate this approach, inform all parties and provided information for local adaptation of planning and sustainable land use management.

Receiving Environment

Global temperatures have risen by 0.8°C since pre-industrial times for land and sea. Observations of global temperature increases include; melting of snow and ice caps, regression of glaciers and rising sea levels. The likely cause of these changes is increases in greenhouse gas emissions.

Ireland has a typical oceanic climate, mild, wet winters and cool summers. The prevailing wind is from the south west. The climate is influenced by warm air generated by the gulf stream. The eastern coast receives the least rainfall due to rain shadow from Wicklow mountains.

Local context

The closest weather stations to the site is located in Moorepark which is 42Km from the site. This is not considered representative of the conditions experienced on site.

Impact Assessment

The aim of the vulnerability assessment is to identify the relevant climate hazards for the project at the foreseen location. Table 9.1 details the vulnerability assessment for the proposed development.

	Extreme rainfall, flood, flash flood	Heat	Drought	Wildfire	Storms & Wind	Landslides	Cold Spells and snow	Freeze-thaw damage	Rising Sea Levels
Rare		X	X	X		X		X	X
Unlikely							X		
Moderate	X				X				
Likely									
Almost Certain									

Table 9. 1 Likelihood of climate hazards at quarry

The proposed development has been determined to be moderately effected by Extreme rainfall, flood, flash flood, storm & wind. All other aspects will no be effected by climate changes.

Table 9.2 details the hazard impact of the proposed development. It is determined that climate hazards have the potential to have major impacts on health and safety, the environment, asset damage, and financial areas.

Risk Areas	Insignificant	Minor	Moderate	Major	Catastrophic
Asset damage, engineering, operational			X		
Health and Safety				X	
Environment				X	
Financial				X	
Reputation			X		
Social			X		

Table 9. 2 Hazard impacts

Table 9.3 details the proposed developments current and future exposure to climate change without mitigation measures. The project is assessed to have the most sensitivity to extreme rainfall, flood and flash flood.

	Extreme rainfall, flood, flash flood	Heat	Drought	Wildfire	Storms & Wind	Landslides	Cold Spells and snow	Freeze-thaw damage	Rising Sea Levels
Current Climate	Medium	Low	Low	Low	Medium	Low	Low	Low	Low
Future Climate	High	Low	Low	Low	High	Low	Low	Low	Low

Table 9. 3 Current and Future exposure to climate change.

Based on the assessment of the vulnerability of the development to climate change, mitigation measures are required to improve the projects ability to withstand extreme rainfall, flood, flash food, wind & Storm.

The quarrying sector in Ireland contributes less than 0.5% of the total CO₂eq produced in Ireland. The quantity of emissions produced is relative to the size of the installation. The proposed development occupies 0.42Ha and is a continuation of current practices.

Based on the scale of the site, the quantities of material currently being recycled the proposed development is determined to have negligible impact on GHG emissions from the installation.

Mitigation

Based on the development vulnerability assessment mitigation measures are deemed necessary to increase the resilience of the proposed development to extreme rainfall, flood, flash food, wind & Storm. Table 9.4 details the mitigation measures for the quarry.

Main Concerns related to:	Proposed mitigation measures/ alternative.
Extreme Rainfall, Flood, Flash flood	Ensure adequate drainage from the recycling area to settlement pond.
	Routine maintenance of drainage system to ensure flow-path is free from debris
Storms and winds	Ensure equipment is designed to withstand high winds and storms
	Ensure all equipment is well maintained and all loose items are secured.
Risk Reduction mechanism	Secure insurance for damage of assets.
Increase energy demand	Consider renewable energy sources/ suppliers.
GHG Emissions	Ensure equipment is well maintained and operating at maximum efficiency.
GHG emissions from transport	Avoid idling machinery. Consider alternative fuel sources for HGV's when available.

Table 9. 4 Mitigation measures

CHAPTER 10

Noise

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INTRODUCTION

This chapter forms part of the Environmental Impact Assessment Report prepared to accompany a planning application to Waterford City and County Council submitted by NRG Ltd, on behalf of Kereen Quarries Ltd, in relation to the existing quarry at Kereen Lower & Woodstock, Cappoquin, Co. Waterford.

The proposed development site has a total area of 0.42 acres and is being applied for under this application. The proposed development will consist of the import, processing and export of construction materials with all processing activity to be contained within the redline site boundary.

This chapter relates to the potential likely and significant impacts the development could have on noise in the vicinity of the site.

Information was gathered from various online sources and from onsite field studies. The noise impact assessment presented describes and assesses the baseline noise levels in the area. Noise mitigation measures, where necessary, are applied to eliminate or minimise potentially adverse effects.

Scope of works

The following sections of this chapter describe the potential noise impacts associated with this development. The following issues are addressed within this report:

- Methodology used to assess noise impacts
- Baseline noise conditions existing in the vicinity of the site.
- Assessment of severity and likelihood of impacts
- Identification of mitigation measures
- Residual impacts associated with the development.

A site visit and walkover survey was completed by NRG on 09th December 2021.

The data presented and reviewed in this chapter incorporates observations made during the site walkover survey. Operations do not take place during night-time hours, therefore only daytime noise monitoring was carried out.

Contributors/ Authors(s)

NRG Ltd carried out the impact assessment presented in this chapter on behalf of Kereen Quarries. The lead author of this chapter was Liam McEniry BSc, PGDip Chem Eng. Liam has several years' experience working as a consultant Engineer with a variety of industrial and agricultural clients.

Legislation & Guidance Documents

Currently there is no national legislation specifically relating to extractive industries, however several guidance documents have been published which are relevant.

