

Planning application

**Concrete Batching Plant and Associated Works,
Ballyonan, Broadford, Co. Kildare**

**Environmental Impact Assessment Report (EIAR)
(formerly referred to as an Environmental Impact
Statement (EIS))**



July 2019

TOBIN CONSULTING ENGINEERS





**ENVIRONMENTAL IMPACT ASSESSMENT
REPORT (EIAR)**

PROJECT: Planning Application Ballyonan

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DOCUMENT AMENDMENT RECORD

Client:	Keegan Quarries Ltd
Project:	Planning application, Ballyonan Concrete Batching Plant
Title:	Environmental Impact Assessment Report (EIAR)

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1 INTRODUCTION

1.1 INTRODUCTION

This Environmental Impact Assessment Report (EIAR), formally known as an Environmental Impact Statement (EIS), has been prepared on behalf of Keegan Quarries Ltd (KQL) to accompany a planning application to Kildare County Council. It is proposed to obtain permission for the concrete batching plant to the north of Ballyonan Pit (QR45). The raw materials will be primarily sourced from the adjacent pit with the added value products sold for the development of local housing needs and construction projects in the area. The assessment includes the potential cumulative impact of the proposed development with the existing pre 1964 development, QR45 and adjacent lands located within the ownership boundary, see Figure 1.1 and 1.2.

1.2 SITE LOCATION AND BACKGROUND

Ballyonan Pit is located in a primarily agricultural area within the townland of Ballyonan, Broadford, County Kildare approximately 2.5km east of the village of Clonard, County Meath. The entrance to the site is located on the northern boundary of the pit, on the local road, the L1011. The former N4, now the R148 is located 0.3km to the south of the development. The R148 links the growing towns of Enfield and Kinnegad.

It is proposed to relocate the concrete manufacturing facility from KQL Rathmolyon to the subject site, as the majority of aggregates supplied to block yard originate from the Ballyonan Pit. The current situation entails hauling aggregate to Rathmolyon, with the majority of the resultant block and concrete products being hauled back towards the north Kildare area. Due to increased demand in other high value precast operation at Rathmolyon, the concrete batching plant has limited the potential for Rathmolyon to reach its full capacity.

The traffic volumes from the site will remain the same with the addition of 2,000 tonnes of cement per annum. The sand and gravel currently produced from the site and hauled to Rathmolyon for block manufacture will cease. The overall traffic impact will reduce in the Kildare/ South Meath area is positive as it reduces the haulage in and out of the Rathmolyon facility.



The River Boyne flows 400m to the west of the proposed development. The River Boyne which forms part of the Boyne and Blackwater SAC ultimately discharges to the Irish Sea. The location of the site in relation to its geographic surrounds is shown on Figure 1.1 'Regional Site Location Map'. The application site is located immediately north of a sand and gravel pit owned by KQL. The proposed development is approximately 1 ha in area.

The pit was registered under Section 261 of the Planning & Development Act 2000 (Reference QR45). The current extraction area is 4.8 hectares. An area to the north of QR45 (2.2 hectares) and to the south of the proposed application is currently undergoing habitat improvement to a wetland/landscaped area. This temporary water settlement area will be allowed to regenerate.

The Ballyonan Pit, a pre-1964 quarry - QR45 will continue to be utilised for sand and gravel extraction. The extraction at the site had taken place above the water table and located within the section 261 site boundary. This is noted in the current application and, in particular, in the Natura Impact Assessment that accompanied the application. As reported by Scott Cawley Ltd, (July 2012), the site is located outside the re-advertised 2006 SAC boundary for the River Boyne and River Blackwater SAC, which was reduced in extent in 2006.

The proposed development will provide employment for 6 persons and provide added value to the raw materials previously produced on the site. Indirect employment is generated in terms of contract transport operators, suppliers of products and services, machinery suppliers and environmental monitoring etc.

The application area of the Planning application area is approximately 1 hectare (ha), including the access road and the proposed block yard and concrete batching plant. The proposed development will relocate the current site entrance and provide a new entrance which has improved sightlines and alignment. The assessment includes the potential cumulative impact of the proposed development with the existing pre 1964 development, QR45 and adjacent lands. This EIAR aims to assess the impact, if any, that these works will have on the environment at, and surrounding, Ballyonan Pit. The EIAR report outlines the proposed processes on site; including the production of ready mix concrete and the construction of concrete blocks. A site



restoration plan is provided for in Section 12.



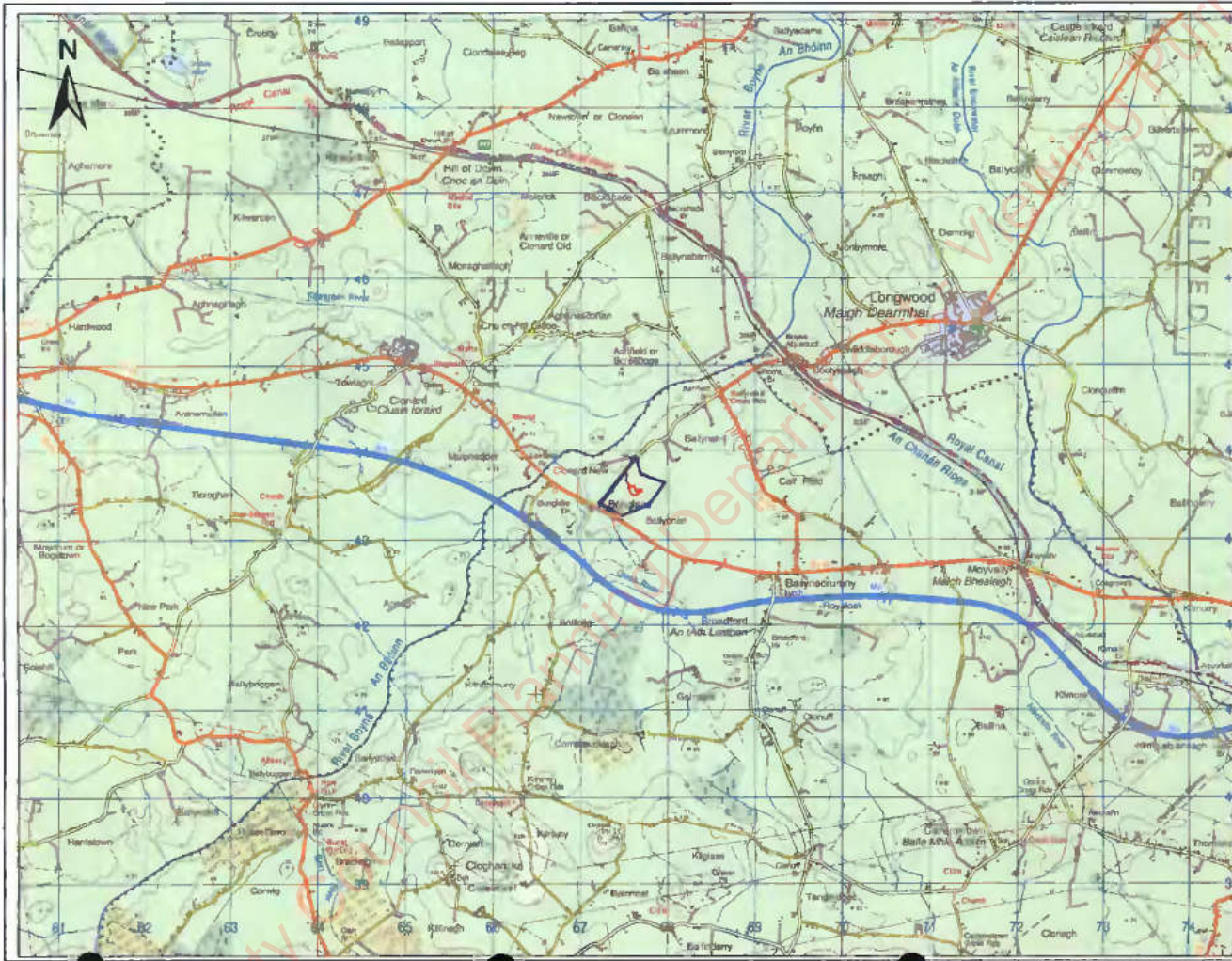
Plate 1.1: View at entrance looking north



Plate 1.2: View from proposed site looking north west

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Legend

- Application Boundary
- Ownership Boundary

All areas within Ownership Boundary not QR-45 assessed against the EIA.

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Scale: 1:40,000

Scale	1:40,000
1 cm	400 m
1 inch	10,280 feet

Client: **KEEGAN QUARRIES**

Project: **BALLYONAN BATCHING PLANT - PLANNING APPLICATION**

Title: **Regional Site Location Map**

Scale: 1:40,000

Prepared by: **TOBIN**

Checked by: **TOBIN**

Date: **July 2018**

Project Director: **TOBIN**

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Figure 1.1 D01



Legend

- Area A
- Application Boundary
- General ag. Boundary

All areas within Ownership Boundary incl. QR45 assessed as part of the EIAR

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Scale: 1:5,000

Notes:

- 1. All boundaries are shown for information only.
- 2. All boundaries are shown for information only.
- 3. All boundaries are shown for information only.

Date	Drawn	Proj.	App.
15 Oct 2019	J. O'Connell	J. O'Connell	J. O'Connell

Client: **KEEGAN QUARRIES**

Project: **BALLYONAN BATCHING PLANT - PLANNING APPLICATION**

Title: **Site Location Map**

Scale @ A1: 1:5,000

Prepared by: J. O'Connell | Checked: J. O'Connell | Date: July 2018

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Drawing No: **Figure 1.2** | D01

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1.3 COMPANY BACKGROUND

Keegan Quarries Ltd is a family run business, owned and operated by John & Maura Keegan who are the two company directors. John Keegan started out as a sole trader in 1989 with one truck supplying stone and fill materials from various rented quarries around Meath. Keegan Quarries was incorporated in the early 90's and the company has grown substantially in terms of employees and product range to produce ready mix concrete, stone products, limestone powders, blocks and specialist precast products.

The head office is based in Trammon, Rathmolyon, Co Meath, which provides professional technical, accounting and engineering support to the wider business, along with the necessary administration functions. The business has some 130 direct employees and a further 30 full time sub-contractors. Keegan Quarries makes a significant contribution to the rural economy providing for a highly skilled workforce. Significant sales are derived from export sales to the UK, brings external revenue in to the Kildare and Meath economy, such is the importance of the export market that the recent growth and expansion in the business, has seen internal investment focussed on satisfying the demands of this area.

KQL manufactures ready-mix concrete, trowel ready mortar, stone, aggregates, sand and gravel, fill products, blocks, precast panels and agricultural lime. KQL supply products to customers in the commercial and domestic markets in Counties Dublin, Kildare, Louth, Meath and Offaly.

KQL source all aggregates and sand from their own quarries. KQL aggregates carry the CE Mark and declarations of performance for every grade of aggregate or fill material. All stone products are fully certified, tested and pyrite free, and concrete is produced to EN206 Standards (European Concrete Standard).

KQL prides itself not only on carrying out its operations in an efficient way, but also in an environmentally acceptable manner, and therefore places emphasis on onsite environmental protection and controls. The company is committed to:

- Preventing pollution and ensuring the protection of sensitive ecological habitats;
- Complying with all relevant environmental legislation, planning permissions, regulations and any other applicable standards;
- Maintaining an Environmental Management System (EMS) and ensuring the successful

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implementation of its environmental policy objectives; and

- Continually developing and improving its operations

This EMS has been prepared in accordance with the Environmental Protection Agency's (EPA) Environmental Management Guidelines: Environmental Management in the Extractive Industry (Non- Scheduled Minerals), 2006.

To protect the environment and community in which it operates, KQL complies fully with national and international environmental standards. The company services the local construction industry and has made a significant contribution toward building Ireland's infrastructure.



1.4 ENVIRONMENTAL POLICY

The key objectives of KQL are:

- To comply with applicable environmental legislation and best industry practice;
- To be a good neighbour; and
- To achieve continuous improvement in environmental performance.

KQL actively pursues these objectives by:

- Operating an Environmental Management System (EMS);
- Making available the required financial resources to operate this policy in accordance with BATNEEC principles; and
- Recognising that the successful implementation of this policy depends on the ongoing commitment of all those working in the organisation, including all employees and all contractors.
- Comply with all precast and block quality standards

The following are some of the more relevant aspects, which are covered in the EMS for the site:

Environmental Monitoring

A monitoring system has been introduced to ensure compliance with guidelines, thresholds and procedures.

Environmental Reviews

As part of the Environmental Management System, regular internal assessments of all aspects of the effectiveness of environmental measures are carried out and used in assessing the success or otherwise of the environmental measures.

Reporting

As part of the Environmental Management System, internal environmental records are maintained to provide documentary evidence of the reviews and operational achievements.

Management Awareness and Training

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Management and Employees of KQL participate in awareness and training programmes, which reflect the long-term commitment of the industry to the environment and its neighbours.

General Note

As stated in its Environmental Policy, when addressing environmental issues KQL adheres to the principle of Best Practice.

Good Housekeeping

Plant and buildings are kept in a good state of repair. Plant and buildings are kept painted and, in this respect, suitable colours have been chosen to minimise visual intrusion.

KQL uses, as standard, good practice methods and ensures that soundproofing for plant and machinery are examined and maintained. Inspections relate specifically to protective measures where relevant, which have been incorporated to ameliorate dust, noise and visual impact.

KQL recognises the planning permission procedure as an important regulatory requirement. A copy of relevant planning permissions along with licenses and safety procedures are available at the site office, for reference by operatives and contractors operating on the site.

Community Relations

KQL aims at all times to be a good neighbour and play its part in the community. KQL has a formal procedure for recording and dealing with complaints from the public.

To date there are no complaints received in relation to the existing sand and gravel pit.

1.5 CONSULTATION AND SCOPING

In accordance with Section 4 of the Advice Notes on Current Practice in the preparation of Environmental Impact Statements (EPA, 2003) and the 2017 EIAR guidelines, TOBIN undertook a process of consultation with Kildare County Council. The primary objective of involving the competent body in the EIAR process was to aid scoping of the EIAR to allow all parties to highlight issues of concern prior to completion of the application. A consultation meeting took place with Kildare County Council (Michael Duffy, planning and Siobhan Dwyer - Roads section) on 15th November, 2018. A second pre-planning meeting was held in Kildare County Council on Thursday 20th June 2019 with Michael Duffy – Assistant Planner, Eoghan Lynch - Senior Executive Planner and Jenny Donovan (Environment).

Table 1.1 lists the various statutory bodies and interested parties consulted for the EIAR. All comments and observations relating to the site have been taken into consideration in the preparation of this EIA Report.

Table 1.1: List of Consultees Contacted During the EIAR/EIS Scoping

Consultee	Response
NPWS, Development Applications Unit	Consideration of nearby protected areas including Boyne and Blackwater SAC
National Roads Authority (TII)	No Response
Inland Fisheries Ireland	No issues – no discharges to surface water from the proposed development
Health and Safety Authority	No response
Environmental Protection Agency	No response
The Heritage Council	No Response
Transport Infrastructure Ireland	Compliance with relevant guidelines including the NRA Design Manual for Roads and Bridges

1.6 PROCEDURE AND STRUCTURE OF THE ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR)

The consequences of any major project are generally presented in the form of an Environmental Impact Assessment Report (EIAR). This EIAR contains information on the scale and nature of the development at the application area, a description of the receiving environment, potential effects that may arise as a result of the development and an assessment of the impact and mitigation measures that may be required to protect the receiving environment.

The structure and content of the EIAR has been based on the following documents, as published by the Environmental Protection Agency:

- Advice Notes on Current Practice in the preparation of Environmental Impact Statements (2003);
- Guidelines on the information to be contained in Environmental Impact Statements (2002);

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- Draft Guidelines on the information to be contained in Environmental Impact Statements (2017) and
- Guidelines from the new EIA Directive 2014/52/EU.

This EIA provides for:

- A description of the site and the receiving environment;
- A description of the development;
- The impacts, if any, that may result from the proposed development;

An assessment of any potential impact and the mitigation measures;

The overall EIA is arranged in three volumes, as follows:

- Volume I: Non-Technical Summary;
- Volume II: Environmental Impact Assessment; and
- Volume III: Appendices.

Volume I: Non-Technical Summary

This document provides an overview and summary of the main EIAR using non-technical terminology. It is a means for non-professionals to review the information included in the main EIA document. It is a stand-alone document and should offer a concise summary of the receiving environment, characteristics of the development and any impact that the development may have had on the receiving environment.

Volume II: Main EIAR

Volume II of the EIAR contains the main text body and is divided into a number of chapters. Chapters 1 and 2 include an overall Introduction and Description of the Site and the Development. The specialist chapters (Chapters 3 to 12) include:

- Section 1: Introduction;
- Section 2: Description of Site and Receiving environment;
- Section 3: Potential effects from the Development; and
- Section 4: An assessment of the Impact and the Mitigation Measures.

Introduction

This section will include background to the assessment and will describe the study methodology in carrying out the assessment.



Receiving environment

In describing the receiving environment, an assessment is made of the context in which the development is located. This takes account of any other previous and/or existing developments.

Potential effects from the Development

This section allows for a description of the specific, direct and indirect impacts, which the development may have on the receiving environment with potential for future impact. This is done with reference to the Receiving Environment and Characteristics of the Development, while also referring to the magnitude, duration, consequences and significance of the development during the operational phases.

Assessment of the Impact and the Mitigation Measures

This includes an assessment of the actual impact, if any, that the development had on the receiving environment and the effectiveness of the mitigation measures that were in place during the period of development and the effectiveness of the current mitigation measures.

Volume III: Appendices

All supporting documentation and references, referred to in the EIA text body (Volume II) are included in this volume.

1.7 CONTRIBUTORS

TOBIN Consulting Engineers are the lead consultants in the production of the Planning application. Additional support was provided by Kennett Consulting – Landscape, Stephen Dowds - Planning and Dr Charles Mount – Archaeology. This EIAR has been compiled by Mr. John Dillon, who is employed as a Senior Scientist with TOBIN Consulting Engineers. Mr. Dillon holds an honours degree (BScEnv) in Environmental Science from National University of Ireland, Galway (2001) as well as a Masters and Diploma in Environmental Engineering (2003), from Imperial College London and is also a Professional Geologist (P.Ge.).



2 DESCRIPTION OF RECEIVING ENVIRONMENT AND PROPOSED DEVELOPMENT

2.1 DESCRIPTION OF THE EXISTING SITE LOCATION

The proposed development is located in a primarily agricultural area within the townland of Ballyonan, Broadford, County Kildare approximately 2.5km east of the village of Clonard, County Meath (refer to Figures 1.1. and 1.2). The River Boyne which marks the County Kildare and County Meath boundary, is located 400m to the west of the proposed development. The existing Ballyonan sand and gravel pit is located to the south of the proposed development. There are also a number of farm buildings and one-off houses are located within 1km of Ballyonan Pit which would be expected as this is a primarily agricultural area.

The closest surface water feature is located to the west of the L1011. There are no surface water features on site or in connection with the River Boyne. The Boyne and Blackwater (SAC) is located 3.1km north of the proposed development. Figure 1.1 and Figure 1.2 illustrate the overall layout and the areas of the pit that are the subject of this EIAR i.e. the planning application area.

The overall landholding is approximately 23 ha and the topography of the applicable area varies from approximately 63 mOD at the lowest level of the worked area to approximately 70 mOD at the highest point.

Infrastructure associated with the sand and gravel pit comprises landscaped earthen berms surrounding most of the sand and gravel extraction, washing plant, settlement tanks, wheelwash and sprinkler system. The field boundaries are comprised of a mixture of hedgerows, treelines and fencing with the entrance to the pit located to the east of a local road.

Regular monitoring of various environmental parameters is carried out as part of the operations at Ballyonan Pit, including the quality of surface and groundwater, noise levels and dust emissions. Results of this monitoring are presented in the relevant section of this EIAR.

2.1.1 Do-nothing Scenario

If the proposed works did not proceed, the current tillage operation would remain. The existing tillage would remain under intensive agricultural land use. The existing application area is described in detail in the Biodiversity section of this report.

2.2 PROJECT NEED

It is proposed to relocate the concrete manufacturing facility from KQL Rathmolyon to the subject site, as the majority of aggregates supplied to block yard originate from the Ballyonan Pit. The current situation entails hauling aggregate to Rathmolyon, with the majority of the resultant block and concrete products being hauled back towards the north Kildare area. Due to increased demand in other high value precast operation at Rathmolyon, the concrete batching plant has limited the potential for Rathmolyon precast to reach its full capacity. Since 2007, the Rathmolyon precast has invested significantly in a precast twin wall system. This system was unique to Ireland at that time and secured a full order book from the time the factory became operational. Following on from this success the Company now produces an insulated twin wall system and a brick finished panel which offers a complete precast one stop solution to customers and again is unique to Keegan Precast.

The success of these products in the UK market meant that the original factory was unable to keep the UK market supplied with Twin Wall system such was the demand. In 2016 the manufacturing capacity was increase by the introduction of a new line (manufacturing plant). The new line manufactures the brick finish twin wall and the insulated twin wall. We are currently involved in a fast track project for Focus Ireland where our precast twin wall system proved invaluable in the delivery of this fast track housing project. This precast structure incorporated the best high-tech German Technology available on the market and secures work for Keegan Precast well into the future.

The ongoing success and demand for the precast business requires a reconfiguration of the Rathmolyon site. To reduce lead times and optimise manufacturing capacity at Rathmolyon, the block plant will need to be relocated to an alternative location.

Keegan Quarries is a large producer of concrete blocks. Given recent legal cases and media reports where aggregate containing pyrite and muscovite mica were found in blocks causing huge problems to the home owners, it is absolutely essential that high quality aggregates are used in the manufacture of blocks. The Ballyonan pit provides excellent and readily available aggregates for this purpose.

The Ballyonan location was selected due to a number of factors

- Consistent with national and county development plans
- Major markets in the surrounding area;
- Access to the R148 (former N4);
- Ongoing and good neighbourhood relations;



- Located in close proximity to the raw material to reduce traffic and haulage requirement;
- Location is >250m from the nearest dwelling;
- Improve the existing sightlines at QR45;
- No sensitive receptors on site i.e. no sensitive receptors such as Archaeological, ecological or surface water;
- Located in the North western lowlands area - characterised as low landscape sensitivity.
- Site is well screened from the surrounding environment
- The investment underpins and secures the employment of staff at the site into the future

Concrete Blocks

Despite having developed markets in fast track housing units and the emphasis on off-site production, Keegan Quarries, who have been producing concrete blocks since 2001 still sell a large volume of standard concrete blocks as many house builders prefer the traditional system for building houses i.e. concrete blocks & mortar.

Importance of the development

The Keegan Group of companies are absolutely crucial to the economic development of north County Kildare and South Meath. The business has some 130 direct employees and a further 30 full time sub-contractors. The population of Kildare showed an increase of 5.6% from the 2011 to the 2016 census. This is higher than the state overall, which increased by 3.8% over the same period. The employment generated across the group of companies is vital to the local economy.

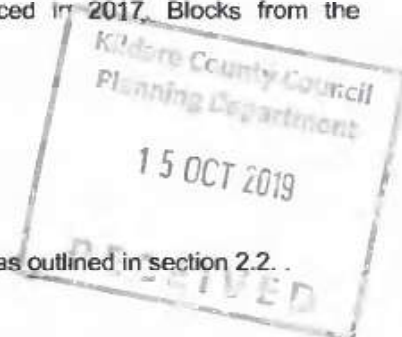
The demand and future demand for housing in the Kildare area is certain along with the requirement for high quality concrete and concrete products. Fast-track planning applications have been submitted for more than 4,000 new homes in Co Kildare since the Strategic Housing Development (SHD) fast-track planning system was introduced in 2017. Blocks from the proposed facility are required to meet the ongoing demand.

2.2.1 Reasonable Alternatives

The Ballyonan location was selected due to a number of factors as outlined in section 2.2.

Alternative Sources of Aggregates

In the short to medium term there are no real alternatives to the current land-based sources of construction aggregates. There is an established use at the site to the south as a sand and gravel pit. Alternative sources of aggregates will be considered when the existing resource is



exhausted, however the syngeneic use of the adjacent sand and gravel material with the batching plant was considered optimal.

In Ireland, the vast majority of housing is delivered using on-site masonry construction. There are many benefits of masonry construction, including fire resistance, thermal mass, durability, energy performance, acoustics and flood resilience.

Alternative Locations

The potential for batching plants at other KQL sites are severely constrained. These constraints are reducing the ability to expand the high value pre-cast concrete for the domestic and international market.

In relation to the sand and gravel, the alternatives available to the Applicant relate to: i) Extraction within the existing established quarry. Or ii) Development of a new 'Greenfield' inert waste deposition site in the area. At the current time, there are no alternative relocation areas available to the Applicant in the area.

The continuation of the existing pit would be beneficial in planning terms by eliminating the need for additional extraction sites with longer haul routes from Ballyonan Pit as there are few sites suitable. Longer haulage distances would also result in higher vehicle emissions to atmosphere, vehicle impact on public roads and higher risk of dust migration from the site.

Alternative Designs / Methods

A number of alternative designs and layouts have been considered during the planning and design of the proposed development, in particular:

- Location of plant within the site – depth and plan extent of the workings, location of block yard etc.
- Fixed vs. mobile plant

The location of the batching plant within the QR45 boundary does not meet a number of the project needs. The batching plant in QR45 would occupy areas required for aggregate extraction and stockpiling. In addition the proposed entrance upgrade cannot be accommodated in the existing QR45 footprint. The proposed location provides the optimum solution i.e. proximal to the aggregates, improved entrance sightlines and does not restrict existing operations.

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2.3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

TOBIN Consulting Engineers on behalf of KQL have prepared this EIAR to accompany a planning application for the purpose of developing added value products at the north-eastern end of Ballyonan Pit.

The proposed development consists of a served concrete block making facility, which will involve a small concrete batching plant, aggregate stockpiling area, with the aggregate being supplied from the existing sand and gravel pit and offloaded into storage bays. Limited volumes of cement will be imported by road, and the finished blocks will be exported by road to local markets. When the remaining sand and gravel is exhausted, it is proposed to import material via the R148.

The concrete batching plant will feed a concrete mixer truck, which will, in turn, fill molds in which the blocks are formed. Once the concrete has been loaded to the concrete mixer truck it is then transported to the mold; where it is poured. A fork lift is used to transport a petrol generator to run a vibrating poker, which is used whilst the concrete is poured. A specific part of the site will be laid out for this purpose. Another part of the site will be used to store materials.

Ready mix concrete will also be provided for at the facility. The batching process for the readymix concrete is a similar process for blocks, up to the point that the concrete emerged from the batching plant. At that point readymix concrete can be poured directly into delivery trucks and taken to construction sites, whereas the blocks have to be shaped and were then laid out for three days on the paved area to dry out before delivery.

2.4 THE OPERATION

2.4.1 Plant and Equipment

All plant and equipment used within the application area is a mixture of fixed and mobile nature. The proposed concrete batching plant will be located at a level of 66m OD which will operate at capacity of 20,000 tonnes.

The proposed development will comprise of the following facilities and activities within a planning application area of c.1 hectares as followings:

- Concrete Batching Plant Silos & Associated Plant 490 m² (maximum height of 12.2m);
- Block Manufacturing plant & Block Yard;
- Offices and Staff Facilities 133 m²;
- Weighbridge;



- Wheel Wash;
- Upgrade to the site entrance and access road;
- All other ancillary buildings, plant and facilities for the production of building products, including aggregates, ready-mix concrete, and all ancillary site works.

All overburden associated with construction will be utilised in the existing screening berms around the periphery of the site to screen the site and aid in the reduction of noise and dust impacts on the surrounding area. Any surplus material will be utilised in restoration works at the site. Access to the application site is also provided from the L1011 via an existing site access road. Details of the proposed site layout are included on planning drawings 10592-2004 to 10592-2009 which accompany this application.

2.4.2 Working Hours

Operational hours will be consistent with the existing hours of operation. Operations on the site will not commence until 0700 hours on weekdays (Mondays to Saturdays). Concrete batching will not take place before 8am.

The proposed working hours for the batching activities proposed as part of this application are 0800-1800 hrs Monday-Friday and 0800-1400 Saturday. The pit will not operate on Sundays and Public Holidays unless warranted by exceptional circumstances and agreed in advance with the Local Authority.

2.4.3 Site Security Arrangements

Site security arrangements are currently employed within the existing pit. The security arrangements include post and wire fencing (in addition to hedgerows and trees in places) around the entire boundary of the site and a gate, 2 m high fencing and additional planting at the main entrance on the public road. Warning signs have been placed at perimeter fencing regarding the on-site quarrying operations. The existing entrance will be locked and secured should permission be granted for the new entrance.

Additional to the security measures employed, the natural setting of the site aids site security. The existing hedgerow, scrub and fields along the boundaries of the pit naturally prohibit unauthorised entry. Details of the proposed site entrance is included on planning drawing 10592-2009 which accompany this application.



The security measures employed ensure that accidental entry to the site is prohibited. Regular inspections of the site security arrangement are undertaken by site operatives and repaired immediately if any damage is noted.

2.4.4 Employment

The Keegan business has some 130 direct employees and a further 30 full time sub-contractors. KQL has employed up to approximately 2 personnel on an annual basis at Ballyonan Pit, both directly and indirectly. Permanent employees include site personnel, administration staff and maintenance personnel, who are based at offsite locations. The proposed development will secure 4 additional site staff and secure the long term viability of the overall business.

Indirect employment is generated as a result of the quarrying and aggregate production, in terms of contract aggregate transport drivers, suppliers of products and services, such as fuel and oil suppliers, machinery suppliers, etc. the proposed development will provide four additional full-time equivalents to the operation.

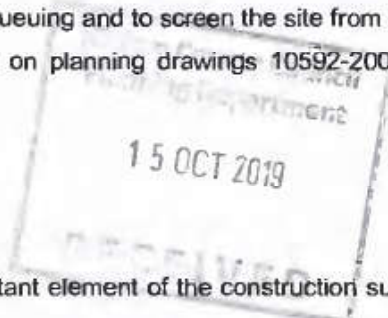
2.4.5 Traffic Control

All traffic accesses the facility directly at the site entrance located on the local road (L1011). Entry to the site will be via a queued formation using a designated access road. The weighbridge next to the administration building is reserved for outgoing loads, therefore there is no delays entering the site and backups on the public road due to the limited traffic volumes proposed and existing.

The proposed new entrance will provide greater sightlines to the development. The proposed entrance also has a number of benefits including locating wheelwash away from the road to reduce potential for mud and dust, from the vehicles using the entrance. The proposed plant is located away from the road to eliminate the potential for queuing and to screen the site from road users. Details of the proposed site layout are included on planning drawings 10592-2004 to 10592-2009 which accompany this application.

2.4.6 Working Method

The construction materials sector is a strategically important element of the construction supply chain. It is proposed to produce a range of concrete products, including ready-mix concrete, blocks and precast concrete elements.



The concrete batching plant combines aggregates, sand, water, cement and additives. These components are first weighed individually and then combined to prepared ready mix concrete. This material prepared is widely used for several types of construction projects. KQL are certified by NSAI to EN-206 for the design, manufacture, testing and supply of ready mix concrete.

Since the mixing of individual components is by weight it is possible to alter and change the weight of individual materials to prepare different grade or quality of concrete.

KQL produce top quality fully ISO certified Concrete Blocks to EN 771 -3:2011 - Aggregate Concrete Masonry Units (Dense & Lightweight) which come in various sizes. The Blocks are made with onsite raw materials, cement and water which gives a high-quality block for laying, cost effective and long-term durability.

KQL also have a full quality control and material testing lab which is operated by a qualified lab technician to ensure all products are produced to the highest standard.

2.4.7 Testing

Material testing is undertaken on the concrete blocks products to EN 711. Keegan operate a construction materials testing laboratory at Trammon where both routine quality control testing as well as product development and research is carried out. KQL are certified by NSAI to EN-206 for the design, manufacture, testing and supply of ready mix concrete. KQL supply and design concrete to meet all aspects of the client's specification including strength, workability and durability. Monitoring of noise, dust, surface water and groundwater will be undertaken at the proposed facility. Laboratory testing of soil, surface water, groundwater will be undertaken off-site at an ILAB/UKAS accredited laboratory. All samples taken on-site will be forwarded to the laboratory and test results will typically be forwarded to site within ten working days.

2.4.8 Fuel Storage

No fuel will be stored on site for the activities proposed in this application as the HGVs delivering material will be fuelled off site. A spill kit will be available at the site for any minor fuel spillages.

2.4.9 Sewerage and Waste Water Treatment

There is no proposed surface water waste water discharges for the development with all wastewater tankered off site. Limited infiltration was encountered at the proposed development based on site infiltration test in July 2019, therefore a holding tank is proposed. The sand and gravels present at QR45 pinch out to the north. The underlying subsoils are primarily grey, firm to

stiff, slightly sandy gravelly CLAY. In addition, the shallow soil is comprised of a slightly sandy, CLAY/SILT which is slightly compacted due to tillage activities. The sealed tank will be emptied on a monthly basis or less. Details of the proposed office and waste water tank are included on planning drawings 10592-2004 to 10592-2008 which accompany this application.

2.4.10 Water Management

The proposed development is to actively manage the surface water in a sustainable manner on site. The proposed settlement tanks will collect runoff from the yard for reuse within the proposed development thereby obligating the need for a connection to the main water. The settlement tanks collect runoff from the restored pit and the general areas. Water is recycled within the site for activities such as dust suppression. Details of the proposed site water management are included on planning drawings 10592-2004 to 10592-2008 which accompany this application.

Within the application area, diffuse groundwater recharge to the underlying aquifers is through the existing quaternary deposits. There are no point sources, such as swallow holes etc. recorded within the application area.

Surface water features within Ballyonan Pit comprise percolation to ground. Temporary settlement ponds are located in area A – See Figure 2.1. The temporary ponds will be restored prior to the development of the batching plant. The material will be levelled out and seeded. Flood peak flows are attenuated within the site and are accommodated within onsite settlement tanks. KQL will carry out monitoring on a quarterly basis of the water quality.





Legend

- Area A
- Application Boundary
- Ownership Boundary

All areas within Ownership Boundary Inc QR45 and Area A accessed as part of the EIAR

The aim of the restoration is to produce self-sustaining plant and wildlife communities and habitats. Area A will provide a diversity grassland habitat. Temporary flood capacity in Area A.

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Metres

NOTES

1. The information on this map is for information only. It does not constitute a guarantee of accuracy or a warranty of any kind. The user of this map is responsible for its use.

NO.	REVISED	DATE	BY	REASON

Client
KEEGAN CUARRIES
TRADING, CONTRACTORS & PLANT HIRE

Project
BALLYONAN BATCHING PLANT -
PLANNING APPLICATION

Title
Site Location Map -
Restoration of Area A

Scale @ A3 1:5,000

Prepared by	Checked	Date
F. Kelly	J. Dillon	July 2019

Project Director S. T. Murphy

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Drawing No: **Figure 2.1** D01

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2.4.11 Vehicle/Wheelwash Water

The wash water from the vehicle/wheelwash bay is recycled through an in-built water recycling system. This is occasionally topped up with fresh water from the onsite water pond or from the existing borehole. A sprinkler system along the main access road will ensure all material is dampened prior to exiting the location. Details of the proposed wheelwash is included on planning drawing 10592-2008 which accompany this application.

2.4.12 Drinking Water

Drinking water for the site is supplied by a private contractor.

2.4.13 Solid Waste Management

KQL minimise production of waste and where appropriate consider its beneficial use, including recycling. All waste is dealt with in accordance with the relevant legislation and other controls in place. Good practice is achieved when recycling used oils and greases, batteries, tyres, scrap metal and timber.

2.4.14 Access and Transport Routes

It is proposed to relocate the concrete manufacturing facility from KQL Rathmolyon to the subject site, as the majority of aggregates supplied to block yard originate from the Ballyonan Pit. The current situation entails hauling aggregate to Rathmolyon, with the majority of the resultant block and concrete products being hauled back towards the north Kildare area.

The existing access to Ballyonan Pit is from the local road L1011. Current access into Ballyonan Pit is via a gated access with a carriageway approximately 6 m in width. However, it is proposed to relocate the entrance to an area with improved sightlines and road alignment. Details of the proposed site entrance is included on planning drawing 10592-2008 which accompany this application.

KQL will ensure that vehicles leaving their operations are effectively cleaned and sprayed by a wheel and vehicle washing facility to prevent the spread of dust and aggregate on to the public



highways. KQL clean, when necessary, any dirt and debris from any road surfaces soiled as a result of spillage due to haulage to and from the site.

2.4.15 Nuisance and Pest Control

It is not envisaged that the proposed development will attract birds or scavenging mammals. It is also envisaged the proposed development will not be a generator of litter.

2.4.16 Decommissioning

The purpose of the application is to produce high value products close to the raw material (sand and gravel) thereby reducing the double handling of material and overall reduction in traffic numbers. Upon cessation of activities all plant and machinery shall be removed from site.

2.4.17 Vulnerability of the project to risks of major accidents and/or disasters

As part of the requirements of the new EIA Directive, the applicant is requested to consider the "Expected Significant Adverse Effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and/or disasters which are relevant to the project concerned."

It is clear from the directive that a major accident and/or natural disaster assessment should be mainly applied to COMAH sites or nuclear installations. However, this assessment is carried out for completeness.

As the proposed project involves the production of concrete blocks, it is not expected that the project will result in significant adverse effects on the environment as a result of any major accidents and/or disasters. The area that is the subject of this planning application, (1 ha including the access road), is confined to a localised area within an overall landholding that is under the control of the developer.

In addition, there is no history of major accidents and/or disasters e.g. any natural disasters, in the local or regional area of the proposed development, therefore it is submitted that this project is not vulnerable to risk from a major accident and/or disaster that might have a significant adverse effect on the environment.

The management of any risk of accidents will be mitigated through Standard health and safety precautions and procedures in accordance with the Health and Safety Regulations (Construction), 2013 and the Health and Safety Regulations (Quarries), 2008. The risks associated with such work are those that are commonly associated with working with machinery and assuming standard health and safety procedures are adopted, implemented and complied with the risk of accidents is low.

The management of any potential environmental accidents will be managed through the adoption of site best practises outlined in the EMS. Additionally, there is no proposed fuel storage at the site with refuelling and fuel handling procedures have been developed as well as an emergency response procedure therefore minimising the risk of major accidents.

There are no significant flood risks on the site. It can be concluded that the risk of accidents associated with this development is very low and would not cause unusual, significant or adverse effects on human health or the environment.

2.5 CONCLUSION

The planning history of the Ballyonan Pit at Ballyonan, Broadford, County Kildare, has been set out in Chapter 4 in addition to its planning and development context. This application will be in accordance with the Planning and Development Acts 2000 as amended. The quarry will continue to operate in compliance with existing Planning Permission conditions, permits and industry guidelines. The proposed development will operate in a sustainable and environmentally sound manner, consistent with both industry and government guidelines.

The operation of Ballyonan Pit and Batching plant is consistent with the aims and objectives of the Kildare County Development Plan 2017-2023, the Greater Dublin Area Regional Planning Guidelines 2010-2022 and the National Spatial Strategy 2002-2020. The sand and gravel pit activities are also consistent with the policies of the recently published National planning Framework (Project Ireland 2040) in terms of promoting the rural economy. Recent years have seen a marked upturn in construction activity in the country with an associated demand for construction building materials.

Apart from the availability of finance, there are resource capacity issues that if not addressed will limit the provision of infrastructure and housing in Ireland. Both infrastructure and housing are complementary as without adequate infrastructure provision, housing development will not generate communities properly served by transport, water, schools and amenities.



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3 POPULATION AND HUMAN HEALTH (SOCIO-ECONOMIC)

3.1 INTRODUCTION

Human beings and their health and socio-economic environment are an essential element in the EIAR process. Quality of life must not be degraded as a result of development and both the short- and longer-term impacts on the local population must therefore be addressed at this stage. The purpose of this chapter is to examine the socio-economic conditions in the area surrounding Ballyonan Pit, County Kildare.

This chapter will focus on population, employment, tourism and amenities. The issues of water quality, dust, noise and traffic are dealt with individually in Chapters 7, 9, 10 and 11 respectively.

It is proposed to relocate the concrete manufacturing facility from KQL Rathmolyon to the subject site, as the majority of aggregates supplied to block yard originate from the Ballyonan Pit. The current situation entails hauling aggregate to Rathmolyon, with the majority of the resultant block and concrete products being hauled back towards the north Kildare area.

3.2 METHODOLOGY

A desk-based assessment was carried out and the following documents were consulted:

- National and Regional Planning Policy (NSS, NDP, RPGs);
- Kildare County Development Plan 2017-2023;
- National Monuments Service *Map Viewer* (2017);
- Central Statistics Office (CSO) online database (2017);
- Fáilte Ireland website (2017); and
- Ordnance Survey maps and satellite imagery.

3.3 RECEIVING ENVIRONMENT

Ballyonan Pit is located in a sparsely populated valley in north County Kildare, between Enfield and Clonard. The topography is generally rolling lowland. Tillage and beef farming are dominant in this part of the county. The proposed development is located in a tillage field.



3.3.1 Site Description

The local road runs along the western edge of the site, providing the site access to the pit. The River Boyne is located 400m to the west. Settlement around the pit is limited and takes place along the former N4 (R148). The immediate surrounding land is relatively fertile and used for grazing and small-scale farming. Clonard is the closest settlement (approximately 2.5km) and lies further along the R160 between the pit and Clonard. This clustered settlement occurs at a junction of several local roads.

The Planning application area is located to the north of Ballyonan pit (QR45), within the same landholding. The area to the northern section of QR45, Area A (See Figure 1-2), will be allowed to naturally revegetate to provide a biodiverse area and accommodate the presence of sand martins.

3.3.2 Land Use

According to the County Kildare Landscape Character Assessment, Ballyonan Pit is situated in the Central lowlands landscape. The existing Ballyonan sand and gravel pit QR45 is in operation prior to 1964. Vegetation is dominated by pastureland broken up by tillage in the gently sloping land (where Ballyonan Pit is located) with interspersed thick hedgerows, scrub and treelines. The rolling lowland nature of the landscape results in some visibility from some minor roads and occasional views of the surrounding landscape are possible from elevated areas. No views are present onto the site. Many of the roads are lined with hedgerows which limit views into the landscape.

3.3.3 Population

The nearest towns/villages are Clonard and Enfield, located within County Meath. The rural node - Moyvally, (as defined by the Kildare County development plan) is located 1.5km east of the site on the R148. According to the Census 2016 results, Clonard has a population of 347, an increase of 2.4% since 2011. Overall, the population of County Kildare stands at 222,130, which represents a 5.6% increase from 2011 to 2016.¹ A similar increase of 5.8 % occurred in County Meath.

The Kildare County Development Plan 2017-2023 notes the key emerging trends which have been observed during the 2006-2011 period which included the following; *'The period showed continued increase in population at an average rate of 4,795 persons per annum over the five*

¹ CSO (2016), <http://www.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=E2016&PLanguage=0>

years, representing a slight decrease in the average of 5,598 over the preceding four years (2002-2006).

The greatest growth in population in the County's urban areas was in Newbridge with an increase in population of 4,519 persons, followed by Celbridge (2,275), Maynooth (1,795), Clane (1,734), Sallins (1,477) and Kilcock (1,433).

Continued pressure for development at the edges of the County's main urban centres and in the adjoining rural hinterlands.

A limited number of areas experienced population stagnation including north of Rathangan, south of Ballymore Eustace, Newbridge town centre, Pollardstown, Ballysax, west Athy and south of Maganey (Ref Section 3.2).

3.3.4 Employment

Employment is an important indicator of the economic standing of an area. The labour force survey, published by the Central Statistics Office, provides details of unemployment on a regional level, replaced the Quarterly National Household Survey (QNHS) in Q3 2017. County Kildare is located in the Mid-East Region, which had an unemployment rate of 5.4% in the first quarter of 2018.

Table 3.1: Quarterly National Household Survey (Q1 2016 – Q1 2017)

Time period	State	Mid-East Region	State	Mid-East Region
	Q1 2016	Q1 2016	Q1 2017	Q1 2017
Unemployment Rate	8.4%	5.9%	6.7%	5%
Participation Rate	59.5%	58.9%	59.8%	60.4%

Source: CSO, 2017

Table 3.1: Quarterly National Household Survey (Q1 2016 – Q1 2017) illustrates the findings from the QNHS, January to March 2017. The unemployment rate is the number of unemployed persons expressed as a percentage of the total labour force. The unemployment rate for the State was 8.4%, while the unemployment rate for the Mid-East Region was lower at 5.9%. These figures illustrate that there has been a decrease in unemployment throughout the state and the Mid-East Region.



The participation rate is the number of persons in the labour force expressed as a percentage of the total population (over the age of 15 years). From January to March 2017, the participation rate in the State was 59.5% while the Mid-East Region's participation rate was 59.8%, which is marginally higher than that of the State.

The CSO publishes figures relating to the live register. These figures are not strictly a measure of unemployment as they include persons who are legitimately working part time and signing on part time. However, they can be used to provide an overall trend within an area.