- Waterford County Council Development Plan 2017 states ‘ it is the objective of the council to prevent public noise and light nuisance through the regulation of industrial, construction and commercial activities’
- The EPA published guidelines on ‘Environmental management in the extractive industry.’
- EPA Noise Guidance of Scheduled Activities (NG4)
- BS5228-1 Code of practice for noise and vibration control on construction and open sites.

Emission Limit Values

The site is located within the footprint of an existing quarry which is operating in accordance with its planning conditions. EPA noise guidance of scheduled activities (NG4) sets out typical limit values for noise. The limit values are described in Table 10.1.

Time	Description	Limit dB
07.00-19.00	Daytime	55 dB L _{Ar,T}
19.00-23.00	Evening	50 dB L _{Ar,T}
23.00-07.00	Night-time	45 dB L _{Aeq,T}

Table 10.1 Noise Limit Values

In order to maintain good housekeeping practices the following measures are implemented.

- All machinery to be regularly serviced. Including exhausts
- Where appropriate install noise reducing modification.
- Maintain haul routes in good condition.

Receiving environment

Study Area

Kereen Quarry is located ~10km south of the village of Cappoquinn and ~13km west of the town of Dungarvan. The quarry is located in the townland of Kereen Lower & woodstock, approximately 3Km from Aglis, Co. Waterford.

The proposed development site (‘the site’) which is being applied for under this application has a total area of 0.42ha and lies in the south of the overall quarry landholding. Historically soil and subsoil have been removed from the site and bedrock extracted. However, no extraction is currently taking place within the site boundary, although quarrying in other parts of the landholding continues as per previous planning applications. Quarrying operations are continuing elsewhere in the quarry with material being processed using mobile plant. These quarrying operations are not dealt with in this EIAR, aside from the incombination effects with the proposed



development. The proposed development relates to the import, processing and export of construction materials within the site boundary. Current facilities existing at Kereen Quarry include offices, weighbridge, canteen, bunded fuel storage area all of which are located near the quarry entrance in the southeast of the overall landholding.

Access to the quarry is via the R671 located along the eastern boundary of the quarry. All site traffic enters via the access road and weighbridge located at the entrance. It is proposed that this entrance will continue as the sole access point to the site.

Baseline Noise assessment

A noise survey was carried out to capture typical background noise levels at noise sensitive receptors in the vicinity of the site. The dominant noise source is passing traffic associated with the R671. The numbers of vehicles on the R671 can be described as moderate. The weather conditions were moderate winds with light to moderate rain showers.

Noise measurements were made according to the requirements of ISO 1996; Acoustics- Description and Measurement of Environmental Noise and in addition, with reference to the IEMA: Guidelines for Environmental Noise Assessment, November 2014 and EPA: Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4), April 2012. The measurement was made using a Bruel & Kjaer 2235 Data logging integrating sound level meter.

For Each of the sensitive receptors the following measurements were recorded:

1. $LA_{eq,T}$ is the A-weighted equivalent continuous noise level over the measurement period.
2. $LA_{90,T}$ is the average weighted noise level exceeded for 90% of the measurement period.
3. La_{max} is the maximum recorded noise level over the measurement period.

The noise survey was carried out by Liam McEniry of NERGE Ltd at sensitive noise receptors in the vicinity of the site on the 09th December 2021. The monitoring period is considered to be representative of the daytime noise levels.

Noise monitoring Locations

The noise monitoring locations used for the purposes of the baseline noise survey are shown in Table 10.1. These locations take into consideration the sensitive receptors surrounding the site and their location relative to the centre of the development.

Co-ordinates of Receptors from Proposed Facility (ITM Co-ordinates)				
Ref		X	Y	Distance from Centre of Proposed Unit (m)
	Centre of development	613777.65	593417.42	
N-00		614019.92	593435.70	230
N-01		614005.47	593137.63	369
N-02		613906.82	593077.51	352
N-03		613938.74	593022.45	428
N-04		613717.24	593142.69	277
N-05		613522.79	593271.23	294
N-06		614007.29	593744.21	449