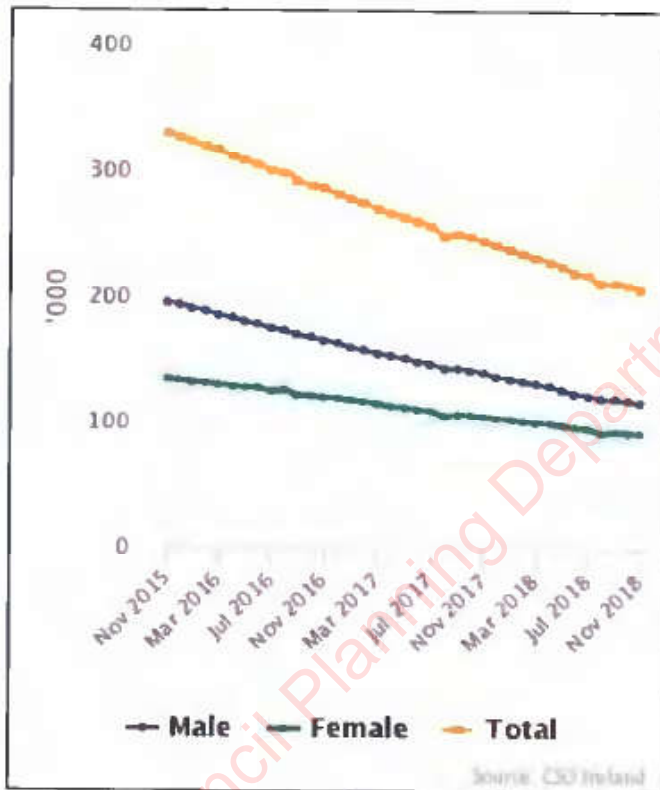


Figure 3.1: Live Register National Trend

Table 3.2: Live Register 2017-2018

Location	November 2017	November 2018	% Change
State	233,209	196,261	-15.8%
Mid-East Region	30,781	25,921	-15.8%

County Kildare	9,776	8,006	-18.1%
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Source: CSO 2018

The figures in Table 3.2 show that over the period November 2017 – November 2018 the number of persons on the live register decreased in all regions. Although there is a decrease in the number of people on the Live Register, the moderately high number of people still on the live register indicates a need for employment opportunities in the area.

Live Register figures for November 2017 and the Quarterly National Household Survey 2016-2017 illustrate that unemployment rates are reducing throughout the State, the Mid-East Region and County Kildare.

3.3.5 Socio Economic Profile

Statistics in relation to the occupational group are provided in the 2016 Census for the electoral district (ED) of Ballynadrummy in which the proposed development is located. Commerce and trade workers are the largest occupational group for males in Ballynadrummy ED.

The aim of economic development as set out in the Kildare County Development Plan 2017-2023 is to *'provide for the future wellbeing of the residents of the county and the region by facilitating economic development; to promote the growth of employment opportunities in all sectors in accordance with the principles of sustainable development; to achieve a reduction in the unsustainable levels of commuting from the county; to provide a greater focus on community building and improving quality of life'* (Ref Section 5).

KQL has employed up to approximately 2 personnel on an annual basis at this location, both directly and indirectly. Permanent employees include site personnel, administration staff and maintenance personnel, who are based at offsite locations.

Indirect employment is generated, in terms of contract transport drivers, suppliers of products and services, such as fuel and oil suppliers, machinery suppliers, etc.

3.3.6 Tourism and Amenity

The Kildare County Development Plan 2017-2023 states the following in relation to tourism;



'Tourism is an important sector of Kildare's economy and it has grown substantially over the last number of years.... In the context of tourism, the natural environment, landscape, built heritage and attractive towns and villages play a key role' (Ref Section 5.15).

County Kildare is located in the East and Midlands tourist region. According to the Fáilte Ireland preliminary figures for 2017 (the most recent data available in the public domain), County Kildare generated €90 million in overseas tourism revenue from a total of 220,000 overseas visitors to the county.

Kildare has much to offer as a tourist destination, in particular its rich heritage, quality rural landscape, attractive towns and villages. The top visitor attractions identified by Fáilte Ireland for County Kildare for 2010-2014 are listed below:

- Newbridge Silverware Museum of Style Icons;
- Castletown House & Parklands;
- Irish National Stud & Japanese Gardens;
- Maynooth Castle;
- Kildare Town Heritage Centre;
- The Steam Museum, Straffan;
- Larchill Arcadian Gardens;
- Leixlip Castle; and
- Ballitore Library & Quaker Museum.



In addition to top visitor attractions identified above, additional visitor attractions were identified as part of the Tourism assessment and these include:

- Bog of Allen Nature Centre (Lullymore);
- Coolcarrigan House and Gardens;
- The Irish Pewtermill & Moone High Cross Centre;
- Harristown House; and
- A number of golf courses in the wider vicinity.

Anglers can fish the Boyne and its tributaries for wild brown trout and Atlantic salmon whilst coarse angling is facilitated in the Royal Canal (Enfield). The Ancient East, which incorporates County Kildare is one of Ireland's long-distance touring route, stretching along the Eastern coast from Cavan to East Cork.

The area surrounding the pit is not noted as a popular destination for visitors. However, recent trends in tourism point towards a re-engaging with lesser known rural areas through eco-tourism coupled with rural diversification measures (e.g. the Royal Canal Greenway). Ordnance survey maps for the area reveal potential attractions for niche visitor groups, namely the River Boyne and Blackwater could be used for walking and angling. Also, there are archaeological monuments (enclosures, burial grounds, standing stones, holy wells and some significant megalithic tomb burials) that may attract those with an interest in heritage and local history.

While there are other tourist attractions and local amenities outside the key tourism assets, these are less sensitive to change when compared to the key assets. Outside of significant tourist attractions tourism revenue can be an important source of income to local areas where it is earned, particularly in rural areas. Ballyonan Pit is not located in close proximity to any known tourist attractions (with the exception of the River Boyne) and the undulating landscape provides some visual screening for the Planning application area to limit any impact on the landscape from works to date.

While there is future potential for development of tourism in rural areas where the proposed development is located, this potential is generally based on further development of existing activities and products, such as angling, water-based activities, driving, walking and cycling. The landscape and land use of an area is an important factor in the development of tourism as it provides a setting for the activities which take place in the area. The proposed landscaping and habitat plan may enhance the local amenity in the longer term.

3.3.7 Traffic

A Traffic Assessment was undertaken by TOBIN Consulting Engineers in January 2019. This report considered the levels of traffic currently using the L1011 and the R148, including traffic generated by the existing Ballyonan Pit and other nearby haulage operations, established future year traffic growth rates, determined the volume of traffic from the proposed development and quantified the impact of the proposed development on the traffic at this location and in the future. All appropriate guidance documents were consulted in conjunction with this assessment, with traffic flow data from the R148 installed near Clonard Village used in the assessment and the prediction calculations based upon worst case scenario condition.

The report outlined that the traffic generated by the proposed development would equate to less than 1 additional HGV arrivals and departures per working day. The operations are proposed to commence in 2019. The report also took into consideration growth factors to calculate future

years' traffic which concluded that these levels of traffic growth will not have a material impact on the operating capacity of the road network.

In general, traffic generation does present a health and safety issue to the general public for those who use the roads.

Additionally, the sightline improvement works should be implemented prior to the commencement of the operations, benefitting the condition and visibility of the road for all road users. Finally, a Traffic Management Plan has been developed as part of the EMS for the applicant to ensure the safety of site operative, visitors and the general public and to ensure that all drivers are aware of traffic restrictions and the haulage route in place.

3.3.8 *Do Nothing*

Tourism and amenity development are likely to evolve and develop in line with national trends, the location of visitor attractions and amenities and with local strategies. Doing nothing will have no effect on tourism and recreation in County Kildare.

3.4 CONCLUSION

This chapter has examined the prevailing socio-economic environment pertaining to Ballyonan Pit. The population, employment, tourism and amenity context show that there has been and continues to be a need for jobs and investment in the local area but that a quarry/pit development must not harm the local landscape, environment or residential amenities, as specified in the Eastern Regional Planning Guidelines, Kildare County Development Plan among other policy documents.

With regard to the local community, KQL will operate this pit in accordance with Department Guidelines, the company's compliant Environmental Management System. The quarry's operations to date have had no direct negative impact on any tourism and amenity sites and have assisted in boosting local employment figures at a time of record unemployment levels while simultaneously aiding the economic recovery of the Eastern region, with wider benefits to the Irish economy in general. It anticipated that this support of the local and regional economy will continue as a result of the proposed works.

No residual impacts are anticipated as the proposed development will be operated in compliance with relevant guidelines. It is proposed that the operations at QR45 would commence, there will not be a significant increase in traffic as the raw material leaving site at the moment will be converted to high value products to serve the housing and infrastructure needs in the area.

Therefore, no cumulative impact of both facilities being operational and therefore no cumulative impact from noise generated as a result of HGVs on the road.



4 POLICY, PLANNING AND DEVELOPMENT CONTEXT

4.1 INTRODUCTION

This chapter examines the planning history and planning and development context of Ballyonan Pit, Ballyonan, Broadford, County Kildare. This chapter includes a review of national, regional and local policy and recent legislation. This review illustrates that the development in question is consistent and complies with the most recent national, regional and local planning policy as well as national guidelines and best practice.

Ballyonan Pit is located approximately 2.5 km southeast of Clonard village. The village of Moyvally is located approximately 5 km to the west. Enfield, Longwood, Kinnegad and Carbury are the nearest towns, which are within 10km of the proposed development. The local road lies to the east of the site and the townland in which the pit is situated is Ballyonan. The pit is managed by KQL.

4.2 SITE PLANNING HISTORY

There have been no previous planning applications on the proposed site. The area is a greenfield site and currently used for tillage.

The area to the south is a pre-1964 development which was registered under S261 (reference QR45 and appeal reference 09.QC.2168). It was subject of a notice under Section 261A (4)(a) directing the preparation of an Environmental Impact Assessment (EIA) and Appropriate Assessment (AA) (reference QRA-01-001). The decision went on to state that the quarry was unauthorised on the grounds that it had commenced post 1964 and had not registered. This decision was referred to An Bord Pleanála under section 261A (reference QV 09.QV0306). In their decision, the Board reversed the decision of the council: neither EIA nor AA were required.

The Board & Kildare County Council accepted during the process of both 261 & 261A, that the quarry is an authorised 'pre-64' quarry. In their decision on 09.QC.2168, the Board referred to "the pre-64 status of the quarry" (see decision of 8/01/08, reason attached to decision concerning condition 42, p. 2).

In the case of the decision on QV 09.QV0306, the Board's inspector concluded.



"on balance, as it appears from visual inspection that it is all one orebody, and it was all part of an existing landholding, I would conclude that this quarry site can be considered to have commenced prior to 1964." (his emphasis)

"Evidence has been provided to substantiate the assertion that the quarry commenced operation prior to 1 October 1964 and an application for registration of the quarry under Section 261 of the Planning and Development Act 2000 was received by the Planning Authority and the registration requirements under Section 261 of the Planning and Development Acts were fulfilled." (see report of Philip Davis of 30th April 2013)

The council also confirmed its 'pre-64' status in its decision on QR45 when it was stated:

"Whereas the above mentioned quarry commenced operation before the 1st October 1964" (See Kildare County Council, Notification under S261 of 30/4/07).

The quarry is therefore authorised by virtue of the fact that it was in existence prior to the coming into force of the planning legislation in 1964. There is extensive evidence supporting this contention. There is evidence of quarrying on the site from 1909 – 1910. Aerial photographs show that the quarry has been in existence pre-1964 with a history from early 1900s through to date. In this regard, we attach the following:

- 1913 Ordnance Survey Map 1:2500
- 1930s Ordnance Survey Map 1:2500
- 1995 Ordnance Survey Aerial Photograph
- 2000 Ordnance Survey Aerial Photograph
- 2005 Ordnance Survey Aerial Photograph
- 2011- 2013 Ordnance Survey Aerial Photograph



Mr. John Keegan of KQL has personally witnessed the quarry being operated by a sand and gravel supplier Bob Farrell in the early 70s, followed by Patrick Dixon in the late 70s. The quarry was then operated by Jim Kane and Patrick Faye in the early 1990s. KQL has operated the sand and gravel pit on an intermittent basis from 1998, when it was purchased, to date.

The reports and decision of An Bord Pleanála on both the S261 and S261A process all confirm the 'pre-64' planning status of the quarry. The boundary of the quarry can of course be restricted within the bounds of these decisions. Some activity has strayed outside those sites (namely two silt ponds) and it is part of this current application to rectify that.

4.3 NATIONAL GUIDELINES

Quarries and Ancillary Activities Guidelines for Planning Authorities (2004)

Guidelines were published by the Department of the Environment, Heritage and Local Government under Section 28 of the Planning and Development Act 2000, which require both planning authorities and An Bord Pleanála to have regard to them in the performance of their functions. While primarily addressed to statutory planning bodies, the document is intended to also provide assistance to owners and operators of quarries to which Section 261 of the Act applies.

Aggregates are a 'significant natural resource' but can give rise to 'land use and environmental issues' which need to be controlled and mitigated by the planning system. The guidelines set out to 'identify those issues and to suggest best practice in dealing with them'. Environmental impacts and best practice/mitigation measures are examined for noise/vibration, dust, water, natural heritage, landscape, traffic, cultural heritage and waste management.

With regard to the proposed concrete batching and block manufacture, the Guidelines consider that concrete manufacture is an ancillary activity to quarrying (section 3.1)

Ballyonan Pit had operated in accordance with these guidelines in considering all environmental impacts and implementing mitigation measures to the highest standard.

Guidelines Concerning Section 261A (Substitute Consent)

Additional guidelines were published in 2012 – the "Section 261A of the Planning and Development Act, 2000 and related provisions: Guidelines for Planning Authorities, January 2012". They set out advice and procedures arising from the Substitute Consent process for quarries introduced in Section 261A.

Further advice was forthcoming in the document: "Section 261A of the Planning and Development Act, 2000 and related provisions: Supplementary Guidelines for Planning Authorities"

Environmental Management in the Extractive Industry (EPA, 2006)

These environmental management guidelines by the Environmental Protection Agency are intended to complement existing guidance and be of assistance to operators, regulatory authorities and the general public. The aim of these Guidelines is to assist in the implementation

of the Statutory Requirements under Section 261 of the Planning Acts, as well as lead to a harmonized regulatory approach to the authorisation and supervision of such activities.

These guidelines represent a summary of current environmental management practices for quarries and ancillary facilities. The guidelines are intended to provide general advice and guidance in relation to environmental issues to practitioners involved in the planning, design, development, operation and restoration of quarry/pit developments and ancillary facilities.

Concrete batching and concrete block manufacture are typically located at or beside working quarries or in disused quarry sites. It is an ancillary activity to the quarrying industry by virtue of its heavy reliance on gravel production. The above guidelines issued by the EPA include ancillary activities as well as extraction and this specifically includes the manufacture of concrete products. (*“These environmental management guidelines represent a summary of current environmental management practices for quarries and ancillary facilities (including manufacturing of concrete and bituminous mixes/asphalt products, and processing of dimension stone)”* (Section 1.3).

4.4 PLANNING AND DEVELOPMENT CONTEXT

4.4.1 Regional Plans

The Regional Planning Guidelines (RPGs) for the Greater Dublin Area 2010-2022 aim to direct the future growth of the Greater Dublin Area over the medium to long term and work to implement the strategic planning framework set out in the National Spatial Strategy (NSS) published in 2002 (since replaced by the National Planning Framework). The Guidelines seek to develop the region as one that is commercially vibrant, well connected and with strong, safe communities. The growth of the extraction sector, as one of a range of rural based activities is noted (Section 5.4.3).

Whilst the RPGs are still in place, it is noted that these will shortly be superseded by the Regional Spatial and Economic Strategies (RSES). The RSESs will be prepared by the three new Regional Assemblies which have replaced the Regional Authorities and were recently out for consultation. A draft RSES has been published for the relevant region – the Eastern and Midland Regional Authority.





Figure 4.1: Map of Eastern and Midland Regional Authority – Strategic Planning Areas

Figure 4.1: Map of Eastern and Midland Regional Authority – Strategic Planning Areas

The Eastern and Midland Regional Authority incorporates the geographical area of Dublin, Kildare, Meath, Offaly, Laois, Longford, Westmeath and Wicklow. The principal statutory purpose of the RSES is to support the implementation of Project Ireland 2040 and the economic policies and objectives of the Government by providing a long-term strategic planning and economic framework for the development of the Region. In the Draft RSES, the extractive industries are noted as one of the traditional employment sources in rural areas (Section 4.8). Objectives include:

Support Local Authorities to develop sustainable and economically efficient rural economies through initiatives to enhance sectors such as ... extractive industries, ... while at the same time noting the importance of maintaining and protecting the natural landscape and built heritage. (Objective RPO 6.8).

4.4.2 National Planning Framework 2002-2020

The National Planning Framework (NPF) sets out a strategy and vision for the development of the country to 2040. It is a spatial planning document published along with the National Development Plan which sets out goals for national expenditure on capital investment. The NPF is intended to provide a framework within which regional plans (RSESs) will be drafted.



The NPF sets out policies intended to address the over-concentration of development in the Dublin area.

The site is located within the new Eastern and Midland Region. The region is dominated by the growth of Dublin and, in recent years, has developed a heavy emphasis on long distance commuting.

The NPF recognises the importance of the extractive industry including the provision of construction materials. Such sources need to be protected and will be facilitated subject to environmental protection. (Section 5.4 and Objective 23).

4.4.3 Kildare County Development Plan 2017-2023

Under Section 9 of the Planning and Development Acts, each local authority is required to prepare a development plan every six years. The Kildare County Development Plan 2017-2023 is the current statutory plan for the county. The development plan vision statement is for *"Kildare to be a county that fosters sustainability throughout its vibrant communities, dynamic economy and unique cultural and natural heritage"*.

The Landscape of the North Western Lowlands are classed as Low Sensitivity - *Areas with the capacity to generally accommodate a wide range of uses without significant adverse effects on the appearance or character of the area.* Industrial and extractive projects have a 'high compatibility' with this landscape (Table 14.3).

Chapter 14 lists several policies in relation to the proposed development. Some of the policies relevant to landscape and visual impact are stated below:

General Landscape It is the policy of the Council to:

LA 1 *Ensure that consideration of landscape sensitivity is an important factor in determining development uses.*

LA 2 *Protect and enhance the county's landscape, by ensuring that development retains, protects and, where necessary, enhances the appearance and character of the existing local landscape.*

LA 4 *Seek to ensure that local landscape features, including historic features and buildings, hedgerows, shelter belts and stone walls, are retained, protected and enhanced where appropriate, so as to preserve the local landscape and character of an area, whilst providing for future development.*

LA 7 *Be informed by consideration of the County Landscape Character Appraisal.*



With regard to rural industry, the plan states:

"rural resource based enterprises will be facilitated in the rural areas"

And:

"Commercial / industrial developments in rural areas may be acceptable subject to proper planning considerations, where the Council is satisfied that the proposed development requires to be located in the rural area due to its dependence on an existing local resource or source material that is required for the carrying out of the industrial process / commercial activity / service. The local resource or source of material shall be in close proximity to the location of the proposed development. (Section 10.4.10).

A number of tests are set out for such industry in Table 10.3.

Section 10.7.8 and 10.7.9 set out policies and objectives regarding extractive industry. The following are of relevance to the current proposal:

Recognise the role and facilitate the exploitation of County Kildare's natural aggregate resources in a manner which does not unduly impinge on the environmental quality and the visual and residential amenity of an area, while continuing to regulate the extraction of aggregates and to seek the delivery of environmental benefits in the form of sustainable habitat creation in conjunction with the restoration phases of development. (Policy EI2)

In the assessment of planning applications for new development, intensification of use or diversification of activity, the Council will have regard to the nature of the proposal, the scale of activity proposed, the impact on the adjoining road network, the effect on the environment including important groundwater and aquifer sources, natural drainage patterns and surface water systems and the likely effects that any proposed extractive industry may have on the existing landscape and amenities of the county, including public rights of way and walking routes. (Policy EI4)

Ensure that development for aggregate extraction, processing and associated concrete production does not significantly impact the following:

- Special Areas of Conservation (SACs).*
- Special Protection Areas (SPAs).*
- Natural Heritage Areas (NHAs).*
- Other areas of importance for the conservation of flora and fauna.*



- *Zones of Archaeological Potential.*
- *The vicinity of a recorded monument.*
- *Sensitive landscape areas as identified at Chapter 14 of this Plan.*
- *Scenic views and prospects.*
- *Protected Structures.*
- *Established rights of way and walking routes. (Policy EI5)*

The proposed development is consistent with the County Development Plan. In particular: *Ensure that all existing workings are rehabilitated to suitable land-uses and that extraction activities allow for future rehabilitation and proper land-use management. (Policy EI 12).*

4.5 CONCLUSION

The site is a greenfield site with no planning history. The pit located to the south of the site is an authorised 'pre-64' pit which has operated in a sustainable and environmentally sound manner with due regard to the local community. This approach to sustainability will continue and will incorporate the works proposed as part of this application. A number of planning gains arise from the reduction in overall transportation and the improved site entrance.

This chapter also demonstrates that the proposed development and associated activities is consistent with the aims and objectives of local and national policy including Kildare County Development Plan 2017-2023, the Eastern Regional Planning Guidelines 2010-2022, the Draft RSES for the Eastern and Midland Region and to the National Planning Framework. The construction sector has undergone significant expansion following its relatively depressed state in recent years. The proposed development can play an integral role in the sustainable growth of the region.

The proposal is for the development of a concrete batching plant and block yard. It adjoins an existing sand and gravel pit which will supply sand and gravel to the batching plant. Such a location is ideal as it reduces the need for haulage of materials; the sand and gravel pit will supply aggregate to the batching plant. This results in reduced road traffic and, in particular, reduced HGV traffic. This is also in accordance with Planning and EPA guidelines on the subject. This pit is an authorised 'pre-64' pit; a matter that has been addressed and resolved under both the Section 261 (registration) and 261A (Substitute consent) processes.

As part of the new application, an EIAR has been prepared. Notwithstanding the fact that the gravel is existing and authorised, it is included in the EIAR.



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5 BIODIVERSITY (ECOLOGY)

5.1 INTRODUCTION

This chapter presents an Ecological Impact Assessment (EclA). It has been prepared to examine possible ecological impacts of the proposed facility. An ecological site visit was conducted by a TOBIN Ecologist on the 13th August and 18th September 2018. The results of the site visit are detailed herein.

To the south of the proposed development a sand and gravel excavation area and future sand and gravel extraction areas was also assessed. Material temporarily stockpiled in Area A (See Figure 1-2) will be top soiled and seeded with a high amenity wildflower mix.

Existing site conditions are presented below, potential effects are assessed, and mitigation measures are recommended, where required. For completeness, habitats/ ecological receptors within the overall landholding are also considered.

5.2 METHODOLOGY

5.2.1 Legislation Policy

Legislation, policy and guidelines relevant to the ecological assessment and referenced herein are as follows:

- Wildlife Act, 1976 and Wildlife (Amendment) Act (2000) including all amendments. In this document, the legislation is referred to collectively as the Wildlife Acts;
- European Communities (EC) (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011; hereafter referred to as the Birds and Habitats Regulations);
- EC Birds Directive 2009/147/EEC;
- EC Habitats Directive 92/43/EEC;
- Convention on the conservation of European wildlife and natural habitats (Bern Convention): Entry into Force in Ireland 01/08/1982;
- (EIA) Regulations, including all amendments 1989-2011;
- Fisheries (Consolidation) Act 1959;
- Flora (Protection) Order, 2015;
- Planning and Development Act (2000) including all amendments;
- Planning and Development (Amendment) Act 2010;



- Wildlife, Habitats & the Extractive Industry: Guidelines for the Protection of Biodiversity within the Extractive Industry²; and
- National Biodiversity Plan, 2017-2021.

5.2.2 Desktop Study

The ecological desktop study completed for the proposed project comprised the following elements:

- Review of records of rare and protected flora and fauna including those obtained from the National Parks and Wildlife Service (NPWS) website³, presented in NPWS reporting, and the National Biodiversity Data Centre (NBDC) website⁴;
- Review of Ordnance Survey maps and aerial photography in order to determine broad habitats that occur within the study area;
- Identification of European Sites with links to the proposed development; and
- Review of any other relevant ecological reports and literature (published scientific literature and 'grey' literature), including the previous Section 261 planning application for the site in question.

5.2.3 Field Studies

A walkover survey of the overall landholding was undertaken, with a focus on the ecological receptors within the Planning application area. The survey was undertaken by an experienced TOBIN ecologist, on the 13th August 2018. A brief outline of this walkover survey is included below:

- A habitat survey was undertaken in accordance with The Heritage Council's 'Best Practice Guidance for Habitat Survey and Mapping'⁵. Habitats were classified according to the Heritage Council's 'A Guide to Habitats in Ireland'⁶ and following the EU Habitats Interpretation Manual for Annex I Habitats⁷. Searches for evidence of

² http://www.noticenature.ie/files/Notice%20Nature%20quarry%20brochure%20web_1.pdf

³ National Parks and Wildlife Service Website: www.npws.ie (accessed June 2016)

⁴ National Biodiversity Data Centre Mapping Website: <http://maps.biodiversityireland.ie/#/Map> (accessed June 2016)

⁵ Smith, G.F., O'Donoghue, P., O'Hora, K., Delaney, E. (2011). *Best Practice Guidance for Habitat Survey and Mapping*. The Heritage Council, Kilkenny.

⁶ Fossitt, J.A. (2000). *A Guide to Habitats in Ireland*. The Heritage Council, Kilkenny.

⁷ EU (2013). Manual of European Union Habitats, EU 28.



protected flora and/ or presence of suitable supporting habitats were also undertaken.

- A general mammal survey was completed, with specific searches for evidence/ signs of mammals (e.g. tracks, scats, dwellings and/ or direct sightings). An assessment of the habitat in terms of its potential to support mammals was also undertaken.
- Checks for protected fauna including potential for bat roosts, Common frog (*Rana temporaria*) and Smooth Newt (*Lissotriton vulgaris*) were also conducted.
- A check for Marsh Fritillary was undertaken; and assessment was carried out as to the suitability of the restoration area for Devil's-bit Scabious, the food plant of Marsh Fritillary.
- A bird survey was conducted following the Countryside Bird Surveys (CBS) line transect methodology. While all birds were recorded, the focus was to determine species of conservation concern including species listed on Annex 1 of the EU Birds Directive; and Red and Amber listed species of High and Moderate conservation concern respectively (Bird Watch Ireland Conservation evaluation criteria).

Particular focus was paid to determining the potential for Sand martin nests. No nest sites were recorded during the site walkover.

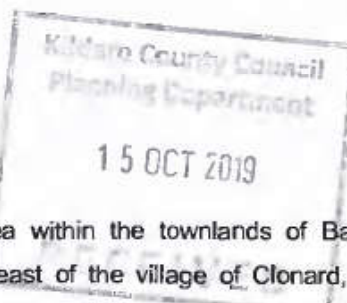
5.2.4 Baseline Evaluation of Ecological Receptors

Ecological resources/ receptors are evaluated following NRA Guidelines⁸, which are consistent with the approach recommended in the Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the UK and Ireland' (2016)⁹.

5.3 RECEIVING ENVIRONMENT

5.3.1 Site Description

Ballyonan Pit is located in a primarily agricultural area within the townlands of Ballyonan, Broadford, County Kildare approximately 2.5 km southeast of the village of Clonard, County Meath. The location of the site in relation to its geographic surrounds is shown on Figure 1.1



⁸ NRA (2009). *Guidelines for Assessment of Ecological Impacts of National Road Schemes. Rev 2.*

⁹ CIEEM (2016) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal*, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

'Regional Site Location Map'. The overall landholding is approximately 23 ha with the area of extracted sand and gravel to the south also assessed (i.e. area within 261 planning boundary).

The entrance to the site is located on the western boundary. Infrastructure associated with the proposed development comprises a large tillage field at present. The field boundaries are comprised of a mixture of hedgerows, treelines and fencing.

The River Boyne is located 400m to the west of the site and flows to the northeast to its confluence with the River Deel and River Blackwater. The Boyne and Blackwater (SAC and SPA) is located 3.1 km to the north of the pit. The site is also approximately 3 km east of Ballina Bog (pNHA). The location of the site in relation to Designated Sites within 15 km is shown on Figure 5.1 'Designated Sites' and outlined in Table 5.1 below. An Natura Impact Statement has been prepared in relation to this application and is included in Appendix 5.1.

The following Natura 2000 Sites were considered as relevant for consideration as they are very close and possibly linked by impacts associated with the proposed development, refer to Table 5.1:

Table 5.1: European sites in relation to the proposed development

Site Name and designation	Qualifying Interests (QI)	Distance (km) to European Site
River Boyne and Blackwater SAC (Site Code 002299)	Annex I habitats for which the SAC has been selected at favourable conservation status: Alkaline fens; Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae). To maintain the Annex II species for which the SAC at favourable conservation status: <i>Lampetra fluviatilis</i> , <i>Salmo salar</i> , <i>Lutra lutra</i> .	3.1km
River Boyne and Blackwater SPA (Site Code 004232).	<i>Alcedo atthis</i> [breeding Kingfisher]T	3.1km
Mount Hervey Bog (Site Code 002342)	Raised Bog	5 km

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Site Name and designation	Qualifying Interests (QI)	Distance (km) to European Site
Royal Canal pNHA	Canal	3.1km
Molerick Bog NHA	Raised Bog	3.6km
Ballina Bog pNHA	Raised Bog	3 km

- NHA = Natural Heritage Area (Nationally Designated Site),
- pNHA = proposed Natural Heritage Area (not currently designated but recognised in County Development Plans);
- SAC = Special Area of Conservation (European Designated Site).
- SPA = Special Protection Area (European Designated Site).

5.3.1 Habitats

Habitats were classified in accordance with Fossitt (2000). Eight habitat classes and habitat mosaics (habitat consists of a mix of habitat classes) were determined within the overall landholding including;

- Active Quarry (ED4)
- Building and Artificial Surfaces (BL3);
- Spoil and bare ground (ED2);
- Re-colonising bare ground (ED3);
- Improved agricultural grassland (GA1);
- Depositing lowland rivers (FW2);
- Treetlines (WL2); and
- Hedgerows (WL1).

Habitats classes and their extents are presented in Figure 5.2 and described below.

All habitats were mapped in Figure 5.2 and botanic species are listed in Table 5.2.



Table 5.2: Habitats

Habitat (Fossitt Code)	Species
Hedgerow (WL1)	Dominant: Ash, Ivy Abundant: Hawthorn, Bramble Frequent: Willow, Sycamore, Hazel, Harts Tongue, Thistle, Soft Rush Occasional: Silverweed, Nettle, Ribwort Plantain Rare:
Recolonising bare ground (ED3)	D: Yorkshire Fog A: Bramble, Thistle, Meadow Buttercup F: Harts Tongue, Yarrow O: Fescue spp, White and red Clover, Nettle, Dock, Soft Rush, Willowherb spp R: Willow, Green Alkanet, Poppy
Active Quarry (ED4)	N/A
Agricultural field (BC1)	D: Cut Cereal Crop A: Creeping Buttercup, Perennial Rye Grass, Ribwort Plantain F: Green Alkanet, Meadow Buttercup O: Nettle, Dock, Bramble, Silverweed R:
Treeline (WL2)	D: Ivy A: Ash, Hazel, Beech F: Hawthorn, Blackthorn, Nettle, Bramble O: Willow, Sycamore, Oak, Dogwood R:

The dominant habitat feature within the application site is the tillage field. Other habitats in the surrounding area include treelines, re-colonising bare ground, grassy verges and ponds. These are dealt with in more detail below in accordance with their Level 3 Fossitt Classification.

ACTIVE QUARRIES AND MINES (HABITAT CODE ED4)



This is the dominant feature of the sand and gravel pit and it could be considered to occur in conjunction with the exposed sand, gravel and or till habitat (ED1). Although generally created by human disturbance, these habitats can often be refuge for some rare and specialised plants. No protected plant species were recorded from the site.

Other species recorded from areas of disturbed ground included mouse-ear hawkweed *Pilosella officinarum*, and yarrow *Achillea millefolium*.

Evaluation: This habitat is highly disturbed and devoid of vegetation in many areas and biodiversity is generally low.

HEDGEROWS / TREELINES (WL1 / WL2)

The original hedgerow and treeline boundaries of the site remain intact. These boundaries are drawn on the historical 6 inch and 12 inch OSI maps. The dominant species within these linear features include ash *Fraxinus excelsior*, beech and hazel, whilst hawthorn, blackthorn and bramble *Rubus fruticosus* are also common.

Evaluation: These overgrown treelines and hedgerows contain semi-natural habitat types with moderate to high biodiversity in a local context and a high degree of naturalness and are evaluated as being of Local Importance (Higher value).

SCRUB (WS1)

Certain previously disturbed areas of the site have matured sufficiently to allow the encroachment of scrub. The dominant scrub species is grey willow *Salix cinerea*.

Evaluation: The scrub habitats on the site are of relatively low biodiversity value, however they provide some suitable nesting habitats for birds and a source of early pollen for bees in springtime.

RE-COLONISING BARE GROUND (ED3)

This category is used for any area of disturbed ground, in this instance the exposed gravel of the quarry, where herbaceous vegetation has developed to cover at least 50% of the area. The periphery of the active quarry and disturbed ground areas can be classed within this habitat type. Grasses were recorded here but they were not the dominant feature of the habitat; species recorded included the perennial cocksfoot grass *Dactylis glomerata* and Yorkshire fog *Holcus lanatus*. Common herbaceous species included red clover *Trifolium pratense*, Fescue spp.



groundsel *Senecio vulgaris*, pineapple weed *Matricaria discoidea*, cleavers *Galium aparine* and common ramping fumitory *Fumaria muralis*.

Evaluation: This is a locally common habitat with widespread and common species. However, it does provide a vital source of nectar for bees, hoverflies and butterflies.

ARTIFICIAL LAKES AND PONDS (FL8)

Certain low-lying areas of the quarry have flooded to create ponds, some of which are temporary in nature and are prone to drying out in dry weather, whilst others are quite well established and are more long term. All ponds within the active quarry were dry in August 2018.

Evaluation: Overall, the ponds within the application are adding to the biodiversity of the area with potential future habitats for aquatic and marsh plants and the various invertebrate species associated with these habitats.

Agricultural field (BC1)

This habitat type represents grasslands and tillage that is intensively managed. It represents the majority of grassland habitats remaining within the application site. Within the pasture grasses are the dominant feature and species such as Italian Ryegrass are dominant. Herbaceous species recorded included nettles *Urtica dioica*, hogweed *Heracleum sphondylium*, meadow buttercup *Ranunculus acris*, germander speedwell *Veronica chamaedry* and ribwort plantain *Plantago lanceolata*.

Evaluation: This habitat is well represented in the locality and it is of low biodiversity value. It provides a moderate source of nectar for pollinating insects.

5.3.1.1 RARE AND PROTECTED PLANT SPECIES

An examination of the website of the National Biodiversity Data Centre revealed that there are no records for the presence of any protected plant species from within the relevant 1km grid squares (N6947 and N6948) of the proposed development. However, the bee orchid is locally rare and BSBI records for this species indicate that this particular record is the first official recording of this species from this 10km² (N64).

5.3.1.2 MAMMALS

Records for the badger *Meles meles* exist from the relevant 2km² (N64R). This species is protected under the Irish Wildlife Acts. Badger tracks and a disused sett was identified near the existing site entrance. The Irish hare *Lepus timidus hibernicus* has also previously been recorded



from the locality. Both these species are protected under the Irish Wildlife Acts. In addition, given the habitats and designations close to the site it is also likely that the Common Frog (*Rana temporaria*) occurs locally. This species is listed in Annex II of the EU Habitats Directive.

5.3.1.3 INVERTEBRATES, AMPHIBIANS, REPTILES

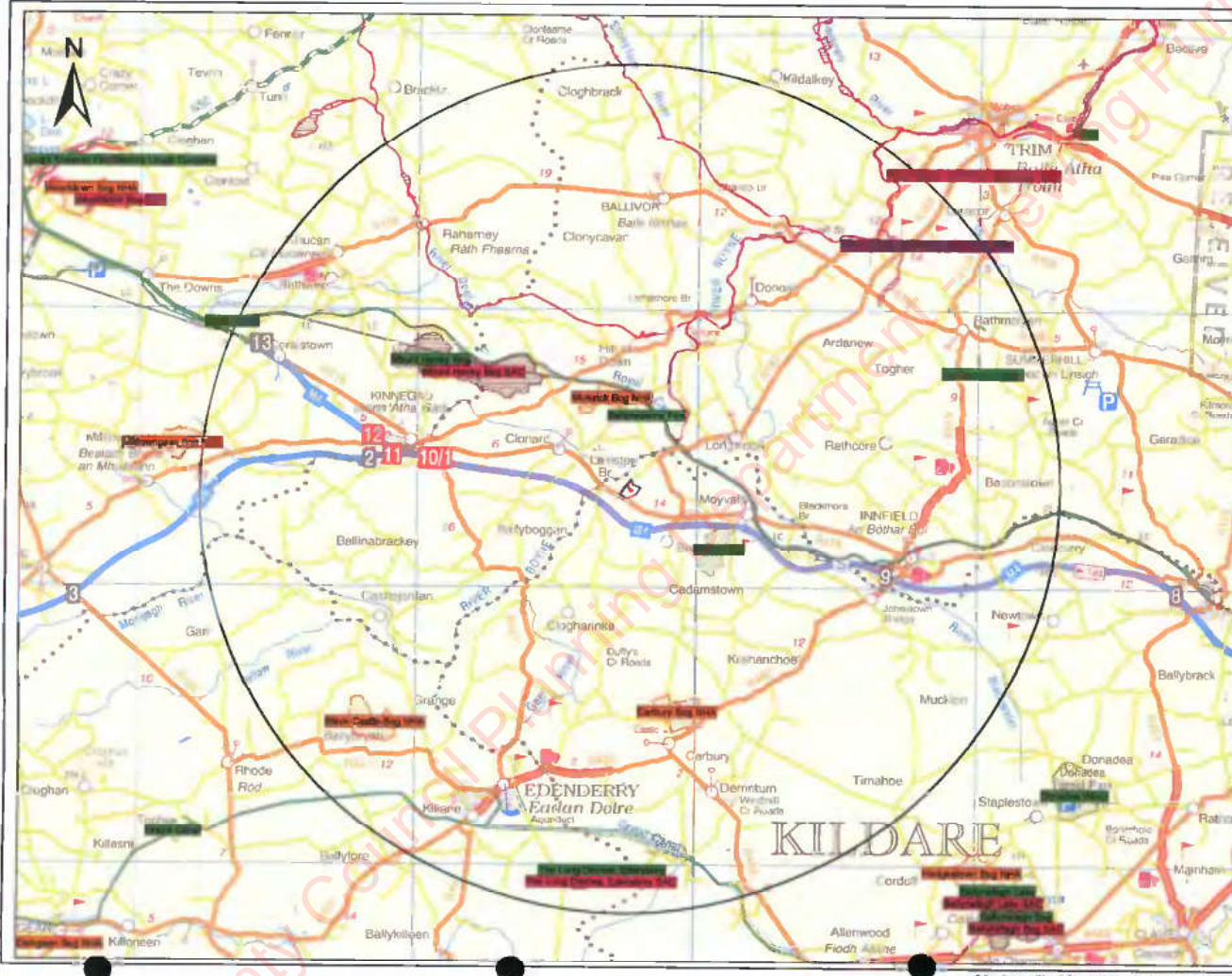
A number of invertebrates were observed on site including butterflies (common blue and Small Tortoiseshell). Neither frogs nor newts were observed in adult or tadpole stage, however it is likely that some of these ponds may provide a suitable breeding habitat for these species. In addition, the quarry would provide also suitable basking habitats for the viviparous lizard. Frogs, newts and lizards are all protected species under the Irish Wildlife Acts.

5.3.1.4 FISHERIES

Information on the fisheries of the River Boyne and Blackwater was obtained from the Inland Fisheries Ireland Water Framework Directive (WFD) mapping application. This interactive facility highlights the location of the WFD monitoring sites for fish in Ireland. The closest WFD monitoring point to the application site is on the River Boyne near Edenderry. Species present in the Boyne at this site (2008 – 2014) include brown trout, European eel, lamprey spp, minnow and stone loach.



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Legend

- Application Boundary
- Clearing Boundary
- Natural Heritage Area (NHA)
- Proposed Natural Heritage Area (NHA)
- Special Area of Conservation (SAC)
- Special Protection Area (SPA)
- ES&A (EU) Peak Observation Boundary

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NOTES

1. This map is a summary of the information contained in the planning application and is not intended to be used as a substitute for the original application documents.

2. The information on this map is current as of the date of publication.

3. The information on this map is subject to change without notice.

Scale	1:125,000
1 cm	1250 m
1 inch	3185 m

Client
KEEGAN QUARRIES
SPECIALIST QUARRIES & PLANT PRODUCTS

Project
BALLYONAN BATCHING PLANT - PLANNING APPLICATION

Title
Designated Conservation Areas

Scale @ A1 1:125,000

Prepared by F Healy **Checked** J Dillon **Date** July 2019

Project Director @ Tinsley

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Figure **Draft** DD1



Legend

- Application Boundary
- Ownership Boundary
- W1 - Hedgerow
- W2 - Trassines
- FW1 - Drainage ditches
- FW2 - Trassines
- Arable Crops (BC1)
- ED3 - Resurfacing bare ground
- ED4 - Paved areas and mines

Notes

1. All dimensions are in metres unless otherwise stated.
 2. All dimensions are rounded up to the nearest millimetre.
 3. All dimensions are rounded up to the nearest millimetre.
 4. All dimensions are rounded up to the nearest millimetre.

Rev	Date	By	Check	Appr
01	15 OCT 2019			

Client:
KEEGAN QUARRIES

Project:
BALLYONAN BATCHING PLANT - PLANNING APPLICATION

Title:
Habitat Map

Scale @ A1: 1:4,457

Prepared by: J. Kelly
Checked by: J. Kelly
Date: January 2019

Project Director: T. Treacy

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Figure 5-2 D01

5.3.2 Invasive and Non-native Flora

No invasive species were recorded on the landholding during the field visit.

Sycamore (*Acer pseudoplatanus*) was recorded within hedgerows and treelines to the south and east of the site. This species is listed on Invasive Species Ireland's "Amber" risk list¹⁰ which does not pose a high risk to native species or habitats. No other invasive species were noted on site during the site visit.

A search of the National Biodiversity Data Centre database revealed nineteen invasive species that have been recorded within the 10 km square (R64) in which the proposed development is located, of these only two high impact species, on Third Schedule of the 2011 Habitat Regulations, were listed. These species are outlined in Table 5.3 below.

Table 5.3: Invasive Species recorded within the 10 km Grid Square R66

Scientific name	Common name	Title of dataset	Designation	Listed on Third Schedule of the 2011 Habitat Regulations
<i>Elodea canadensis</i>	Canadian Waterweed	National Invasive Species Database	Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)	Yes
<i>Heracleum mantegazzianum</i>	Giant Hogweed	National Invasive Species Database	Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)	Yes
<i>Fallopia japonica</i>	Japanese Knotweed	Species data extracted	Invasive Species: Invasive Species >> High Impact Invasive	Yes

¹⁰ <http://invasivespeciesireland.com/toolkit/risk-assessment/amber-list-recorded-species/> (Accessed September 2016).

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Scientific name	Common name	Title of dataset	Designation	Listed on Third Schedule of the 2011 Habitat Regulations
		from the National Vegetation Database	Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)	
Rhododendron ponticum		Species data extracted from the National Vegetation Database	Invasive Species: Invasive Species >> High Impact Invasive Species Invasive Species: Invasive Species >> Regulation S.I. 477 (Ireland)	Yes

No evidence of any high impact species was noted on site. For the purpose of managing invasive species during construction works, only species listed as invasive species on the Third Schedule of the 2011 Habitat Regulations¹¹ are of concern. It is an offence to plant, disperse, allow or cause to disperse, grow any plant listed in Part 1 of the Third Schedule of the Regulations.

5.3.3 Protected Fauna

A search of the National Biodiversity Data Centre database and NPWS database identified records of protected fauna within the 1 km (R6947 and 6948) and 10 km (R64) squares within which the proposed development is located¹². The potential exists for these species to occur where suitable habitat exists within the proposed development site. It is noted that all species of birds are protected under the Wildlife Act 1979 (Amendment 2000), therefore individual species are not listed.