Table 10. 1 Location of sensitive receptors

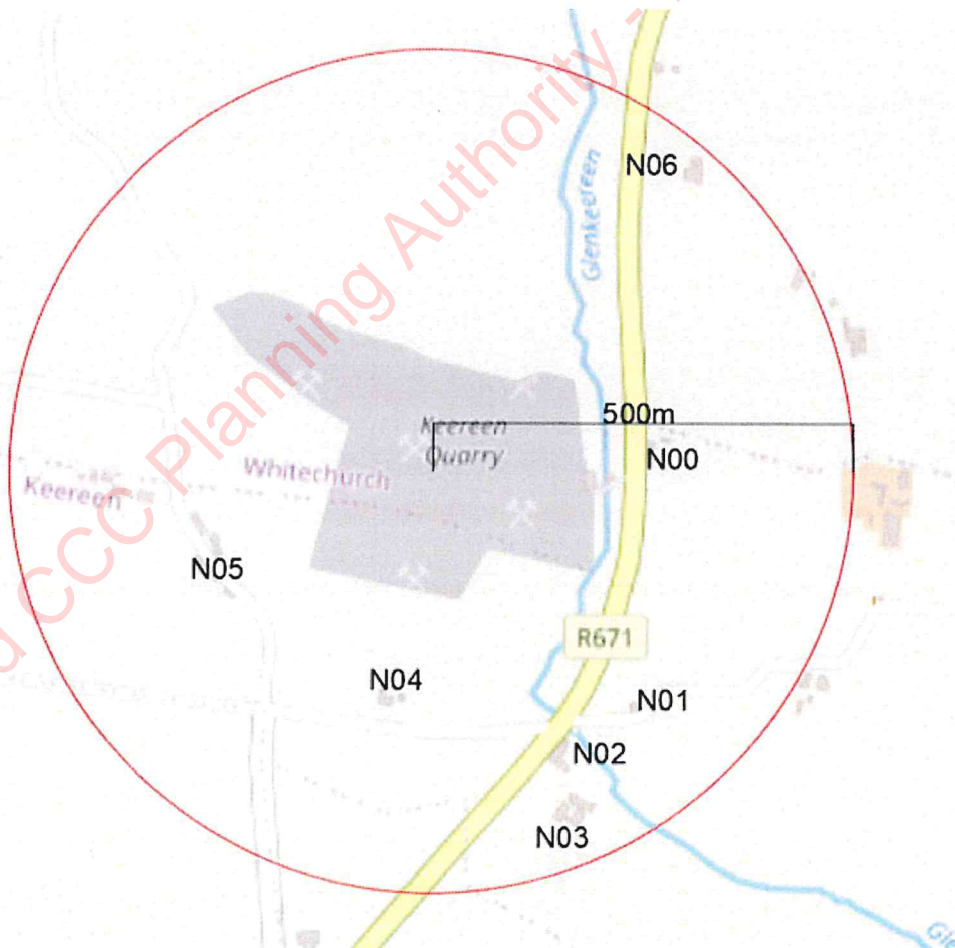


Figure 10. 1 Location of Sensitive receptors

Baseline assessment Results

The results of the baseline noise assessment are presented in Table 10.2. The following observations can be made in relation to the results.

- Centre of the development: major noise source was rock breaking, crushing and equipment associated with the site activities.
- N00: The measured baseline noise was dominated by noise associated with passing traffic on the R671.
- N01: The measured baseline noise is associated with passing traffic on the R671.
- N02: The measured baseline noise is dominated by passing traffic on the R671. Speed limits on the road is 80km/h.
- N03: The measured baseline noise is was associated with passing traffic on the R671. When traffic noise ceased, rustling of the trees in the breeze was underlying noise.
- N04: Passing traffic associated with the R671 was audible in the distance. There is some traffic movements on the unnamed road during the assessment.
- N05: Agricultural equipment was the dominant noise during the assessment. Farm machinery was in operation in the area.
- N06: The measured baseline noise is dominated by passing traffic on the R671. Speed limits on the road is 80km/h.

Ref	Monitoring Location	Time	LAeq	LAFmax	LaF90	Major Noise Source
	Centre of development	14.15-14.30	65.6	85.7	61.2	Standard plant activities.
N00	3 rd Party Dwelling	14.30-14.45	68.8	87.5	64.1	Noise from passing traffic on R671.
N01	3 rd Party Dwelling	14.00-14.15	62.7	78.1	58.4	Passing traffic on R671 audible.
N02	Local lounge Bar	13.30-13.45	73.9	93.7	68.9	Noise from passing traffic on R671.
N03	3 rd Party Dwelling	13.45-14.00	70.2	88.4	65.4	Passing traffic on R671 audible.
N04	3 rd Party Dwelling	13.05-13.20	62.9	85.8	58.6	Passing traffic on R671 audible.
N05	3 rd Party Dwelling	12.45-13.00	55.0	69.8	51.7	Agricultural machinery working in vicinity of the assessment site.
N06	Party Dwelling	14.50-15.05	71.6	89.8	66.7	Noise from passing traffic on R671.

Table 10. 2 Daytime Noise monitoring Results

Baseline noise levels in the vicinity of the site were higher than those recorded in the centre of the site. This indicates the noise emanating from the development will not adversely effect the local population as background noise from passing traffic and agricultural activities are

greater than the noise recorded within the development site at centre of the development site.

Impact Assessment

The development will be a continuation of activities currently taking place on site. There will be no new noise generating activities taking place. There will be no new overburden removal or stripping taking place within the development site. The main noise generating activities will continue with this development. These include excavators, dumpers, trucks, crushers and screens.

Baseline data described in Table 10.2 can be considered indicative of noise levels to be expected with this development.

Although noise levels at the centre of the site are above daytime threshold levels the noise was lower than that recorded along the R671 at sensitive receptors. This indicates that the development is not the dominant source of noise at the sensitive receptors. The dominant noise was that of passing traffic and agricultural activities.

Cumulative Impacts

The cumulative noise impact associated with this development must be considered in conjunction with the existing mining practices on site. Noise levels associated with this development will not increase the baseline noise levels within the quarry as this development is a continuation of existing operations.

Do Nothing scenario

Should the project not proceed ambient noise levels would remain unchanged, extraction will continue within the.

The dominate noise at sensitive receptors is associated with passing traffic with general mining activities associated with this development being inaudible at all sensitive receptors. Some rock breaking noise was audible intermittently at N05, however this was secondary to the noise associated with agricultural activities taking place in the vicinity of the survey.

Interactions with other impacts

The potential for noise to impact on sensitive receptors including Human and ecological receptors are discussed in detail in Chapters 4 & 5.

Mitigation Measures

Results of the noise survey indicate mitigation measures are not necessary. Notwithstanding this, best practices will be implemented where practicable to do so these can include the following:

Screening: Screen planting and berms can be used as acoustic barriers.

Equipment: All equipment should be adequately maintained and employ noise reducing equipment where practicable.

Traffic: Equipment should not be left idling when not in use.

Haul route: Haul routes are to be maintained in good condition to avoid unwanted rattling of heavy equipment

Residual Impact

There is no residual noise impact envisaged in relation to this activity.

Monitoring

Noise monitoring will take place around the site. Noise monitoring locations will be reviewed periodically.

CHAPTER 11
MATERIAL ASSETS

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Introduction

Background

This chapter forms part of the Environmental Impact Assessment Report prepared in support of a planning application for the continued importation and recycling of inert material. This chapter relates to the potential impacts the proposed development could have.

Information was gathered from various online sources and from onsite field studies.

Scope of Works

This chapter of the EIAR details existing resources relating to the application area which have not been discussed elsewhere. This section will address; built services and waste management.