¹¹ <http://www.irishstatutebook.ie/eli/2011/si/477/made/en/print> (Accessed February 2016)

Table 5.4: Protected Fauna

Latin Name	Common Name	Protected Status	Source NBDC ¹² , 3
Amphibian			
<i>Rana temporaria</i>	Common Frog	Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts	National Frog Survey of Ireland 2010/2011
Crustacean			
<i>Austropotamobius pallipes</i>	Freshwater White-clawed Crayfish	Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts	Irish National Crayfish Database
Terrestrial Mammals			
<i>Erinaceus europaeus</i>	West European Hedgehog	Protected Species: Wildlife Acts	Atlas of Mammals in Ireland 2010-2015, NPWS website
<i>Lutra lutra</i>	European Otter	Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts	MISE Project Otter Records, 2011-2015
<i>Martes martes</i>	Pine Marten	Protected Species: EU Habitats Directive >> Annex V Protected Species: Wildlife Acts	Mammals of Ireland 2016-2025
<i>Meles meles</i>	Eurasian Badger	Protected Species: Wildlife Acts	Atlas of Mammals in Ireland 2010-2015
<i>Myotis daubentonii</i>	Daubenton's Bat	Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts	National Bat Database of Ireland

¹² National Biodiversity Data Centre Mapping Website: <http://maps.biodiversityireland.ie/#/Map> (accessed March 2017).

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Latin Name	Common Name	Protected Status	Source NBDC ¹² , 3
<i>Nyctalus leisleri</i>	Lesser Noctule	Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts	National Bat Database of Ireland
<i>Pipistrellus pipistrellus sensu lato</i>	Common Pipistrelle	Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts	National Bat Database of Ireland
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts	National Bat Database of Ireland
<i>Plecotus auritus</i>	Brown Long-eared Bat	Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts	National Bat Database of Ireland
<i>Rhinolophus hipposideros</i>	Lesser Horseshoe Bat	Protected Species: EU Habitats Directive >> Annex II Protected Species: EU Habitats Directive >> Annex IV Protected Species: Wildlife Acts	National Lesser Horseshoe Bat Database
<i>Sciurus vulgaris</i>	Eurasian Red Squirrel	Protected Species: Wildlife Acts	Mammals of Ireland 2016-2025
<i>Sorex minutus</i>	Eurasian Pygmy Shrew	Protected Species: Wildlife Acts	Atlas of Mammals in Ireland 2010-2015

One potential badger (*Meles meles*) sett was noted to the west of the sand and gravel pit. Fox (*Vulpes vulpes*) and Hare (*Lepus timidus hibernicus*) was also evident on site. No other evidence of mammals was recorded during the survey in August 2018. Given the environment and habitats present, other mammals that likely use the pit, at least for foraging purposes, include;

- Rodents;
- Bat species;
- Hedgehogs (*Erinaceus europaeus*);
- Stoats (*Mustela erminea*);



Treelines and hedgerows within and surrounding the site are likely to be used as foraging corridors by commuting and foraging bats. One mature tree recorded to the south of the site is noted as having potential to be used as a bat roost.

Bird species recorded onsite included:

- Blackbird (*Turdus merula*),
- Blue Tit (*Parus caeruleus*)
- Common Raven (*Corvus corax*).
- Linnet (*Carduelis cannabina*)
- Pheasant (*Phasianus colchicus*)
- Pied Wagtail (*Motacilla alba*),
- Robin (*Erithacus rubecula*),
- Song thrush (*Turdus philomelos*)
- Swallow (*Hirundo rustica*)
- Starling (*Sturnus vulgaris*)
- Wren (*Troglodytes troglodytes*), and
- Woodpigeon (*Columba palumbus*).



Of these, none are of conservation concern (red listed species on Birds of conservation concern in Ireland 2014-2019¹³). A common Buzzard was audible in the surrounding area.

The site visit in 2018 was carried out late in the breeding bird season (18th August). No sand martins were noted to the south of the proposed development and no potential occurs within the red line boundary. No sand martin nest holes were recorded on the site. In the event that sand martin are confirmed nesting on site at a later date, mitigation is included herein for the protection of this species in relation to the proposed works.

Overall, based on the extent of the site and the presence of habitats to support avifauna, the bird populations present are evaluated as being of local importance (lower value).

5.3.4 Off Site relevant Ecological Receptors

A list of the relevant Designated Sites is include in Table 5.1 above. An Natura Impact Statement was produced in relation to the proposed development (Appendix 5.1). It is concluded that there

¹³ <http://www.birdwatchireland.ie/LinkClick.aspx?fileticket=VcYOTGOjNbA%3d&tabid=178>

are no likely potential effects, whether direct, indirect or cumulative/in-combination, which could give rise to adverse effects on the qualifying interests or the conservation objectives of any designated Natura 2000 site. It can be concluded that it is unlikely that the proposed development will result in significant effects to any European Site, in view of their conservation objectives of the habitats or species for which it was designated, either alone or in combination with other plans or projects. Consequently, this proposed development does not require an NIS or need to advance further in the Appropriate Assessment process.

5.3.5 Ecological Evaluation

Key Ecological Receptors within QR45

QR45 is dominated by tillage and bare ground, with occasional willow scrub (< 1 m in height) also present. The pit sides are steep and largely devoid of vegetation. An area of water ponding occurs within the sand and gravel pit with temporary settlement ponds also present on site. It is proposed that restoration of area A during the summer dry season would alleviate the issue of steep slopes that are currently not colonising and displace any water that infiltrates this area following restoration, encouraging it to flow towards the lagoon which would be better suited for the long-term development of reed and large sedge swamps and a better habitat for spawning frogs.

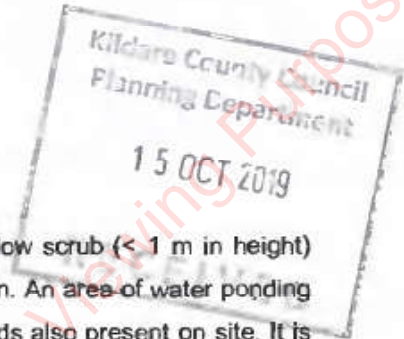
Key Ecological Receptors within the Overall Landholding

The key ecological receptors noted within the overall landholding of Ballyonan Pit, outside of the restoration area are;

- Treelines and hedgerows;

Lowland rivers are a key ecological receptor in the surrounding area. Lowland rivers provide habitats for freshwater macrophytes, fish and macroinvertebrates. The Boyne and Blackwater SAC is an Internationally Important habitat. These areas will be undisturbed by the proposed development. There are no surface water connections between the site and the River Boyne and Blackwater. Water will be reused and recycled within the proposed development.

Hedgerows and treelines are robust semi-natural habitats. They are significant habitats for wildlife on the site forming ecological corridors connecting the site and surrounding area. The hedgerows and treelines present at Ballyonan Pit are considered a key ecological receptor of Local Importance (Moderate to Higher Value). The southern hedgerow will be undisturbed by the



proposed development. A small section of the eastern hedgerow will be removed to address road safety and accommodate the new access point.

Part of the proposed restoration area in QR 45 is proposed to develop as grassland with aquatic and fringing wetland habitat, as a result of reinstatement activities.

Designated Conservation Areas

The landholding including the proposed development does not lie within or is adjacent to any site designated for nature conservation. A key source-pathway-receptor is surface water quality downstream of the pit to the Boyne and Blackwater SAC. However as stated above there are no surface water pathways to the River Boyne.

No direct or indirect impacts are likely to any site designated for conservation purposes.

No other plant or habitat key ecological receptors were determined within the site boundary.

In general, the habitats and common wildlife present at Ballyonan Pit are typical of a sand and gravel pit and intensive agriculture. The most significant habitats (Key ecological receptors) will be undisturbed by the proposed development and will be retained. Key ecological receptors are considered below under "impacts from proposed works".

Key Ecological Receptors (on site)

No impacts will occur to key ecological receptors as a result of the proposed development.

Key Ecological Receptors (off site) - Surface Water Quality

The only site relevant is the Boyne and Blackwater SAC refer to designated sites above. There is no potential for significant groundwater impacts as a result of this development. Wastewater from the offices will be collected in a sealed holding tank.

Based on the desk and field study findings it is determined that:

- No significant aquatic habitats occur on site and in the immediate local area; and
- No significant water quality issues arose associated with the activities in the Planning application area of Ballyonan Pit.



5.4 POTENTIAL EFFECTS

The key ecological receptors on the site (described habitats) are recognised by the operator (KQL) and will be maintained. Water quality protection measures as detailed in Chapter 7 ensure protection of downstream aquatic receptors.

The existing management of Ballyonan Pit ensures retention of key ecological receptors within the landholding and allows protection of downstream water quality as evidenced from surveys implemented. The landscape plan submitted as part of this planning application (Drawing No.10592-2005) recognises developing habitats and key ecological receptors detailed and will retain/ improve local biodiversity within the landholding.

It is obvious from the survey that the past extraction activities are compatible with retaining and or creating suitable conditions for a number of significant habitats.

No significant adverse ecological impacts are evident from works to date within the sand and gravel pit and it is not anticipated that there will be any adverse impacts from the proposed development.

5.4.1 Impact Assessment Criteria

The assessment of potential effects on flora and fauna is based on standard good practice including EPA¹⁴, CIEEM⁹ and NRA series of guidelines¹⁵, as outlined below.

Table 5.5: Criteria used in Ecological Impact Assessment (EPA, 2002, IEEM 2006)

<p>Positive or Negative:</p> <p>Is the impact likely to be positive or negative? International and national policy now pushes for projects to deliver positive outcomes for biodiversity.</p>
<p>Context (Magnitude and extent): A scheme may effect only a small part of a site but the area of habitat affected in that location (in hectares) should be given in the context of the total area of such habitat available (e.g. 1 ha of a woodland which measures 30ha in total.)</p>
<p>Character: The type of habitat (e.g. natural or highly modified woodland; mature or recently established, wet or dry) is important, as is the quality of the site (e.g. undamaged active</p>

¹⁴ EPA (2002). *Guidelines on the information to be contained in Environmental Impact Statements*. Johnstown Castle Estate, Wexford.

¹⁵ NRA website: <http://www.tii.ie/technical-services/environment/planning/>



blanket bog).
<i>Significance:</i> State whether a site has a designation, such as a SAC or NHA, or contains a listed (Annex I) habitat. The ecological value of a site can be assigned a rating using an evaluation scheme (e.g. undesignated areas of semi-natural broadleaved woodland are normally rated as high value, locally important).
<i>Sensitivity:</i> Indicate changes that would significantly alter the character of an aspect of the environment (e.g. changes in hydrology of a wetland due to construction of access road).
<i>Duration:</i> Indicate the time for which the impact is expected to last prior to recovery or reinstatement of impacted habitats and/or species. The duration of an activity may differ from the duration of the resulting impact caused by the activity (e.g. short-term construction activities may cause disturbance to birds during the breeding season, however, there may be longer-term impacts due to a failure to reproduce in the disturbed area during that season).
<i>Reversibility:</i> Identify whether an ecological impact is permanent (non-reversible) or temporary (reversible – with or without mitigation).
<i>Timing and Frequency:</i> Some changes may only cause an impact if they happened to coincide with critical life-stages or seasons (for example, the bird nesting season). This may be avoided by careful scheduling of the relevant activities.

5.4.2 Potential effects during Construction and Operational Phase

The proposed development is not located within any designated conservation site (SAC or SPA) and there are no potential direct impacts identified. The existing berms and hedges will be maintained and managed for wildlife.

Given the distance of the site to other plans and projects, there will be no cumulative impact associated with the proposed development of this site or the ongoing sand and gravel operation.

The potential for indirect or cumulative impacts are assessed as being unlikely and not significant, taking account of the absence for pathways for significant adverse effects, as set out in greater detail in the NIS (TOBIN, 2018).

Construction stage impacts will involve the transport of material through the site, from the new entrance in the east of the quarry. The potential for significant impacts as a result of the temporary disturbance is evaluated as being low and imperceptible in the local context.

The potential for significant impacts as a result of the temporary loss of current habitats in that area is evaluated as being low, temporary and negative in the local context.

No treelines or hedgerows, evaluated as being of local importance (higher value) will be lost as a result of this proposed development, as access routes will use an upgraded road entrance to enhance sightlines there is a requirement to trim back the hedge at the existing entrance. A low value hedge will be removed along the road in the interest of road safety. The remainder of the hedgerow will be improved to provide screening to the east of the site.

There are no instream works proposed within watercourses. However, the proposed construction works give rise to the potential for increased mobilisation of silt and suspended solids via surface water run-off. No surface water runoff to the River Boyne will occur. Surface water protective measures (including those stipulated in Section 6 - Hydrogeology) will be designed for the site prior to the commencement of works. The potential for significant impacts affecting water quality and aquatic ecological receptors are therefore evaluated as being low and imperceptible in the local context.

There are no red listed birds of conservation concern, no rare or protected birds were recorded from within the proposed development site. The majority of species recorded were common in the Irish countryside. No Sand Martin nests were recorded on the sand and gravel pit area. No direct disturbance will occur as a result of the restoration. Regardless, mitigation is proposed to avoid the disturbance of breeding bird habitat during the nesting season. It is evaluated that the potential effects affecting birds are imperceptible and limited to the local context.

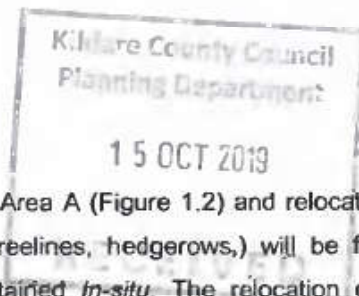
One potential tree was identified as having potential for a summer bat roosts to the south of the sand and gravel pit. Bat species use treelines as commuting corridors. No treelines will be lost due to the proposed development. The potential for impacts affecting bats are evaluated as being imperceptible in the local context.

5.5 MITIGATION MEASURES

5.5.1 Habitats and Flora

Following the recolonisation and habitat enhancement in Area A (Figure 1.2) and relocation of the entrance, key ecological receptor habitats (trees, treelines, hedgerows,) will be further enhanced by the proposed development and be maintained *in-situ*. The relocation of the entrance will remove traffic from the area around the possible badger sett.

A heavily maintained hedgerow will be widened and allowed to grow to its optimum height to provide further screening to the east of the site. No invasive species were found within the footprint of the activity area of the proposed development or along the access tracks. Any



invasive species identified within the overall landholding will be fenced off and will remain undisturbed, as per best practice. If any invasive species are identified on site, KQL will consult with the relevant authorities before undertaking any action.

Preventing an invasive plant species from arriving on site or preventing the spread of an invasive plant species are the most effective management measures that can be taken. Prevention measures range from raising staff awareness, to ensuring that good site hygiene practices are employed for the movement of materials into the site. Prevention measures include:

- Specifying that all imported soil and topsoil must be free of the seeds and rhizomes of key invasive plant species;
- Regular walkovers by staff;
- Cordoning off the invasive species;
- Limiting movement of people and / or machinery if identified on site;
- Designating staff and machinery to the task for the duration of the works; and
- Ensuring anyone undertaking control measures is suitably qualified.

5.5.2 Protected Fauna

Bats

The day time bat survey on site recorded one potential summer bat tree roosts to the south of QR45. No trees and/ or branches will be pruned/ lopped or removed in the adjoining area as part of the proposed works.

Birds

Breeding bird habitats (e.g. hedgerows, treelines) will not be removed, cleared or trimmed between the 1st March and 31st August, to avoid impacts on nesting birds which are protected under the Irish Wildlife Acts.

An ecologist must visit the site to confirm the absence of sand martin. Works will have to be delayed until after the 31st of August if sand martin are present. This period also largely coincides with the presence of Common Frog in water bodies.

If any protected species or their resting places (e.g. bat roosts or badger setts) are discovered within the site boundary during works, works within the area must be suspended and a qualified ecologist contacted immediately to liaise with the NPWS and potential requirements for

derogation licences to avoid contravention of legislation which protects such species and their dwellings. The potential for badger or bat activity on the proposed development is low.

Due to the potential for a lengthy time span to elapse between planning (if consented) and commencement of works, a pre-construction survey is recommended prior to the commencement of construction works. This is of importance with reference to badger and bat species which may have developed dwellings or roosts within the proposed development site during the intervening period. All site visits will also provide baseline information for the monitoring of the site following the implementation of the restoration plan.

5.6 CONCLUSION

Ecological desk and field studies were undertaken at the Ballyonan Pit and at the proposed development site. Avoidance of Key Ecological Receptors is proposed as mitigation at design stage. Further mitigation measures are recommended and, once implemented, potential effects are of low magnitude in the temporary to short-term and therefore insignificant.



6 LAND, SOILS AND GEOLOGY

6.1 INTRODUCTION

This chapter aims to assess the potential impact of the proposed works within the area of Ballyonan Pit and the Planning Application Area and as described in Chapter 2. This Chapter includes an assessment of any potential impact on the geological environment (soils, subsoils, bedrock) at and surrounding Ballyonan Pit.

6.2 METHODOLOGY

This chapter has been prepared having regard to the following guidelines and policy:

- Geology in Environmental Impact Statements – a Guide (Institute of Geologists of Ireland (IGI) 2002);
- Department of Housing, Planning and Local Government Wind Energy Development Guidelines (2006)
- Groundwater Directives (80/68/EEC) and (2006/118/EC);
- Environmental Impact Assessment of National Road Schemes – A Practical Guide (NRA 2008a);
- Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA 2008b);
- Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI, 2013);

6.2.1 Consultation

As part of the study, TOBIN consulted with the following parties:

- KQL for details of existing ground investigation data; and
- Geological Survey of Ireland for details on background mapping and geological heritage.

6.2.2 Desk study

A desk study was undertaken in order to collate and review background information in advance of the site survey. The desk study involved the following:

- Examination of the Geological Survey of Ireland (GSI) datasets pertaining to geological and extractive industry data and the GSI borehole database;
- Examination of Environmental Protection Agency (EPA) data including soil and subsoils;

- Examination of National Parks and Wildlife Service (NPWS) nature conservation designations; and
- Preparation of site maps and suitable field sheets for the site survey

The desk study information obtained is referenced below. Following the desktop study and the site survey, geological maps were generated in GIS and are included in Appendix 8.1. Ground investigation information is included in Appendix 8.2.

As part of the study, TOBIN reviewed the following public information sources:

- Published geological, soil, groundwater, surface water, aquifer, recharge data obtained from the Geological Survey of Ireland (GSI);
- National Parks and Wildlife Service data of designated conservation areas;
- Waste and IPPC licensed facility data from EPA Geoportal;
- Irish Geological heritage site map from the GSI (www.gsi.ie);
- EPA online Envision Map Viewer (www.epa.ie);
- Aerial Photography from ESRI (ArcGIS).

The Environmental Protection Agency (EPA) recently published its 'Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (EPA, August 2017), which are intended to guide practitioners preparing an EIAR during the transition to new Regulations transposing the revised EIA Directive.

In preparing this EIAR regard has also been taken of the provisions of 'Advice Notes on Current Practice in the Preparation of EIS' (EPA, 2003) and the 'Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment', published by the Department of the Environment, Community and Local Government (DECLG) in March 2013 to the extent these guidelines are relevant having regard to the enactment of the revised EIA Directive.

Criteria for evaluating impact level are shown in Table 6.1. Terminology for impact significance and duration follows that set in the EPA's Guidelines (2002 and 2017).



Table 6.1: Significance of effects

Magnitude	Examples
Very High	<p>Geological feature rare on a regional or national scale (NHA)</p> <p>Large existing quarry or pit</p> <p>Proven economically extractable mineral resource</p> <p>Groundwater which supports river, wetland or surface water body ecosystem protected by EU legislation e.g. SAC or SPA status</p>
High	<p>Contaminated soil on-site with previous heavy industrial usage</p> <p>Large recent landfill site for mixed wastes</p> <p>Geological feature of high value on a local scale (County Geological Site)</p> <p>Moderately sized existing quarry or pit</p> <p>Regionally Important Aquifer with multiple wellfields</p> <p>Groundwater which supports river, wetland or surface water body ecosystem protected by national legislation – NHA status</p> <p>Regionally important potable water source supplying >2,500 homes</p> <p>Inner source protection area for regionally important water source</p>
Moderate	<p>Contaminated soil on-site with previous light industrial usage</p> <p>Small recent landfill site for mixed wastes</p> <p>Small existing quarry or pit Sub-economic extractable mineral resource</p> <p>Regionally Important Aquifer Groundwater which provides large proportion of baseflow to local rivers</p> <p>Locally important potable water source supplying >1000 homes</p> <p>Outer source protection area for regionally important water source</p> <p>Inner source protection area for locally important water source</p> <p>Locally Important Aquifer Potable water source supplying >50 homes</p> <p>Outer source protection area for locally important water source</p>
Low	<p>Large historical and/or recent site for construction and demolition wastes</p> <p>Small historical and/or recent landfill site for construction and demolition wastes</p>

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The magnitude of any effects considers the likely scale of the predicted change to the baseline conditions resulting from the predicted effect and considers the duration of the effect i.e. temporary or permanent. Definitions of the magnitude of any effects are provided in Table 6.2.

Table 6.2: Magnitude of effects

Magnitude	Criteria	Examples
Very High/High adverse	An impact, which obliterates sensitive characteristics of the soil or geology environment	Loss of high proportion of future quarry or pit reserves Removal of entirety of geological heritage feature Requirement to excavate / remediate entire waste site Removal of large proportion of aquifer Changes to aquifer or unsaturated zone resulting in extensive change to existing water supply springs and wells, river baseflow or ecosystems Potential high risk of pollution to groundwater from routine run-off ¹ Calculated risk of serious pollution incident >2% annually ²
Moderate adverse	Fundamental change to ground conditions, groundwater quality or flow regime	Loss of moderate proportion of future quarry or pit reserves Removal of part of geological heritage feature Requirement to excavate / remediate significant proportion of waste site Removal of moderate proportion of aquifer Changes to aquifer or unsaturated zone resulting in moderate change to existing water supply springs and wells, river baseflow or ecosystems Potential medium risk of pollution to groundwater from routine run-off ¹ Calculated risk of serious pollution incident >1% annually ²



Magnitude	Criteria	Examples
Low adverse	Measurable change to ground conditions, groundwater quality or flow regime	Loss of small proportion of future quarry or pit reserves Removal of small part of geological heritage feature Removal of small proportion of aquifer Changes to aquifer or unsaturated zone resulting in slight change to water supply springs and wells, river baseflow or ecosystems Potential low risk of pollution to groundwater from routine run-off ¹ Calculated risk of serious pollution incident >0.5% annually ²
Negligible	No measurable effects on ground conditions, groundwater quality or flow	No measurable changes in attributes
Low Beneficial	Minor change to ground conditions, groundwater quality or flow regime	Slight enhancement of geological heritage feature.
Moderate Beneficial	Measurable change to ground conditions, groundwater quality or flow regime	Moderate enhancement of geological heritage feature
High Beneficial	Fundamental change to ground conditions, groundwater quality or flow regime	Major enhancement of geological heritage feature

Source: Based on NRAs Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes

Impact ratings may have negative, neutral or positive application where:

- Positive impact – A change which improves the quality of the environment;
- Neutral impact – A change which does not affect the quality of the environment; and
- Negative impact – A change which reduces the quality of the environment.

Terms relating to the duration of effects are as described in the EPA's *Guidelines on the Information to be contained in Environmental Impact Statements* (March 2002) as:

- Temporary Impact - lasting one year or less;
- Short term Impact - lasting one to seven years;
- Medium term Impact - lasting seven to fifteen years;
- Long term Impact - lasting fifteen to sixty years; and
- Permanent Impact - lasting over sixty years.

A qualitative approach was used in the evaluation generally, following the significance classification in Table 6.3 and through professional judgement. The significance of a predicted impact is based on a combination of the sensitivity or importance of the attribute and the predicted magnitude of any effect. Effects are identified as beneficial, adverse or negligible, temporary or permanent and their significance as major, moderate, slight or not significant (negligible).

Table 6.3: Effects Matrix

Sensitivity	Magnitude			
	Very High	High	Medium	Low
Very High	Profound	Profound	Moderate	Low
High	Profound	Moderate	Moderate/Low	Moderate/Slight
Medium	Moderate	Moderate/Low	Moderate/Slight	Slight
Low	Moderate/Low	Slight	Slight	Negligible
Negligible	Slight	Slight	Negligible	Negligible

In order for a potential impact to be realised, three factors must be present. There must be a source or a potential effect, a receptor which can be adversely affected and, a pathway or connection which allows the source to impact the receptor. Only when all three factors are present can an effect be realised.

6.3 RECEIVING ENVIRONMENT

6.3.1 Topography

The topography of the site varies from approximately 66 mOD to approximately 68 mOD at the highest point.



6.3.2 Soils

The soil classification for the area is shown in Figure 6.1. Reference to the GSI Soils Map for this area indicates that the dominant soil type within Ballyonan Pit is described as shallow well drained mineral soil derived from mainly basic parent materials (BminSW and BMinDW) and includes the soil groups Lithosols and Regosols. Along the River Boyne soils that are described as Alluvial soils (A).

6.3.3 Subsoil Geology

The Quaternary Period is the most recent period of geological time, generally taken to cover the last 1.65 million years. It is subdivided into two epochs which are the Pleistocene (1.65 million to 10,000 years ago) and the Holocene (10,000 years ago to the present). The Holocene, in Ireland, is the postglacial period. Most of the subsoil sediments in Ireland were deposited during the last 130,000 years.

Ireland was covered by ice for long periods in the last 130,000 years, just as many high latitude regions are nowadays. The last glaciation occurred between 63,000 years ago and 10,000 years ago, and had a huge influence on both the landscape and the underlying geology of the country. In the last 10,000 years, the action of modern rivers (including the River Boyne) and the infilling of lakes, along with the formation of peat bogs, have been the main natural processes affecting both our landscape and geology.

The subsoil classification for the area is shown in Figure 6.2. Subsoil within the application area are described as Till chiefly derived from Limestones (TLs). To the south of the site and within the sand and gravel pit, subsoil are described by the Geological Survey of Ireland (GSI) subsoil map (www.GSI.ie) as Glaciofluvial limestone sands and gravels – (GLs). Site observations confirm the present of sand and gravels to the south and till underlying the batching plant. There is an area of Alluvial soils (A) 0.4km to the west of the site along the course of the River Boyne. The alluvial deposits are bedded, consisting of many complex strata of waterlain material left both by the flooding of rivers over their floodplains and the meandering of rivers across their valleys.

Sand and gravel deposits are extracted from the Section 261 site and removed according to market demand. Sand and gravel are extracted for use in road construction, house construction and other infrastructural projects in the local area.

Site observations of sand and gravel deposits indicates an increase in clay/silt content to the north and east of the site.

6.3.4 *Bedrock Geology*

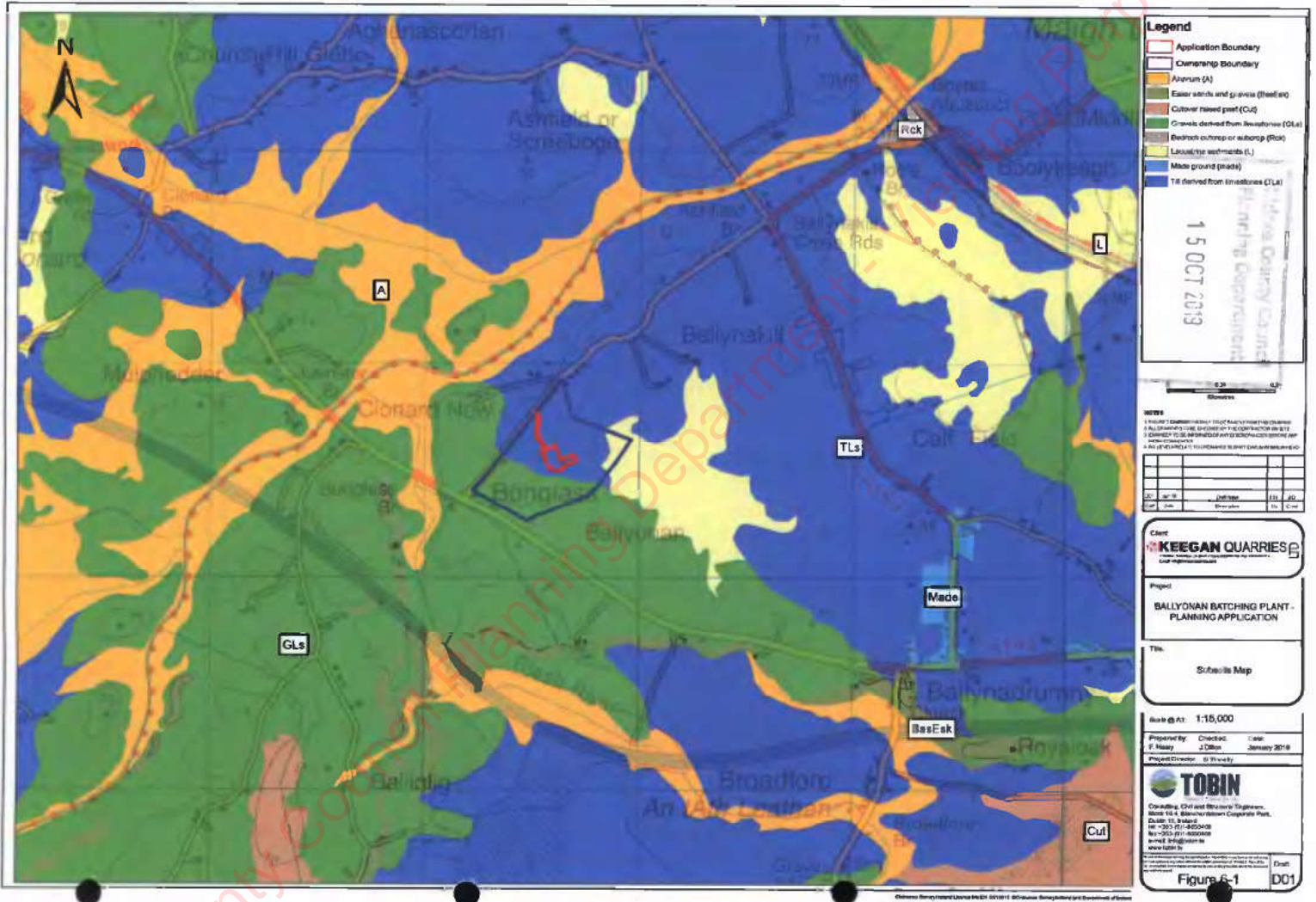
The Bedrock Geology for this area is included in Figure 6.3 below. Reference to the relevant geological information, the 1:100,000 scale Sheet No. 16 – Geology of Kildare (Geological Survey of Ireland (GSI), 1999) and the GSI bedrock data (www.GSI.ie), indicates that the Ballyonan Pit site is underlain by Carboniferous era, Dark limestone & shale ('Calp').

These are basinal sediments consisting of dark grey, fine grained, graded limestones (bioclastic calcarenites), interbedded with black calcareous mudstones and shales. The thickness of the limestone beds, grain size, colour and the proportion of shale vary widely. Towards the top of the Calp the basinal limestones are often interbedded with shallower water oolites or graded crinoidal calcarenites and calcirudites of turbiditic origin, which become more frequent towards the basin margins. Occasional thin sandy limestones can also be encountered. Lateral variations occur within the Calp Limestone between basin-edge successions and its finer-grained basin-centre equivalents.

Further to the south of the site, Waulsortian Formation Limestone (50-200m) comprises massive pale grey biomicrites formed as mounds of calcareous mud in deep to moderate water depths. In northwest Kildare near Oldcastle the limestone sequence is much thinner (Brand & Emo 1985) and the Waulsortian is absent.



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6.4 POTENTIAL EFFECTS

Potential effects of the proposed development and ongoing operation include movement and placement of soils. This can result in temporary and permanent impacts on the geological environment.

In order to minimise any potential impact on the environment, including the soil, geological and hydrogeological environment (natural resource), avoidance of impact was incorporated into the design of the development.

Potential effects may include:

- Material being carried on to the local roads to Ballyonan Pit; and
- Localised contamination of the ground as a result of fuel spillages from plant operating on site.

Wherever there are vehicles and plant in use, there is the potential for a direct hydrocarbon release which may contaminate the soil and subsoil. A spill has the potential to indirectly pollute water, if the soil and subsoil act as a pathway from any source of pollution. Any spill of fuel or oil would potentially present a low probability slight, long-term negative effect on the soil and geological environment. Good site practice can mitigate any effect in the short-term and long-term (refer to section 6.5)

The handling, storage and re-use of materials are of importance during the project. Topsoil should be stockpiled no higher than 2.5m and follow the recommendations set out in the NRA Guidelines for the Management of Waste from National Road Construction Projects (NRA, 2008a). There is potential for a slight negative effect on soil due to erosion of inappropriately stored excavated materials. However, any risk from the stockpiling of excavated materials can be managed through good site practice. The relatively flat topography of the site, combined with a robust sediment and erosion plan, greatly reduces the risk of erosion or sediment release to surface waters. The site topography prevents runoff to surface waters.

Due to the nature of the development, machinery will be present and operational on the facility. This may lead to occasional accidental emissions, in the form of oil, petrol or diesel leaks, which could cause contamination if the contaminants entered the soil environment. Similarly, there is the potential for leakage of process water from the proposed facility which could cause contamination of the soil and groundwater environment.

The potential impact associated with exposed soil surface principally relates to sediment laden run-off. The greatest risk of sediment run-off occurs during wet weather. Management and control of water falling on worked areas are an important aspect in minimising the impact of construction. The implementation of mitigation measures will ensure that no surface water discharges occur.

Therefore, there will be no additional cumulative impacts as a result of the development. A slight beneficial impact may occur in the recolonization and habitat enhancement of Area A and QR45 in the longer term.

Mitigation measures are proposed in Section 6.5 below to reduce the impact on the soil environment.

6.5 MITIGATION MEASURES

KQL endeavour to ensure that there is no impact on the local or regional environment as a result of activities at Ballyonan Pit. Several mitigation measures have been put in place at this location to ensure that any impact on the soils and geology within the landholding does not impact on the environment within and/or underlying the overall site and the surrounding area. Mitigation measures which have been implemented at Ballyonan Pit include:

- The site has and continues to be operated responsibly and in accordance with an established Environmental Management System. A number of best practice measures have been implemented to ensure that surface water and groundwater in the area does not become contaminated by pollutants; There will be no requirement for dewatering as a result of the proposed works and, therefore, there is no potential for groundwater levels in the area to be directly impacted by the proposed activities at this location;
- Works are carried out above the water table.
- An Emergency Response Kit is kept on site to prevent any leaks of petroleum based products from reaching the water table;
- There are no proposed or existing fuel tanks on site;
- Surface water runoff will be managed at the proposed development, reducing the potential for runoff with elevated suspended solids entering local surface water channels – there is no direct discharge from site; and
- A wheelwash will mitigate against the potential for vehicles exiting the site to



carry materials on to the local road network.

6.6 CONCLUSION

In summary, there will be no significant alterations to the local and regional environment as a result of works within the application area. The removal of 1 hectare of land from agricultural use will result in a minor impact on agricultural activity in the area.



7 WATER

7.1 INTRODUCTION

This chapter aims to assess the potential impact of the proposed works within the area of Ballyonan Pit identified as the Planning application area, as described in Chapter 2. This Chapter includes an assessment of any potential impact on the water environment within and surrounding Ballyonan Pit. The water chapter provides a description of the surface water environment and the sub-terrain groundwater environment.

As the surface water and groundwater (hydrogeological) environment within the pit is managed as a unit, it was deemed appropriate to assess the site as a unit with references to the specific Planning application area within the land ownership boundary.

7.2 STUDY METHODOLOGY

The assessment methodology adopted has been informed by the following guidance and tailored to the specific requirements of the Proposed Project using professional judgement:

- Environmental Protection Agency (EPA) Guidelines on the Information to be contained in Environmental Impact Statement (EPA, 2002) and draft revised guidelines (August 2017);
- EPA Advice Notes on current practice in the preparation of Environmental Impact Statement (EIS) (EPA 2003) and draft revised notes (September 2015);
- National Road Authority (NRA)16 Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA 2009); and
- Office of Public Works (OPW) Guidelines for Planning Authorities (GPA) 20: The Planning System and Flood Risk Management (OPW and Department of Environment, Heritage and Local Government (DEHLG)17 2009)

The assessment of the water environment consisted of:

¹⁶ Now Transport Infrastructure Ireland (TII)

¹⁷ Now Department of Communications, Climate Action and Environment



- A desktop study of available information;
- A review of site investigations, relating to surface water and groundwater undertaken within or adjacent to the pit;
- Review of all relevant surface water and groundwater quality monitoring data;
- Review of surface water quality monitoring data from the EPA; and
- Interpretation of all relevant data.

Information retained by the Geological Survey of Ireland (GSI), the Office of Public Works (OPW) and Environmental Protection Agency (EPA) was accessed to provide the hydrological and hydrogeological setting of the site. Relevant documents and datasets used to provide the setting of the site included EPA Water Quality Data, topography maps, and GSI Hydrogeological Data.

Further to the description of the receiving environment, the site and activities were assessed in conjunction with aerial photographs of the pit to assess the areas where works have taken place within the Planning application area and the scale of potential impact on the existing water environment.

Any mitigation measures that have been implemented have been assessed and where required, measures are proposed to ensure that activities within the planning application area will not adversely impact upon the water environment outside of the site boundary.

Legislative / Guidance Review

An evaluation of the Proposed Project was carried out in relation to the relevant European and National legislation and other statutory policies and guidance. The following legislation was considered as part of this impact evaluation.

- Consolidated EIA Directive 2011/92/EU and 2014/52/EU;
- European Communities (Water Policy) Regulations 2003 [S.I. No. 722/2003];
- Waste Management Acts 1996 as amended;
- European Communities Environmental Objectives (Groundwater) Regulations 2010 [S.I. No. 9/2010];
- European Communities (Environmental Impact Assessment) (Amendment) Regulations, 2001 [S.I. No. 538/2001];
- European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. 9 of 2010);
- Groundwater Directives (80/68/EEC) and (2006/118/EC);

- Water Framework Directive (2000/60/EEC);

The following documents were consulted in preparation of this report as they pertain to hydrogeology and hydrology:

- Kildare County Development Plan 2017-2023;

In addition to the Regulations and Guidelines above, this EIAR has been prepared with cognisance to the proposed draft revisions to these guidelines (December 2013 and June 2017).

The following guidelines have been taken into consideration in the preparation of this EIAR Report:

- "Advice Notes on Current Practice in the Preparation of Environmental Impact Statements" (EPA, September 2003);
- "Guidelines on the Information to be contained in Environmental Impact Statements" (EPA, 2002);
- "Draft Guidelines on the Information to be contained in an EIS" (EPA, September 2015);
- "Draft Advice Notes on Preparing Environmental Impact Statements" (EPA, September 2015);
- Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports' (EPA, August 2017), and
- Guidelines from the new EIA Directive 2014/52/EU (Transposed into Irish Law on May 16th 2017, legislation awaited).

7.2.1 Study Constraints

The aim of the site investigations undertaken by TOBIN was to assess the impact of the proposed development on the surrounding water environment. Aggregate excavation at Ballyonan Pit has not taken place below the water table (discussed below) and this has significantly reduced any potential effects that the works may have on the water environment in the area, in particular the groundwater environment. There are no surface water discharges from site.

7.3 SURFACE WATER ENVIRONMENT

The purpose of this section is to describe the hydrological setting of the site and in particular:

- Surface water features and regional drainage;
- Flooding;



- Assessment of hydrometric data;
- Surface water abstractions; and
- Surface water quality.

7.3.1 Surface Water Features and Regional Drainage

The natural surface water drainage patterns in the environs of Ballyonan Pit are shown in Figure 7.1. On a regional scale, Ballyonan Pit and its environs are primarily located within the Boyne and Blackwater Catchment (Hydrometric Area 7). The nearest surface water features to the site include:

- River Boyne –flows 0.4km to the west of the landownership boundary.
- River Glash – flows 0.2km to the south of the sand and gravel pit and the R148

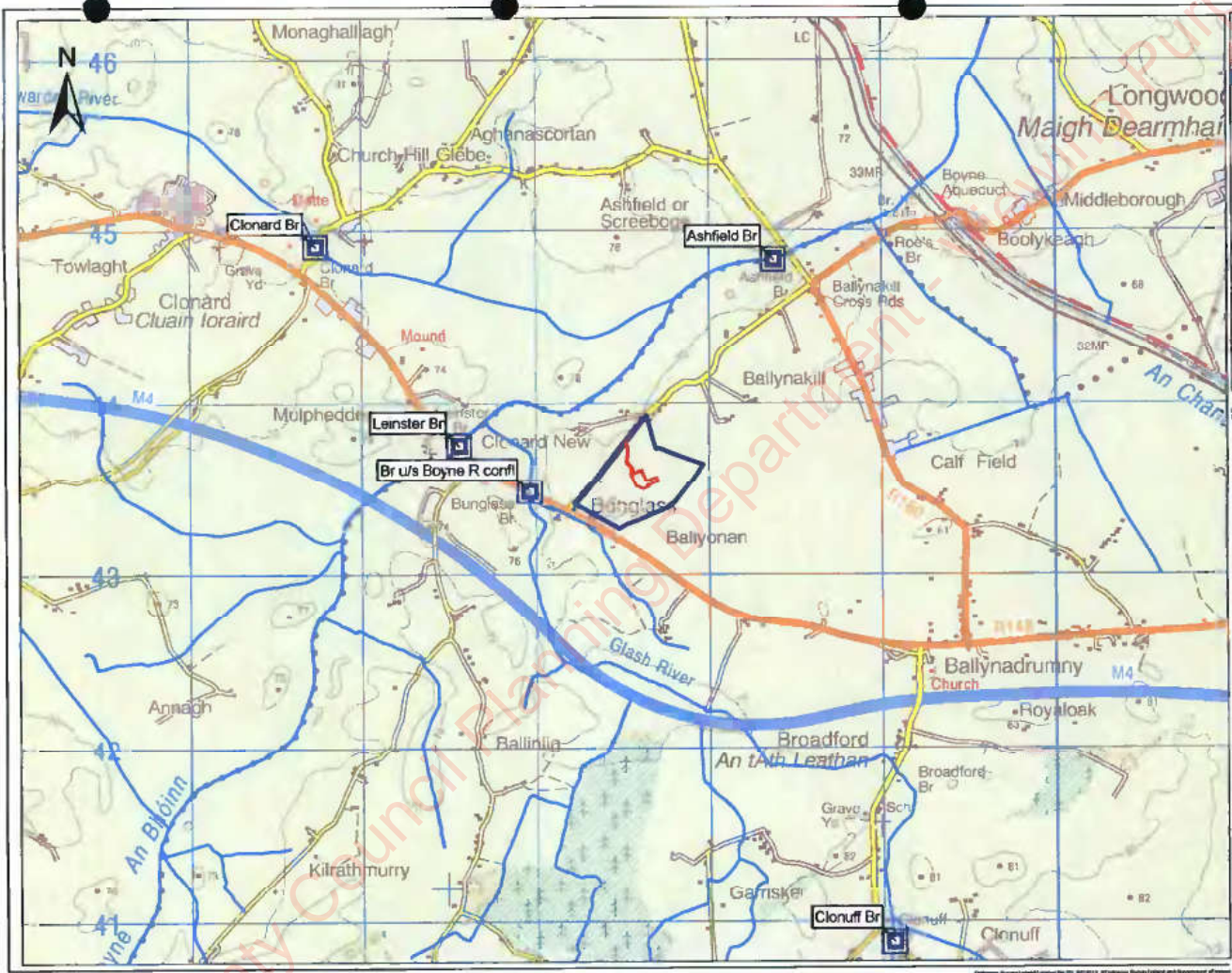
Within the pit, surface water features include, historical temporary surface water collection sumps within the working areas of the pit and temporary standing water areas at topographical lows within the landownership boundary.

There is significant depths of sand and gravel below the water table and will remain in place. As a result, any rainfall that falls on the quarried site either recharges the sand and gravel aquifer and bedrock aquifer or becomes surface water run-off which collects to the west of the site.

The site is located eastern of the River Boyne, which flows in a south to north direction towards the regional town of Trim, Co. Kildare. The River Deel and River Blackwater join the River Boyne 4km downstream of the site. Surface water drainage patterns within the reinstatement area are determined largely by the topographical features within the locality. The surface water catchment area can be characterised as limestone tills and sands and gravels, overlain by basic soils with generally favourable drainage characteristics.



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- Legend**
- Application Boundary
 - Council City Boundary
 - EPA Monitoring Locations
 - Rivers

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Scale

1:20,000
1:50,000
1:100,000
1:200,000
1:500,000
1:1,000,000

Client: **KEEGAN QUARRIES**
Project: **BALLYONAN BATCHING PLANT - PLANNING APPLICATION**
Title: **Regional Surface Water Map**

Scale @ A2: 1:20,000
Prepared by: C. O'Connell
Checked by: J. O'Connell
Date: January 2018
Project Director: G. Tierney

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Figure 7-1 D01

7.3.2 Flooding

This Flood Study included a review of the following data sources:

1. Planning System and Flood Risk Management (PSFRM) Guidelines;
2. Preliminary Flood Risk Assessment Maps;
3. Boyne Catchment Flood Risk Assessment and Management (CFRAM) Study;
4. Kildare County Development Plan (2017-2023);
5. OPW National Flood Hazard Mapping Website.