As per schedule 6 of the planning and development regulation (2001) material assets also refers to architectural heritage, archaeological heritage and cultural heritage. These topics are discussed in detail in chapter 12.

Contributors/ Autor(s)

This section of the EIAR was prepared by Michael McEniry, who is a chartered member of the Institute of Waste Management who has previous experience in numerous extractive industry planning applications.

Receiving Environment

Study Area

The site is located in the townland of Kereen Lower & Woodstock, approximately 3Km from Aghlish, Co. Waterford off the R671.

The proposed development is in relation to the recycling of aggregates. The quarrying area to the north of the site is not part of the application. This application relates only to the area where recycling of aggregates takes place.

Methodology

The baseline study includes a desktop study, information provided by the applicant and information contained in other sections of the EIAR.

Sources of information

Information to carry out baseline assessment was obtained from the following sources:

- OS Maps
- Waterford County Council County development Plan
- Myplan.ie
- Openstreetmap.org

Built Services

Electricity is supplied to the site via mains power. The principle use of this is for the supply of energy for office lighting and equipment.

Site staff are contactable via mobile phone whilst at the site office. Elsewhere on-site staff use satellite phones for communication due to poor network signal in the area.

Waste Management

Potential waste sources produced on site area as follows:

- **Metal:** This material is produced during the maintenance of equipment and separated from construction waste during the recycling process. A designated scrap metal area is provided to allow the build up of sufficient quantities for removal by licenced contractor.
- **Used Oil:** This material is produced during the maintenance of equipment. It will be removed from site by licenced contractor.
- **Used Batteries:** This material is produced during maintenance of equipment. It will be removed from site by licenced contractor.
- **Domestic waste:** Food waste from site facilities will be routinely collected by licenced contractor.
- **Domestic waste:** effluent waste from treatment system will be routinely emptied by licenced contractor.
- **All materials recycled on site have an intrinsic value, much of the recycled aggregates are used in the construction sector.**

Sensitive receptors

The development site is in a rural area with sparsely dispersed residential developments.

There are no schools, churches or shops in the area surrounding the site.

Impact Assessment

Build Services

Operation Phase

The operational phase of the development is the recycling of aggregates from the construction industry for the production of recycled aggregates.

No significant effects are anticipated in relation to built services and waste management.



Post-operation phase

During the post operational phase of the development all works would be ceased and the site restored.

No significant effects are anticipated in relation to built assets or waste management.

Waste

Operational stage impacts

During the operational phase, aggregate will be recycled from the construction industry. Following the cessation of operations the quarry void will be reinstated to agricultural uses.

As described previously, existing waste management arrangements are in place to deal with all aspects of the operation.

Post-Operation Stage impacts

During post-operation phase, aggregate recycling will cease. The waste generated will be limited to general waste generated by employees. This waste will be handled in accordance with best practice and collected by licenced contractor.

Any waste generated during this period will be limited in size and duration. The effects associated will be negligible.

Unplanned events

The risks associated with unplanned events in relation to the proposed development are limited. This is due to the simplicity of the activities taking place at the development site.

Unplanned events associated with the proposed developments could be caused by:

- Spills from accidents involving onsite equipment
- Flooding

Chapter 14 & 9 detail the mitigation measures associated with the above-mentioned risks.

It is determined that the material assets as outlined are not adversely at risk from unplanned events.

Interactions with other impacts

It is not predicted that the proposed development will interact significantly with other impacts.

'Do nothing' Scenario

In a 'do nothing' scenario there would be no continuation of the aggregate recycling.

A 'do nothing' scenario would result in adverse impact on the environment as there would be a requirement to increase the output of virgin material to meet demand.

In the medium term there would be increases in costs to extract virgin material. This has the potential to effect the long-term viability of the quarry and employment associated with it.

Mitigation measures

As there is no envisaged impact of the proposed development no specific mitigation measures are proposed.

Waste generated on site will continue to be collected and disposed of in an appropriate manner

Residual impact

As there is no significant effects envisaged from the development there is no residual impacted anticipated.

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CHAPTER 12
CULTURAL HERITAGE

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Introduction

Background

This chapter of the EIAR addresses the impacts on the archaeological, architectural and cultural heritage of the application.

Information was gathered from various online sources and from onsite field studies.

Scope of the works

This chapter of the EIAR details baseline archaeological, architectural and cultural heritage and the potential impact of the proposed development on the archaeological, architectural and cultural heritage of the area.

Contributors/ Authors

NRGE Ltd carried out the impact assessment presented in this chapter on behalf of Kereen Quarries Ltd. The lead author for the study was Liam McEniry BSc (Biological Science) & PGDip Chemical Engineering. Daniel Noonan of Daniel Noonan Archaeological consultancy was initially engaged and it was determined; due to all the material from the site being previously removed there is no possibility of an impact on archaeological, architectural and cultural heritage.

Receiving Environment

Study Area

The study area involves the area within the site boundary. An area of approximately 4200m² shown in Figure 12.1.

Baseline methodology

This involves desktop research of the site. No monuments or sites are identified in within the site boundary.

The area of study has been significantly modified through quarrying practices over the lifetime of the quarry. All material has previously been removed from the site. The proposed development is to increase the recycling of aggregates from current levels. There will be no impact on the archaeological, architectural and cultural heritage from the proposed development.

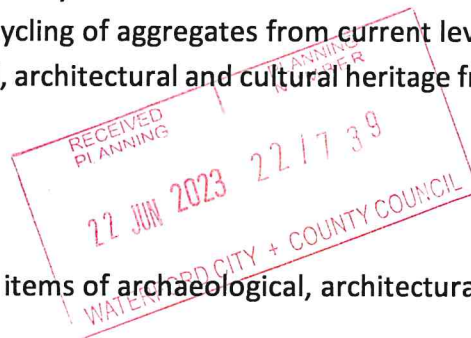
Assessment of Potential Impacts

Direct Impacts

There will be no direct impact on any known items of archaeological, architectural or cultural heritage.

Indirect Impacts

There will be no direct impact on any known items of archaeological, architectural or cultural heritage.



Interactions with other impacts

No interactions with other impacts has been identified.

Do Nothing Impacts

If the proposed development does not proceed there would be no negative impact on the archaeological, architectural & cultural heritage

Worst Case Impact

There will be no risk of impact from the development as all material has previously been removed from the site.

Recommendations/ Mitigation Measures

No mitigation measures are proposed as no impacts from the proposed development are envisaged.



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CHAPTER 13

LANDSCAPE

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Introduction

Background

This chapter of the EIAR assesses the landscape and visual effects arising from the proposed development.

The lands which are the subject of this application comprise c. 0.42 hectares and is located in the townlands of Kereen Lower & Woodstock, Cappoquin, Co. Waterford.

Landscape effects relates to changes to the landscape and character of the area as a result of the development.

Contributors/Authors

NRGE Ltd carried out the impact assessment presented in this chapter on behalf of Kereen Quarries Ltd. The lead author for the study was Michael McEniry BEng, with over 30 years experience in planning, environmental and waste management compliance in a variety of industries.

Receiving Environment

Study Area

The site is located in the townland of Kereen Lower & Woodstock, approximately 3Km from Aglish, Co. Waterford off the R671.

The proposed development is in relation to the continued importation, processing and export of inert material for use as recycled aggregates. The quarrying area to the north of the site is not part of the application. This application relates only to the area where recycling of aggregates takes place.

Baseline Landscape assessment

The site and the surrounding landscape can be characterised as rural. Residential dwelling are sparsely distributed in the area. The main route passing the site is the R671 located to the east of the site entrance.

The landscape surrounding the site comprises largely of farmland with varying topography.

Dromona Hill and Woodhouse wind farm lie on the West and Eastern sides of the site respectfully.

The site is located at a lower elevation than the surrounding area.

The site has been in operation for a number of years with all material from the proposed site previously extracted. The proposed development will not involve any adverse impacts to the landscape character of the area.

Impact Assessment

Magnitude of Landscape change

The proposed development for the importation, processing and export of inert material for use as recycled aggregates will not impact on the landscape character of the area. This is a continuation of current onsite activities.

Construction Stage Impacts

The proposed application concerns the continuation of current activities within the subject site. The operations consist of recycling of aggregates.

Operation Stage Impacts

The proposed development (existing quarry, aggregate recycling and proposed aggregate recycling expansion) would be visible from elevated lands surrounding the quarry.

The receiving landscape would not be significantly adversely effected by the proposed development, as it comprises wholly of current activities onsite and is confined to the area detailed in the site plan.

There are no scenic routes or protected views in the vicinity of the proposed site.

Do Nothing Scenario

If no further works were carried out within the site boundary the current landscape of the quarry would remain..

Mitigation Measures

As there will be no additional land take, no negative impact on the current landscape and no adverse impact on the receiving area. No mitigation measures are proposed. The Site is currently well screened from the public road.

Residual Impacts

There is no residual negative effects envisaged as a result of the proposed development.

CHAPTER 14

TRAFFIC

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1.0 Introduction.

TPS M Moran & Associates as specialists traffic and transportation consultants have been retained by NRG Ltd Project Managers to prepare a Traffic Report relating to the importation of construction aggregates into the existing Kereen Quarry at Kereen Lower, Cappoquin, County Waterford.

At present the existing quarry imports and recycles construction aggregates, made up of stone material and construction aggregates which is crushed on the site, recycled and exported as fill material for the construction of farm road ways throughout the south Munster area.

It is proposed to annually import up to 50,000 tonnes of similar materials.

2.0 Background Information.

The former National Roads Authority now, Transport Infrastructure for Ireland published the 'Traffic and Transport Assessment Guidelines' in September 2014 which provided specific advice when a Traffic Impact Assessment should be undertaken.

These guidelines identified thresholds for land use development based on land use trip attraction or land use trip generation which impact on adjacent road links or junctions receiving the proposed development.

These guidelines also provided advice on acceptable traffic modelling programs, traffic data sources, road safety issues to be considered and pre planning discussions with the relevant Local Authority. These thresholds are set down below.

Thresholds.

This section considers the thresholds at which the production of Traffic and Transport Assessments in relation to planning applications is recommended.

It is important to identify proposals that will affect National Roads, and which may have other transport implications at the earliest stages of development planning and design.

This will help to ensure that additional costs and delays to the developer are avoided and facilitate best practice evaluation by planning authorities, the NRA and other transport agencies.

Table 1.4 of the Traffic Management Guidelines (DoT/DoEHLG/DTO, 2003) gives the thresholds above which a Transport Assessment is automatically required. The thresholds concerned are reproduced below.

- Traffic to and from the development exceeds 10% of the traffic flow on the adjoining road.
- Traffic to and from the development exceeds 5% of the traffic flow on the adjoining road where congestion exists, or the location is sensitive.
- Residential development in excess of 200 dwellings.
- Retail and leisure development in excess of 1,000m².
- Office, education and hospital development in excess of 2,500m²
- Industrial development in excess of 5,000m²
- Distribution and warehousing in excess of 10,000m²

While the proposed quarry development is well below these thresholds which will be discussed further within this report, we consider it worthwhile to outline the likely trip generation and traffic impact of this quarry development.

3.0 Scope of the Traffic Impact Assessment.

In this report we will identify the existing traffic conditions and assess the relative level of impact the proposed quarry development is likely to have on the adjacent road network.