The Department of Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW) issued 'The Planning System and Flood Risk Management – Guidelines for Planning Authorities and Technical Appendices' in November 2009. These guidelines outline a three staged approach to be adopted in carrying out Flood Risk Appraisals. This Flood Risk Assessment has been carried out as a Stage 1 Assessment – Flood Risk Identification. These guidelines identify three Flood Zones: Flood Zone A (Highest Flood Risk); Flood Zone B (Moderate Flood Risk); and Flood Zone C (Low Flood Risk).¹⁸ Only flood Zone C is identified for the proposed area.

7.3.3 Surface Water Abstractions

There are currently no known surface water abstractions from surface features either upstream or downstream of Ballyonan Pit.



¹⁸ Flood Zone A (Highest Flood Risk)

- River Flooding: greater than 1% or 1 in 100
- Coastal Flooding: greater than 0.5% or 1 in 200

Flood Zone B (Moderate Flood Risk)

- River Flooding: between 0.1% or 1 in 1,000 and 1% or 1 in 100
- Coastal Flooding: between 0.1% or 1 in 1,000 year and 0.5% or 1 in 200

Flood Zone C (Low Flood Risk)

- River Flooding: less than 0.1% or 1 in 1,000
- Coastal Flooding: less than 0.1% or 1 in 1,000

7.3.4 Surface Water Quality

The EPA monitors the quality of Ireland's surface waters and assesses the quality of watercourses in terms of 4(no.) quality classes; 'unpolluted' (Class A), 'slightly polluted' (Class B), 'moderately polluted' (Class C), and 'seriously polluted' (Class D). These water quality classes and the water quality monitoring programme are described in the EPA publication 'Water Quality in Ireland, 2016'.

The water quality assessments are largely based on biological surveys. Biological Quality Ratings or Biotic Indices (Q values) ranging from Q1 to Q5 are defined as part of the biological River quality classification system. The relationship of these indices to the water quality classes defined above, are set out in Table 7.1 below.

Table 7.1: Relationship between Biotic Indices and Water Quality Classes

Biotic Index	Quality Status	Quality Class
Q5, 4-5, 4	Unpolluted	Class A
Q3-4	Slightly Polluted	Class B
Q3, 2-3	Moderately Polluted	Class C
Q2, 1-2, 1	Seriously Polluted	Class D

The EPA conducts an ongoing monitoring programme of water quality in the Boyne RBD. The Boyne is classified as at Good Status for the 2010-2015 period.

A number of monitoring locations have been identified in the region surrounding Ballyonan Pit. The 2 No. nearest monitoring stations are located approximately 4km upgradient of the site boundary (Station No. RS07B040600 at Ashfield Br) and 4km downgradient of the site (Station No. RS07B040800 at Inchamore Br) and are shown on Figure 7.3 with details in Table 7.3 below.

Sampling is conducted in summer months for a number of reasons. These include: (a) the macro-invertebrate fauna of Rivers are theoretically under the greatest ecological pressure from pollution, because of reduced flows and higher temperatures (McGarrigle et al. 2003); and (b)



some macro-invertebrate larvae may not be recorded in freshwater systems during winter months¹⁹.

Table 7.2: EPA Monitoring – Biotic Indices

Station No.	Location relative to the site	Code and Location	Status
Ashfield Bridge	Downgradient	RS07B040600	Q3-4, Moderate Status
Ballyboggan Br	Upgradient	RS07B040400	Q4, Status
RIVER GLASH - Br u/s Boyne R confl	Upgradient	RS07G020600	Q3-4, Moderate Status

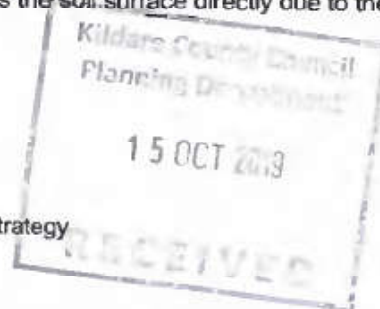
Therefore, according to the EPA River Water Quality data, the quality of surface water upstream of Ballyonan Pit is described as Moderate upgradient on the River Boyne with a marked improvement in the water quality towards the Boyne and Deel River (based on the Inchamore River station records water quality results). The River Glash is at moderate status.

According to the EPA Water Framework Directive (www.watermaps.wfdireland.ie) data the surface water in the area around Ballyonan Pit has an overall risk rating of not at risk of not achieving good status. This data source also describes the river status near Ballyonan Pit as Good. The objective for the catchment is to protect the River Boyne catchment and prevent deterioration. The main pressures in the catchment are diffuse agricultural inputs.

7.3.5 Surface Water

Surface water drainage patterns are determined largely by the topographical features within the locality. Precipitation landing within the site boundary infiltrates the soil surface directly due to the high permeability of the overburden.

¹⁹ Macro-invertebrate life cycles often involve an over-wintering strategy



There are no proposed surface water or groundwater abstractions or discharges from the proposed development. Given the points outlined above, it can be concluded that the proposed development will not impact the abundance and quality of the River Boyne.

Based on the water levels taken at Ballyonan Pit, works were completed above the water table and, therefore, there has been no direct impact on the groundwater environment within the application area, or the overall site. It also appears that the water table is a subdued reflection of the onsite topography.

There will be no direct impacts on the groundwater table as a result of the works proposed in this application.

7.3.6 Aquifer Potential and Characteristics

Reference to the National Aquifer Map prepared by the GSI (www.gsi.ie) indicates that the Bedrock Aquifer underlying and surrounding Ballyonan Pit is classified as a Locally Important Aquifer, which is Moderately Productive (Lm). The gravel subsoil deposits overlying the bedrock in the sand and gravel pit are described as a Locally Important, Sand/Gravel Aquifer (Lg), according to the National Gravel Aquifer Map. This sand/gravel aquifer stretches between the villages of Clonard and Broadford.

Table 7.3 and Figure 7.5 gives details of the aquifer characteristics of the underlying aquifer and surrounding aquifers.

Table 7.3: Aquifer classification and characteristics

Type of Aquifer	Aquifer Classification	Permeability/Flow mechanism	Karst Features
Sand/Gravel	Locally Important Aquifer (Lg)	Moderately Productive, primary porosity	No
Bedrock	Locally Important Aquifer (Lm)	Moderately Productive	No



7.3.7 EPA/GSI Source Protection Zones

As reported by the EPA and GSI, groundwater sources, particularly public, group scheme and industrial supplies, are of critical importance in many regions. Consequently, the objective of source protection zones is to provide protection by placing tighter controls on activities within all or part of the zone of contribution (ZOC) of the source.

There are two main elements to source protection land surface zoning:

- Areas surrounding individual groundwater sources; these are termed source protection areas (SPAs); and
- Division of the SPAs on the basis of the vulnerability of the underlying groundwater to contamination.

These elements are integrated to give the source protection zones. Two source protection areas are recommended for delineation:

- Inner Protection Area (SI). This area is designed to protect against the effects of human activities that might have an immediate effect on the source and, in particular, against microbial pollution. The area is defined by a 100-day time of travel (TOT) from any point below the water table to the source. In karst areas, it will not usually be feasible to delineate 100-day TOT boundaries, as there are large variations in permeability, high flow velocities and a low level of predictability. In these areas, the total catchment area of the source will frequently be classed as SI;
- Outer Protection Area (SO), encompassing the remainder of the groundwater source catchment area or ZOC. It is defined as the area needed to support an abstraction from long-term groundwater recharge i.e. the proportion of effective rainfall that infiltrates to the water table.

According to the GSI/EPA source protection zone map (www.epa.ie), there are no source protection zones within or in the immediate area surrounding Ballyonan Pit or the proposed development. The nearest identified source protection area is located to the east of Longwood, approximately 5 km east of Ballyonan Pit.

7.3.8 Karst Features

No karst features are recorded within the Karst Database of Ireland within a 2km radius of Ballyonan Pit or the proposed development. No significant features are likely due to the presence of impure limestone underlying the site.

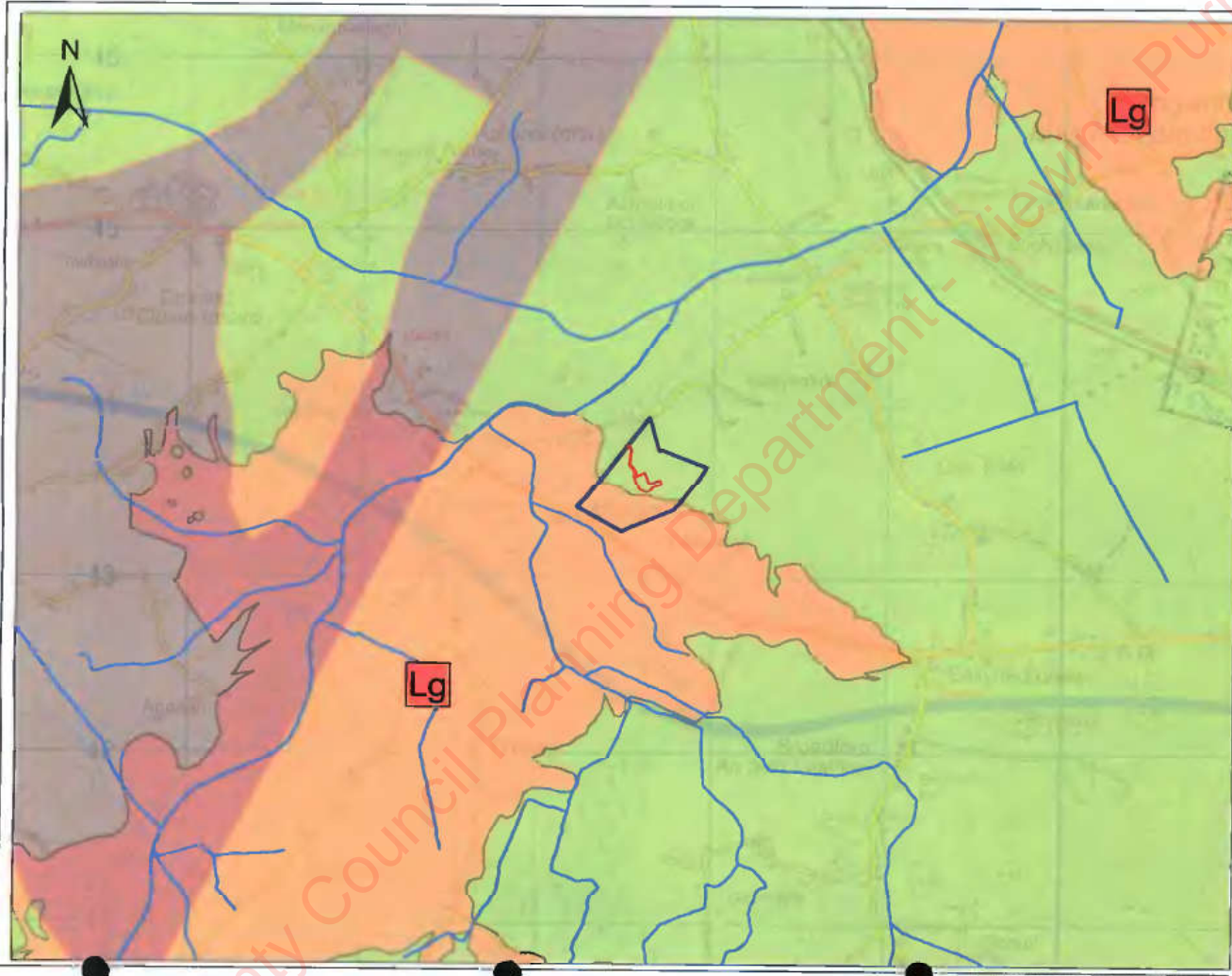


7.3.9 Groundwater Vulnerability

Groundwater vulnerability represents the intrinsic geological and hydrogeological characteristics that determine how easily groundwater may be contaminated by human activities. Vulnerability depends on the quantity of contaminants that can reach the groundwater, the time taken by water to infiltrate to the water table and the attenuating capacity of the geological deposits through which the water travels. These factors are controlled by the types of subsoils that overlie the groundwater, the way in which the contaminants recharge the geological deposits (whether point or diffuse) and the unsaturated thickness of geological deposits from the point of contaminant discharge.

The vulnerability within Ballyonan Pit is assigned a rating of high vulnerability. Surrounding areas are also described as high vulnerability due to the presence of overlying sand and gravel (see Figure 7.6). Within the planning application boundary, the groundwater vulnerability of the underlying aquifer is 'Moderate'.





Legend

- Application Boundary
- Ownership Boundary
- Rivers
- Sand and Gravel aquifer
- Lg
- GW Bedrock_Aquifer
- L
- Lm

Kildare County Council
Planning Department
15 OCT 2019

REVISE

Rev	Date	Description	By	Of
01	15/10/19	Issue for comment	J.D.	J.D.
02	15/10/19	Issue for comment	J.D.	J.D.

Client
KEEGAN QUARRIES

Project
BALLYONAN BATCHING PLANT - PLANNING APPLICATION

Title
Aquifer Map

Scale of A3: 1:20,000

Prepared By: J. Dixon
Checked: J. Dixon
Date: January 2018

Project Director: S. Treacy

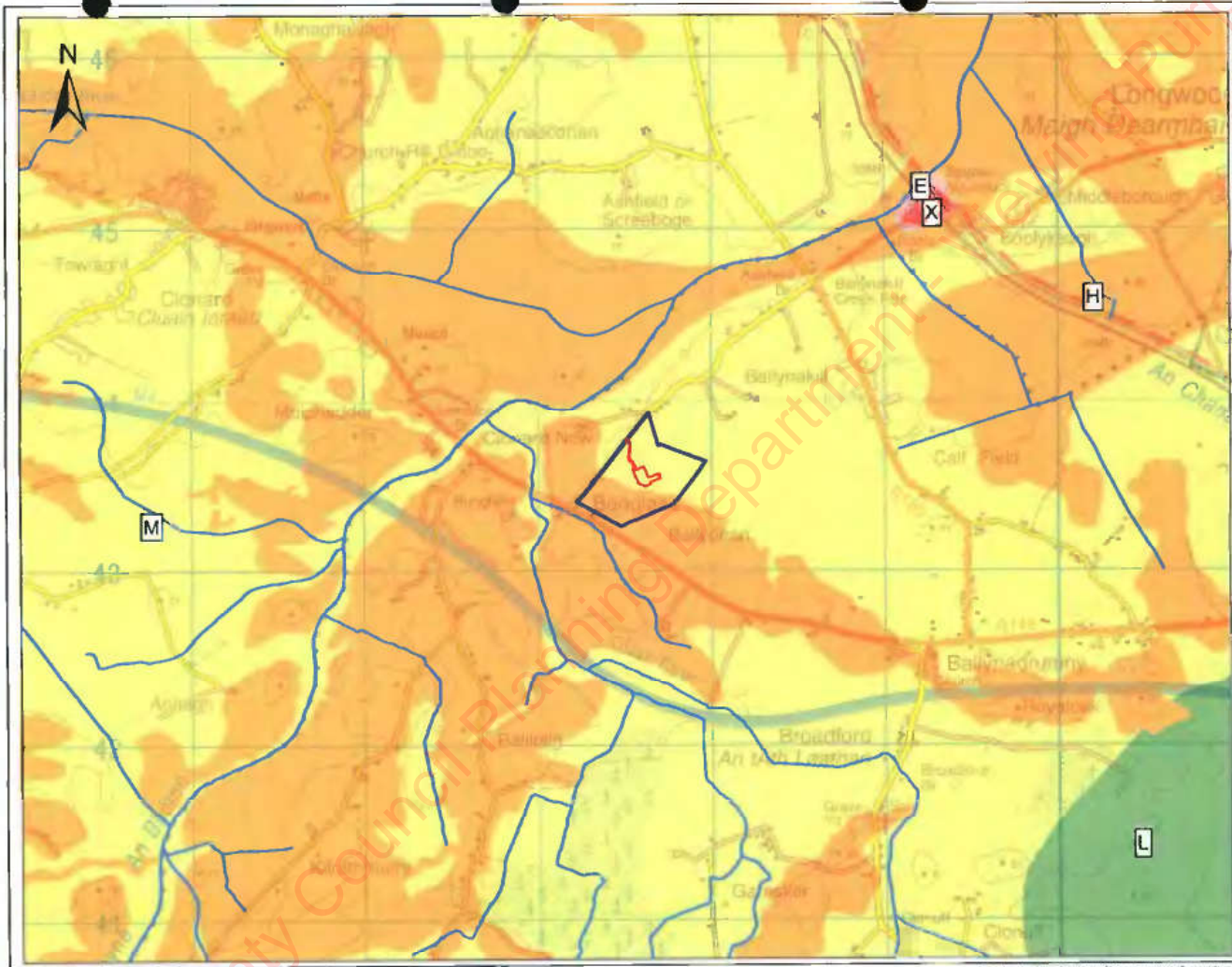
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Figure 7-2

Draw: D01

Kildare County Council Planning Department - View for Purposes Only!

Kildare County Council Planning Department For Purposes Only!



Legend

- Application Boundary
- Ownership Boundary
- Rivers

Vulnerability

- E
- H
- L
- Water
- X

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Planning Department
15 OCT 2019

NOTES

1. This map is published only for the purpose of providing information.
2. It is not intended to be used as a legal document.
3. It is the responsibility of the user to ensure that the information is up to date.
4. It is not intended to be used as a legal document.
5. It is the responsibility of the user to ensure that the information is up to date.

Rev	Date	Description	By	Chk

Client
KEEGAN QUARRIES
Quarrying and Aggregates

Project
BALLYCMAN BATCHING PLANT - PLANNING APPLICATION

Title
Vulnerability Map

Scale @ A3 1:20,000

Prepared by F. Healy **Checked** J. Dillon **Date** January 2019

Project Director A. Trivelpiece

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Figure 7-3 **D01**

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7.3.10 Groundwater Flow

On a regional scale, the groundwater flow direction is generally a subdued reflection of surface water drainage. Therefore, on a regional scale and eliminating consideration of activities within the pit, the regional groundwater flow is considered to be towards the River Boyne and ultimately discharging into the Boyne to the west. Groundwater flow paths within the sand and gravel deposits are generally limited due to subsoil depths resulting in groundwater discharge to the Boyne.

It is envisaged that the flow in the nearby streams, and subsequently the River Boyne, comprises overland run-off and a component of groundwater baseflow.

7.3.11 Existing Pollution Sources

All domestic effluent in the general surrounding area of Ballyonan Pit is treated by on-site wastewater treatment systems. The type of treatment system used to breakdown effluent is variable and is generally based on the age of the domestic dwellings. The main pressure as outlined in the River Boyne WFD Water management Unit is diffuse agriculture.

7.4 POTENTIAL EFFECTS

Impacts that may occur as a result of works within the Planning application area included in this assessment are described below.

Due to perched water in the application site where sand horizon are interbedded with low permeability gravelly clays, the site is not suitable for a standard septic tank and percolation area. The decision to have a sealed tank for wastewater was taken as a result of low permeability results from T and P tests. The proposed sealed tank is shown on Figure 10592-2008.

An important factor in relation to water is the control and management of rainwater falling within the site. The movement of vehicles within the application area represents a potential risk, by means of leakages or spillages to ground.

The processing of materials can result in fine particle sizes. Uncontrolled emissions of sediment laden waters can result in sedimentation of natural watercourses and can impact on fisheries potential.

Based on observations to date at Ballyonan Pit and a review of the results of environmental monitoring surrounding the site, there has been no significant impact on the local and/or regional



water environment in this area as a result of works to date at this location. The proposed development will not significantly alter the surface water environment. Runoff generated on site will be reused in the concrete batching process on site.

There will be no cumulative impact associated with the proposed development of this site and the subject site. A slight beneficial cumulative impact may occur in the restoration of QR45.

7.5 MITIGATION MEASURES

KQL endeavour to ensure that there is no impact on the local or regional environment as a result of activities at Ballyonan Pit. Several mitigation measures have been put in place to ensure that there is no impact on the surface water or groundwater environment within and/or underlying the overall site and the surrounding area. Mitigation measures which will continue to be implemented at Ballyonan Pit include:

- Any surface water runoff from the application area that does not infiltrate to ground is directed to settlement tanks. There is no proposed discharge to surface waters.
- All HGV vehicles exiting the site will be required to divert through a wheelwash located adjacent to the administration area. This infrastructure ensures that vehicles do not cause soiling of roads. Water used in the wheelwash will be recycled and reused in the wheelwash.
- Potentially polluting materials are contained within the application area. Cement and other additives will be stored in a covered store and will not be exposed to the elements. Spill kits are retained on site to ensure that all spillages or leakages are dealt with immediately and staff trained in their proper use.
- Water used for dust suppression within the site is sourced from the surface water pond.
- The solution to maintaining low suspended solids is preventing silt/clay from entering the surface water at source. Preventative measures, including the use of settlement tanks, which ensures that input suspended solids concentrations are minimised at source. This is achieved by ensuring that all loose material within the site is managed and this will apply to the application area also.
- Based on the water levels taken at Ballyonan Pit, works will be completed above the water table, and, therefore, there will be no impact on the groundwater environment of the sand and gravel area, or the planning application area.
- As the groundwater environment in the vicinity of the quarry will not be impacted, there will be no dewatering or lowering of the water table as a result of activities at this location. Therefore, there will be no known adverse effect on groundwater levels in adjacent



private wells, nor areas outside the property boundary of Ballyonan Pit.

7.6 CONCLUSION

Implementation of the above mitigation measures will significantly ameliorate the risk to the water environment during the proposed operations at Ballyonan Pit and, as demonstrated, any impact on the local and regional water environment will be negligible.





8 CLIMATE

8.1 INTRODUCTION

This chapter assesses the potential impact on climate arising from the proposed development at Ballyonan, Broadford, Co. Kildare. In combination effects of the existing sand and gravel pit and the proposed development are also assessed in the EIAR.

8.1.1 Methodology

All meteorological data contained in this report has been received from Met Éireann. This information has been adjusted where necessary to consider the pit's location and elevation. All calculations detailed in the report are advised methods as described by Met Éireann.

8.1.2 Weather Observing Stations

Rainfall Stations

There are a number of rainfall measuring stations throughout the country. These stations measure the daily rainfall in millimetres (mm). A number of these stations also measure additional parameters such as soil moisture, temperature, humidity, etc.

Synoptic Stations

Synoptic stations are those, which observe and record all of the surface meteorological data. These observations include rainfall, temperature, wind speed and direction, relative humidity, solar radiation, clouds, atmospheric pressure, sunshine hours, evaporation and visibility. They report a mixture of snapshot hourly observations of the weather known as synoptic observations and daily summaries of the weather known as climate observations. There are currently 24 synoptic stations (manual and automatic stations) located throughout Ireland.