The methodology used within this TIA complies with best practise for Traffic Impact Assessments indicated within key publications, which include:

- 'Traffic and Transport Assessment Guidelines' National Roads Authority (May 2014)
- 'Guidelines for Traffic Impact Assessments' The Institution of Highways and Transportation.

In this report comment will also be made on the existing vehicular site access arrangements to serve the existing quarry development operation.

In addition, this report, which addresses the likely traffic impact of the proposed development, will generally be structured as follows:

- Assessment of the existing roads and traffic conditions and public transport on the road network in the vicinity of the proposed development site including public transport provision.
- Assessment of the trip rates associated with the proposed development.
- Technical comment on the access arrangements.
- Capacity and operational assessments of the likely impact of the proposed development on the adjacent road network.
- Car Parking Provision.

Background information used within this report has been derived from technical information and layout plans prepared by NRG Ltd Project Managers for the scheme.

4.0 Existing Roads and Traffic Conditions.

The existing quarry is bounded to the east by the R671 which functions as an 80kph Regional Road within Waterford City and County Council's road hierarchy connecting Clonmel to the north with Youghal to the south.

In the vicinity of the existing quarry the R671 has an average road width of some 6.0 metres with solid road markings within the centre of this carriageway, verges of varying widths are located along both sides of this carriageway. High banked hedgerows, treed or fenced site boundaries are also located along both sides of this carriageway.

In the vicinity of the existing quarry site the vertical alignment of the R671 ascends gradually approaching and southwards past the existing site access and has a series of slow road bends within the horizontal alignment of this section of the R671.

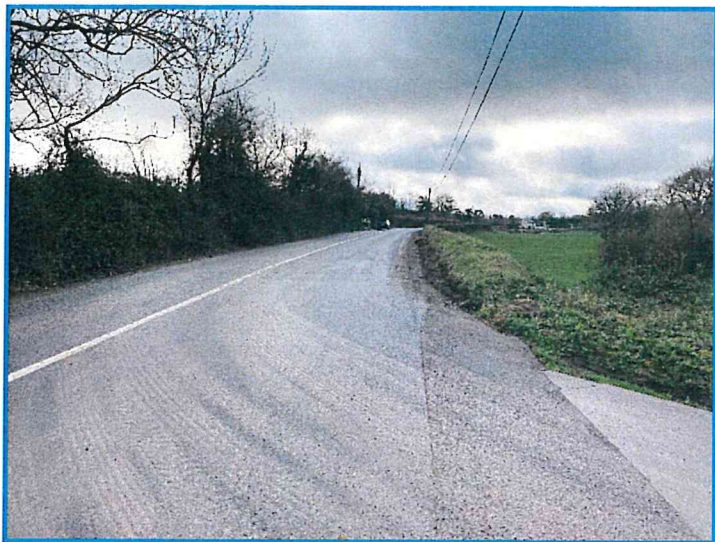
It should also be noted that the R671 has developed from the historic Irish roads system that were not designed to any current road design standard. Typically, these roads are maintained and improved to enhance their sinuous alignment by the local authorities mainly between the adjacent land boundaries.

Nationally, motorists, cyclists and pedestrians using these roads are aware of the inconsistencies within the alignment of these roads and in the case of motorists, constantly adjust their speed to reflect the character of the road layout.

Along the length of this section of the R671 vehicular access is provided to individual residential properties, farms and agricultural farmlands with all of these access points taking the form of simple gated access points or simple priority gated type 'T' junction arrangements.

Thus, it can be considered that the principle of direct vehicular access to serve land use development along the length of this section of the R671 is well established with motorist and all road uses using this route expecting traffic turning movements into and out of the existing established access points.

The existing quarry is accessed from the section of the R671 by means of a wide simple priority gated T junction which slopes downwards into the quarry site within a concrete road surface. The layout of this existing junction is shown within Photograph 1.0, Photograph 2.0 and Photograph 3.0 below.



Photograph 14. 1: Southbound view into R671 from into R671 existing quarry site access



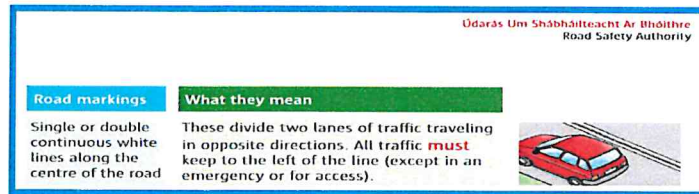
Photograph 14. 2: Northbound view Existing site access.



Photograph 14. 3 West bound View from R671 into existing site access.

As previously discussed, the centre line road markings within this carriageway is a continuous solid white in the vicinity of the existing quarry access. While this white lining restricts the overtaking of vehicles within this corridor and requires vehicles to keep to the left, this arrangement does permit the crossing of the solid white line for emergency and access purposes.

Extract 1.0 from the Road Safety Authority publication the Rules of the Rules confirms the above.



Extract 1.0: Rules of the Road.

In order to determine the existing character of traffic travelling along this section of the R671 we have undertaken vehicular speed surveys along this road in the vicinity of the application site. The speed survey only included over 100 'lead only' vehicles within an off-peak time period are shown within Table 1.0 below:

Location	Direction	Mean Speed	85%ile Speed
R671	Northbound	73.6kph	83.6kph
	Southbound	74.1kph	85.0kph

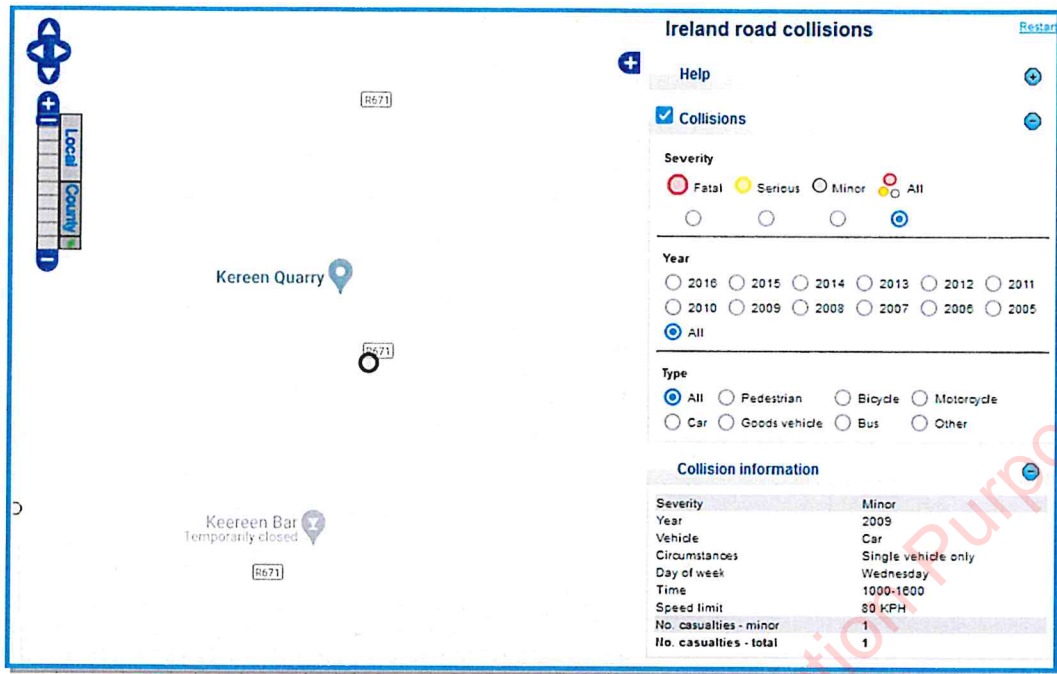
Speed Survey Summary R671.

Table 1.0

From the above it is evident that vehicle speeds recorded within this survey is in line with the posted speed limit along this section of the R671.

The Road Safety Authority maintain an Accident Collision Database from 2005 to the present for all recorded accidents statistics throughout Ireland.

We have undertaken a review of this accident database which indicates that no recorded accidents have occurred along this section of the R671 within the last 12 years, indicating the safe operation of this section of this route in the vicinity of the application site. The recorded 2009 minor accident on the R671 which occurred in 2009 is well to the south of the existing quarry and shown within Map Extract 1.0 below.

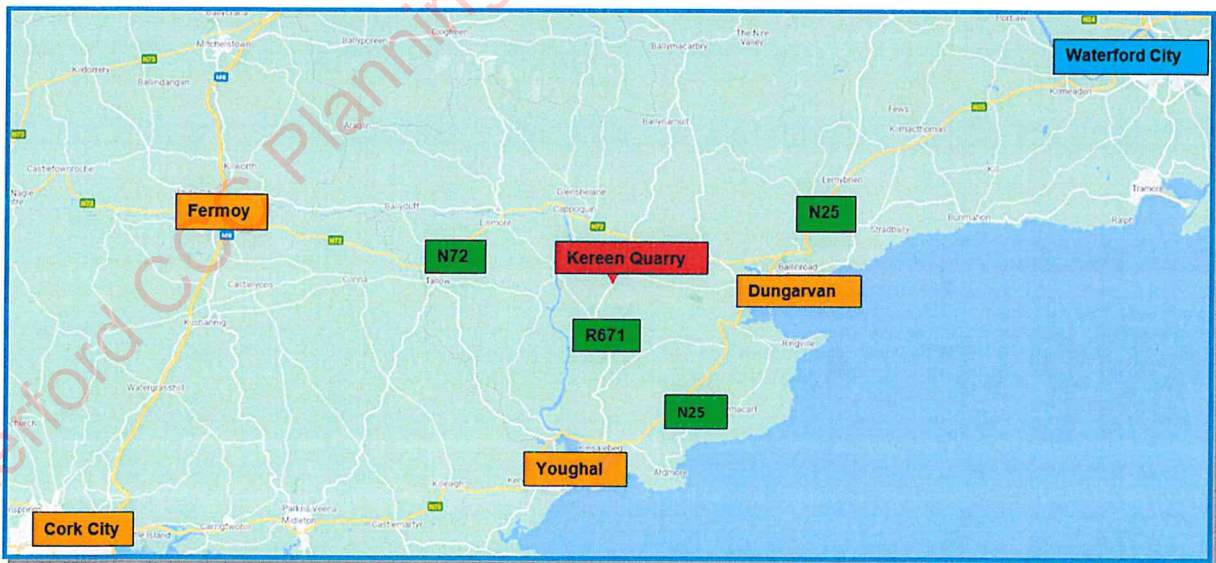


Recorded accidents on R671.

Map 1.0

5.0 Existing Quarry Operation.

Construction aggregates is mainly drawn to the quarry from the Waterford City, Dungarvan the outer parts of Cork City, Fermoy and Youghal to the south with heavy vehicles using the national primary routes shown within Map 2.0 below.



Quarry Haul Route Locations.

Map 2.0

The existing quarry receives construction aggregates and supply materials to the following:

- Conor Construction Ltd
- Power Contracts
- Liam Whelan Plant Hire
- Green Valley Recycling
- Waterford City and County Council

The existing quarry operates from 0800hrs to 1700hrs on a Monday to Friday and 0800hrs to 1300hrs on a Saturday. The quarry is closed on Sundays and Bank Holidays. The site employees 10 staff who park within a designated area within the quarry area. 2 staff who are office based are employed in Dungarvan.

Heavy vehicles entering the quarry are directed to the weighbridge where the vehicle load is recorded and inspected by camera. Following the vehicle being weighed and inspected the driver is advised on the location to where to offload.

If a returning heavy vehicle is loaded within the quarry, on their exit they are instructed to precede via the wheel wash area to the weighbridge prior to exiting the site. The weighbridge and associated infrastructure is shown within Photograph 4.0 below



Photograph 14. 4 View of existing weight bridge within quarry site.

During a typical year the quarry is operating for over 48 weeks and as previously mentioned 5.5 days during a normal working week. The heavy vehicles drawing material to and from this quarry carries a 24.5tonne load which can generate 2040heavy vehicle movements over a 12-month period.

If a similar number of weekly heavy vehicles draw the 50,000 tonnes of construction aggregate materials to the quarry site a total of 44 heavy vehicles could be realised accessing the site from the adjacent road network per week.

Over a typical 5.5 working week this extent of existing and new trips is projected at 8 heavy vehicles, which cannot be regarded as having impact on the operational capacity of the surrounding road network.

6.0 Mitigation Measures.

The existing site access at its junction with the R671 can be further controlled by a 750mm 8 sided STOP sign to RUS027 with road markings containing a traverse Stop Line to RRM017 to require all vehicles exiting the quarry to stop to oncoming vehicles travelling within the leading and non-leading traffic directions of the R671.

In addition, we suggest that a further series of 'plate' type advisory signage is provided at intervals within the southbound and northbound grass verges of the R671 advising motorists that a quarry entrance is ahead.

This proposed signage and road markings are shown below.



Possible Additional Signage and Road Markings.

7.0 Conclusions.

The existing quarry operation and the 50000 tonnes per annum of construction aggregates imported to the quarry site has been identified as having no material traffic impact on the operation of the site access at its junction with the R671.

It has also been established that the existing quarry importing construction aggregates gives rise to negligible daily, weekly or annual heavy vehicle trips which can readily be accommodated within the existing road network.

Therefore, these existing and future limited trips are unlikely to have any material traffic impact on the operation of the surrounding road network.



CHAPTER 15

Interactions

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Introduction:

In this chapter of the EIAR the potential interactions between the individual impacts discussed in previous chapters of the EIAR are examined. The interactions of these impacts on the environment needs to be addressed as part of the EIAR.

This EIAR was prepared by NRG Ltd. on behalf of our client Kereen Quarries Ltd. The potential impacts arising from this development are discussed in detail in chapters 4-14.

Inter-relationships between factors

The inter-relationships between factors are presented in Table 15.1. The actual interactions, their significance and mitigation measures are detailed in the relevant chapters of this EIAR.

	Population & Human Health	Biodiversity	Lands, soil & Geology	Water	Air	Climate	Noise	Cultural & Heritage	Landscape	Traffic
Population & Human Health				X	X	X	X		X	X
Biodiversity				X	X	X	X		X	
Lands, soil & Geology				X				X	X	
Water	X	X	X							
Air	X	X				X				X
Climate	X	X			X					
Noise	X	X								X
Cultural & Heritage			X						X	
Landscape	X	X	X					X		
Traffic	X				X		X			

Table 15.1 Inter-relationships between factors

Potential Interactions

Populations & Human Health

The effects on population and human health can be considered in relation to the chapters addressed in this EIAR. The relevant pathways through which human health can be adversely

affected should also be considered. This EIAR shows there will be no adverse affect on human health as a result of this development nor will the development create or increase pathways through which human health may be adversely affected.

Details of the developments affects on Air, Climate, water, noise, traffic and soils are described in detail in their relevant chapters. From the mitigation measures proposed where necessary there will be no adverse affect on human health.

Biodiversity

The interactions of flora and fauna with water, traffic, air & noise are described in detail in Chapter 5 (biodiversity), 6 (water) & 7 (land, soils & Geology).

Lands Soil & Geology

The potential interactions between Lands, Soils & Geology, water and the landscape are considered. Current on site practices and the nature of the development mitigates the risk of negative environmental impacts associated with the development. Lands soils & geology are linked with the landscape character of the area.

Due to the site being in operation since 1992 there will be no impact on the landscape character of the area..

Water

The potential impact of the development in relation to water quality and the interaction with other environmental factors are described in chapters 5, 6 &7.

Air quality

The quality of air, climate, population & human health, & biodiversity can be considered to be interconnected. The mitigation measures described in Chapter 8 will limit the potential impacts of the development on flora and fauna as well as the local population. Due to the relatively modest scale of the development the impact of the development on the climate in terms of CO₂ can be seen as negligible.

Noise

The impacts of noise of the proposed development has interactions with other impacts namely, Biodiversity, population and human health & Traffic. The dominant noise characteristic in the area is associated with the R671 noise levels at sensitive receptors were above 55Db daytime levels however, this was generated by traffic on the R671. Due to quarrying operations taking place since 1992 fauna will have become accustomed to the noise from the development and that of the R671. The prosed development will not increase the noise generating activities and will therefore pose no additional adverse effects to the other impacts.

Conclusions:

The proposed development is a continuation of activities currently taking place on the site. Due to the mitigation measures proposed where necessary in each of the chapters 4-14 it is

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Lands, soil & Geology				X				X	X	
Water	X	X	X							
Air	X	X				X				X
Climate	X	X			X					
Noise	X	X								X
Cultural & Heritage			X						X	
Landscape	X	X	X					X		
Traffic	X				X		X			

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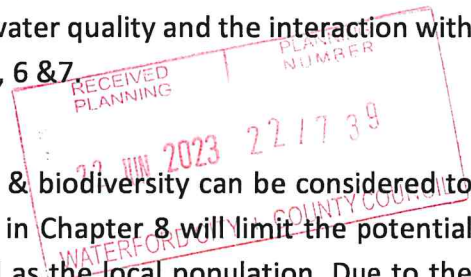
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RECEIVED PLANNING	PLANNING NUMBER
22 JUN 2023	22/1739
WATERFORD CITY + COUNTY COUNCIL	