8.2 DESCRIPTION OF THE SITE AND RECEIVING ENVIRONMENT

8.2.1 General Climate of Ireland

Over the summer months, the influence of anticyclonic weather conditions on the western and north western regions of Ireland results in dry continental air interspersed by the passage of Atlantic frontal systems. During much of the winter period the climate is characterised by the passage of Atlantic low pressure weather systems and associated frontal rain belts from the west. Occasionally the establishment of a high pressure area or anticyclone over Ireland results

in calm conditions and during the winter months these are characterised by clear skies and the formation of low level temperature inversions with light wind conditions at night time. If anticyclonic conditions become established for a few days or more during the summer months, high temperatures during the day might be recorded, especially at inland locations. Long spells of dry weather are relatively rare, but should continental air masses or anticyclones persist over Ireland a period of drought conditions may occur which could last up to two or three weeks.

8.2.2 Rainfall

In order to give reliable climatic data on a particular area a weather station should be located within 10km of the site and in operation for at least 30 years. A rainfall station is located at Mullingar approximately 22km west of the site. This station opened in 1923 and is still operational. Specifics of these stations relative to the site are outlined in Table 8.1.

Table 8.1: Designated Meteorological Stations for the Ballyonan Pit

Location	Elevation (m O.D.)	Height Difference (m)
Ballyonan Pit	68	-
Mullingar	101	-33

The elevation of the pit site is approximately 68m O.D. The elevation of the rainfall gauge at Mullingar is approximately 101m O.D. According to Met Éireann, annual precipitation levels increase by 200 – 300mm per 100m elevations. The height difference between the rainfall gauge at Mullingar and the pit site is approximately 33m. Therefore, the annual precipitation due to the elevation of the pit site shall be adjusted by 50mm. Average monthly and annual precipitation levels are detailed in Table 8.2.

Table 8.2: Average Monthly & Annual Precipitation

Month	Mullingar	Ballyonan Pit
Height	101 mOD	68 mOD

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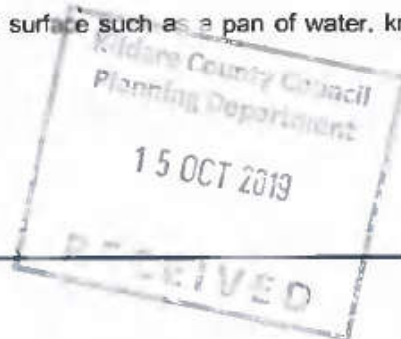
Month	Mullingar	Ballyonan Pit
Jan	87.2 ²⁰	82.3
Feb	68.6	64.7
Mar	70.6	66.6
Apr	57.8	54.5
May	58.9	55.6
June	63.5	59.9
Jul	58.8	55.5
August	75.5	71.2
Sept	79.4	74.9
Oct	93.6	88.3
Nov	81.7	77.1
Dec	90.8	85.7
Total	886.4	836.4

At the pit site, approximately 57% of the total annual rainfall is recorded during the winter period (October – March). This amount of precipitation (including snow) will normally be associated with more prolonged Atlantic frontal weather depressions passing over the region compared to the summer.

8.2.3 Evapotranspiration and Effective Rainfall

Evapotranspiration is the return of water vapour to the atmosphere by evaporation from land and by the transpiration of plants, generally measured from a short-grass covered surface (such as a permanent pasture) adequately supplied with water. Evaporation is the return of water vapour to the atmosphere by evaporation from a free water surface such as a pan of water, known as a

²⁰ Rainfall in mm per month. Total in mm per year



'Class A Pan', fitted with a depth measuring gauge. The potential evapotranspiration figures for Mullingar synoptic station are detailed in Table 8.3.

It can be noted that evapotranspiration is very low during winter months, when temperatures are lower than summer months, relative humidity is generally higher and plant growth is minimal. The vast majority of evapotranspiration during winter months is attributable to direct evaporation from ground surfaces. During summer months the rate of evapotranspiration increases and often exceeds the monthly rainfall. This is due to increased free evaporation from the surface and from transpiration from leaves and plants.

Effective rainfall is defined as precipitation minus actual evapotranspiration. Using the estimated rainfall data for the pit and the potential evapotranspiration data for the nearest synoptic station i.e. Mullingar, the effective rainfall for the study area can be calculated. Refer to Table 8.3. Potential Evapotranspiration (PE) refers to the water flux under unlimited soil water conditions. Actual evapotranspiration is estimated as 95% of potential evapotranspiration to allow for seasonal soil moisture deficits.

Table 8.3: Effective Rainfall for Ballyonan Pit

Month	Rainfall (mm)	Potential Evapotranspiration (PE) (mm)	Actual Evapotranspiration (mm) (PE x 0.95)	Effective Rainfall (mm)
January	82.3	10.3	9.8	72.5
February	64.7	17.4	16.5	48.2
March	66.6	31	29.5	37.1
April	54.5	51.4	48.8	5.7
May	55.6	71.9	68.3	-12.7
June	59.9	80.5	76.5	-16.6
July	55.5	79.1	75.1	-19.6

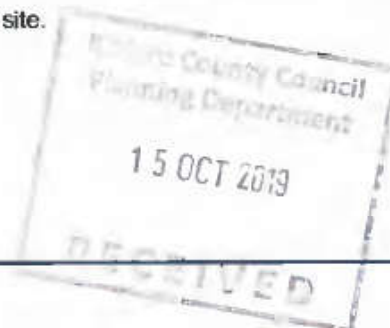
Month	Rainfall (mm)	Potential Evapotranspiration (PE) (mm)	Actual Evapotranspiration (mm) (PE x 0.95)	Effective Rainfall (mm)
August	71.2	65	61.8	9.4
September	74.9	44	41.8	33.1
October	88.3	22.9	21.8	66.5
November	77.1	10.3	9.8	67.3
December	85.7	7.5	7.1	78.6
Total	836.3	491.3	466.8	369.5

Any rain falling on the site will infiltrate to the ground, evaporate from the surface or be utilised in the batching process. The surface water runoff drainage system is discussed in more detail in Chapter 7 of this EIAR.

8.2.4 Wind

The closest synoptic station with the capability of measuring wind and that has been in operation for at least 30 years is Mullingar. This station is located approximately 22km west of the pit and is located at an elevation of approximately 101 mOD.

The wind rose for Mullingar shows that the prevailing winds are from the southwest. Refer to Appendix 8.1 'Mullingar Wind Rose Diagram' for further details. The mean wind speed from 1981-2010 (available 30 year average report) at Mullingar is 6.7 knots (3.4m/s). The mean monthly wind speed was 9.1 knots (4.6m/s). The maximum gust reached 58.3 knots. The mean number of days with gales during these years was 0.8 days. These wind speeds are likely to be indicative but slightly higher than those at the site.



8.3 POTENTIAL EFFECTS

On a local, regional and global scale, the climate has not been altered by the activities of the pit to date and will not be impacted as a result of the proposed works at the site. The site is not a significant industrial generator of greenhouse gases. There has been no net contribution to greenhouse gas emissions and this will continue. Therefore, this industry is not impacted by the limits of greenhouse emissions under the Kyoto protocol.

The site of Ballyonan Pit has not created and will not create any temperature inversions, altered any current wind circulation patterns nor affected the sunshine or any other climatic factors in the area beyond the site boundaries of the pit.

8.4 MITIGATION MEASURES

As per the impacts detailed in Section 8.3 above, it is not likely that the proposed works at Ballyonan Pit will have any impact on the local or global climate. Therefore, this project will not contribute to climate change.

However, mitigation measures will continue to be implemented at the site to ensure that activities at this location do not adversely affect the local or regional climate. These measures include:

- Managing all staff and contractors to ensure that machinery used on site is properly maintained and is switched off when not in use to avoid unnecessary dust and exhaust emissions from construction traffic; and that
- The site and all plant and equipment on site are operated according to Best Available Technique (BAT) Guidelines.





9 AIR QUALITY

9.1 INTRODUCTION – DUST

This chapter assesses the potential impact on climate arising from the proposed development at Ballyonan, Broadford, Co. Kildare. In combination effects of the existing sand and gravel pit or the proposed works at the Ballyonan, Broadford, Co. Kildare are also assessed in the EIAR.

All developments have the potential to adversely affect air quality within the surrounding area, particularly during the construction stage of a project. Disturbance of soils and the use of plant and equipment on site can cause windblown dust to develop on site and in the surrounding area.

9.2 METHODOLOGY & RESULTS

Currently in Ireland there are no statutory limits for dust deposition from quarry/pit developments. However, in recent years, the TA Luft/VDI 2119/Bergerhoff Method of dust emission monitoring has become the most commonly used method.

This method involves using a direct collection pot to standardised dimensions of either glass or plastic. The system benefits from being a direct collection method i.e. less transferring of material and consequent reduction in sampling errors. This method is defined as an internationally recognised standard and has been adopted by the EPA as the method of choice for licensed facilities. The compliance threshold limit is 350 mg/m²/day, as recommended by the TA Luft/VDI 2119/Bergerhoff Method.

Department of Environment, Heritage and Local Government (DoEHLG) Guidelines for Planning Authorities on Quarries and Ancillary Activities, along with the EPA guidelines for Management in the Extractive Industry (Non-Scheduled Minerals), recommend that the TA Luft total dust deposition limit value (soluble and insoluble) of 350 milligram per square metre per day be adopted at site boundaries near quarry/pit developments. The Irish Concrete Federation (ICF) has also suggested this threshold value for fugitive emissions arising from quarry/pit developments. This threshold has been widely applied by Planning Authorities in conditioning emissions from quarrying industries.

9.3 RECEIVING ENVIRONMENT

Ballyonan Pit is located in a primarily agricultural area within the townland of Ballyonan, Broadford, County Kildare approximately 2.5km east of the village of Clonard, County Meath (refer to Figures 1.1. and 1.2). The proposed development, which was registered under S261 of

the Planning and Development Act, is operated in accordance with environmental best practice. There are a number of residential properties located within a 1km radius of Ballyonan Pit and are located along the regional road to west of the pit boundary and local county roads to the north and east. There are also a number of farm buildings in the vicinity of Ballyonan Pit which would be expected as this is a primarily agricultural area.

The results of dust monitoring undertaken at Ballyonan in 2017 and 2018 are presented in Table 9.1 overleaf.

Table 9.1: Dust Results

Monitoring Period	Total Dust Deposition (mg/m ² /day)			
	D1	D2	D3	D4
March 17	117	<45	<45	109
May 17	123	60	<45	122
Oct 17	81	<45	56	84
Dec 17	66	<45	<45	112
Feb 18	83	<45	<45	75
Jun-18	76	<45	<45	56
Aug-18	84	<45	<45	68
Nov-18	<45	<45	<45	63

D1 – Western boundary of Pit

D2 - Northern boundary of Pit

D3 – Eastern boundary of Pit

D4 - Southern boundary of Pit



These existing dust monitoring locations are illustrated on Figure 8.1 'Dust Monitoring Locations'. It can be seen from Table 9.1 that all dust result levels recorded at Ballyonan are below the compliance threshold limit of 350mg/m²/day for dust as stated in condition 9 of Kildare Quarry Ref. QR45 and recommended by the TA Luft/VDI 2119/Bergerhoff Method.

9.4 POTENTIAL EFFECTS

There will be some dust and exhaust emissions from construction activities during the proposed works. These impacts will be temporary in duration and are not considered likely to give rise to significant impacts following the implementation of mitigation measures. Dust or pollutants generated from the proposed works will typically arise from:

- Movement of construction vehicles;
- Movement and placement of stock material; and
- Wind generated dust from stockpiles and exposed unconsolidated soils.

Given the processes involved, dust generation from the site is likely to arise due to the transportation of material in / out of the site, on-site vehicle movement, processing of material and movement of material.

An assessment of the potential dust nuisance effect has been undertaken in accordance with The National Roads Authority (NRA) Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes. Nuisance effects include soiling, PM deposition and vegetation effects. Given the limited number of site plant and loads delivered per day, as well as the minor use of haul roads, the proposed development would be considered similar to a construction site. Therefore, soiling will occur at 25 m and PM deposition and vegetation effects will occur at 10 m. This is presented in Table 9.2 below.

Table 9.2: Dust - Potential Distance for Significant Effects

Potential Distance for Significant Effects (Distance from source)				
Scale	Description	Soiling	PM10	Vegetation effect
Major	Large construction sites, with high use of haul routes	100 m	25 m	25 m
Moderate	Moderate sized construction sites, with moderate use of haul routes	50 m	15 m	15 m



Minor	Minor construction sites, with limited use of haul routes	25 m	10 m	10 m
-------	---	------	------	------

Vehicle emissions from the proposed development are limited to site plant (i.e. excavator, dozer, batching plant, screener etc.) and trucks used to transport the material to the site for processing. There are expected to be approximately 4 no. of plant on the site. Given the above, the vehicle emissions from the site are not considered significant.

Due to the distance (<250m) to sensitive receptors and nature of the works, it is expected that the potential impact on air quality will be minor to negligible.

9.5 MITIGATION MEASURES

KQL endeavour to ensure that dust emissions are kept to a minimum at all locations and have taken all reasonable steps as far as is practical to minimise dust emissions. Several mitigation measures were put in place to limit dust emissions on site and in the surrounding area and will continue to be implemented for the proposed restoration activities:

- All stockpiles will be conditioned with water to minimise dust;
- The provision of on-site speed limits prevents unnecessary generation of fugitive dust emissions;
- Heavy Goods Vehicles (HGV's) exiting the site will be diverted through a wheelwash. This will ensure that dust emissions are not generated from the tyres of vehicles exiting the pit. It also ensures that they do not carry excess soil and material onto the public road network;
- Hardstanding from the entrance to the wheelwash;
- A water bowser will be in operation along the main access road to ensure all material is dampened prior to exiting the location; and
- Dust monitoring will continue to be carried out on a monthly basis at the pit and the records retained as part of the EMS system in place at the site, in compliance with Department Guidelines.

The above mitigation measures will significantly reduce the potential for dust emissions. To date, it is considered that any residual dust emissions have not caused a nuisance and have not had a perceptible impact on the local or regional environment. This has been verified by a programme of monthly measurement using the TA Luft/VDI 2119/Bergerhoff Method at dust monitoring

locations at Ballyonan Pit. Monitoring results are outlined in Table 9.1 above. The same dust monitoring programme will be in place for the period of the proposed works.

To ensure that dust is kept to a minimum, soil handling and placement will only take place when the soils are in the optimum condition. This optimum soil condition may be described as moist but friable. No soils will be moved when they are too dry or when there are unusually windy weather conditions. This will help to prevent erosion and any consequential creation of dust. Conversely, soils will not be handled during high intensity rainfall or when the moisture content of the soils is too high. This will ensure that smearing of the soils does not take place and that the soil retains its structure.

Grasslands and wet grassland shall be promoted in Area A in order to promote good fibrous root growth and encourage soil structure development, as well as providing good ground cover.

9.6 CONCLUSION

The implementation of the above mitigation measures will ensure that the proposed works at Ballyonan Pit will not result in an increase in dust levels in the local environment and the potential impact on air quality will be low. It is not anticipated that there will be any impact on air quality.



10 NOISE AND VIBRATION

10.1 INTRODUCTION

This noise study was undertaken so as to characterise the existing noise climate and possible impact that the existing and proposed activities at Ballyonan Pit will have on the local and regional environment.

The main purpose of the noise study undertaken was to:

- Collate and review the noise levels in the environs of the application area at Ballyonan Pit; and
- Assess the noise levels that will be potentially generated by the proposed development.

In developing the noise and vibration assessment for this project, consideration has been given to the most relevant guidance relating to quarries and extractive industries including the following:

- EPA Environmental Management Guidelines (2006): Environmental Management in the Extractive Industry (Non Scheduled Activities);
- ISO 1996: 2003 – Acoustics Description, measurement and assessment of environmental noise;
- BS 5228: 2009 – Code of practice for noise and vibration control on construction and open sites – Part 1: Noise;
- BS 5228: 2009 – Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration;
- BS 6472: 2008 – Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting, and,
- EPA (2012) Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4).

The assessment methodology has been undertaken in line with best practice EIS guidelines. The following methodology has been employed for this assessment:

- A noise survey has been undertaken at the closest noise sensitive locations to quarry to establish baseline noise levels in the absence of the operational quarry;
- A review of best practice guidance has been undertaken to set appropriate operational noise and vibration limits at the site;
- Predictive noise calculations associated with the operation of the quarry and bitumen / asphalt plant have been undertaken at the nearest noise sensitive locations and compared against the relevant criteria, and;

- Mitigation measures have been proposed, where necessary, to reduce noise impacts to within the relevant criteria.

10.1.1 Acoustic Terminology

Sound is simply the pressure oscillations that reach our ears. These are characterised by their amplitude, measured in decibels (dB) and their frequency, measured in Hertz (Hz). Noise is unwanted or undesirable sound, it does not accumulate in the environment and is normally localised. The criteria for environmental noise control are of annoyance or nuisance rather than damage. In general, a noise level is liable to provoke a complaint whenever levels exceed by a certain margin the pre-existing noise level or when it attains an absolute level.

Units of Measurement

The units of measurement of noise must reflect our overall response to it. The basic difficulty in measuring noise is the huge range in the sensitivity of the ear. Audible sound pressures range between the threshold of hearing (0.00002N/m^2) and the threshold of feeling (20N/m^2), which corresponds to a ratio of 1:1,000,000. In order to cover this wide range, a logarithmic unit, the decibel (dB) is used. The dB scale ranges from 0 to 120/140 dB. While the size of the pressure fluctuations is measured in dB, the rate of pressure fluctuations is measured in cycles per seconds or Hertz (Hz).

The human ear has a limited frequency range from about 20 Hz to 20 kHz, the upper end depending on the age of the person and previous exposure to high levels of noise. Within that range the ear can tolerate low frequencies more than middle to high frequencies and one must ensure that any measurement device elicits a numerical value, which matches the ear's response. This is achieved by introducing an electronic filter (called an 'A' weighted filter) into the measuring system. This weighting characteristic provides good correlation with the noise annoyance, and, since its maximum lies in the frequency region where the ear is most sensitive, it considers the hearing damage potential of the noise. For this reason, environmental noise levels are generally measured in terms of 'A' weighted decibels, dB(A). A noise level in excess of 85 dB(A) gives a significant risk of hearing damage. A noise level increase of 3 dB(A) is barely perceptible, while an increase in noise level of 10 dB(A) is perceived as a twofold increase in 'loudness'.

Where noise levels vary in time, statistical analysis of the variation can be carried out. The results are usually stated in the form LN (L for level), where N is the percentage of time a level is equalled or exceeded. Hence if $L_{90} = 40\text{ dB(A)}$, the noise level exceeds 40 dB(A) for 90% of the



time measured period (i.e. background noise level is 40 dB(A). Consequently, background noise level could be described as the lowest 10% of noise level over a given period.

In addition to the statistical units, the equivalent continuous level is also measured. The equivalent continuous level, Leq, is measured in dB(A) and is a notional steady level that has the same sound energy as the real fluctuating sound over the same measurement period. It is measured using an integrating sound level meter (SLM). Leq is often described as the total noise level for a specified period.

The following methodology was employed for the noise assessment:

- A noise survey was undertaken at the closest noise sensitive locations to the Ballyonan Pit, to establish baseline noise levels (Note – the site was not operational during the survey);
- A review of best practice guidance has been undertaken to set appropriate operational noise limits at the site;
- Predictive noise calculations associated with the operation of the QR45 were undertaken at the nearest noise sensitive locations and compared against the relevant criteria;
- Mitigation measures have been proposed, where necessary, to reduce noise impacts to within the relevant criteria.

In developing the noise assessment for the proposed development, consideration has been given to the most relevant guidance, including the following:

- ISO 1996: 2007 – Acoustics Description, measurement and assessment of environmental noise; and
- BS 5228: 2009 – Code of practice for noise and vibration control on construction and open sites – Part 1: Noise.

10.2 RECEIVING ENVIRONMENT

The site under assessment is located to the north of an existing pit, QR45, located in the townland of Ballyonan approximately 2.5 km southeast of Broadford, Co. Kildare.

The site is bounded by agricultural land, with no residential dwellings within a 250m radius of the site. The L1011 local road is located to the east of the site where the access road/site entrance is located off. The closest noise sensitive dwellings are some 270 m from the site boundary.

The proposed hours of operation will be 08:00 to 20:00 Monday to Friday and 08:00 to 14:00 on Saturdays. The proposed works will not operate on Sundays or Public Holidays, unless warranted by exceptional circumstances.

A baseline noise survey was conducted in order to quantify the range of noise levels during baseline conditions (i.e. when the site is not operational). The survey was conducted in general accordance with ISO 1996: 2007: *Acoustics – Description, measurement and assessment of environmental noise*. Specific details are set out below.

Noise sensitive locations are defined as receptors which are potentially sensitive to noise and vibration (e.g. dwellings, hospitals, schools etc.). The nearest noise sensitive locations within a 500 m radius are illustrated in Figure 10.1 and summarised below.

- Residential properties 300 m to the south – SR1
- Farmyard with residential dwelling 420 m to the northwest– SR2
- Residential properties 350 m to the north– SR3

The measurements taken were representative of 30min LAeq readings and were carried out in accordance with ISO1996, Part 1 (Description and Measurement of Environmental Noise - Part 1. Basic Quantities and Procedures) and are presented in Table 10.1 and Figure 10.1 below.

At each noise measurement point, a Cirrus 831A Type 1 Sound Level Meter (SLM) was mounted on a tripod so that the microphone was maintained at 1.8 metres above ground level and at least 5 metres from any potential noise reflecting surfaces. The monitoring equipment was manned throughout the sampling intervals and comments were recorded in order to aid the interpretation of the results.

At each of the monitoring locations the following data was recorded:

- L(A)eq: Equivalent Continuous A-weighted Sound Level. The continuous steady noise level, which would have the same total A-weighted acoustic energy as the real fluctuating noise measured over the same period of time. Measurements were carried out over an approximate fifteen minute period for this survey;
- L(A)10: The noise level that is equalled or exceeded for 10% of the measurement period; and
- L(A)90: The noise level that is equalled or exceeded for 90% of the measurement period.



The results of noise monitoring in 2017/2018 at Ballyonan Pit show that all results are within the 55dB (A) Daytime limit.

For the purpose of this document, daytime is taken to be between 08:00hrs and 20:00hrs, whilst night-time is between 20:00hrs and 08:00hrs as per the relevant guidance document for extractive processes. The site will not operate during night-time periods, hence a night-time survey was not undertaken.

The locations are presented in Figure 10.1.

- N1 – located within the existing site entrance from 06:00 to 13:00 on 16th January 2019;
- N2 – Located at the Proposed Site from 07:00 to 14:00 on 16th January 2019; and
- N3 – Located north of the Proposed Site from 12:00 to 14:00 on 16th January 2019.

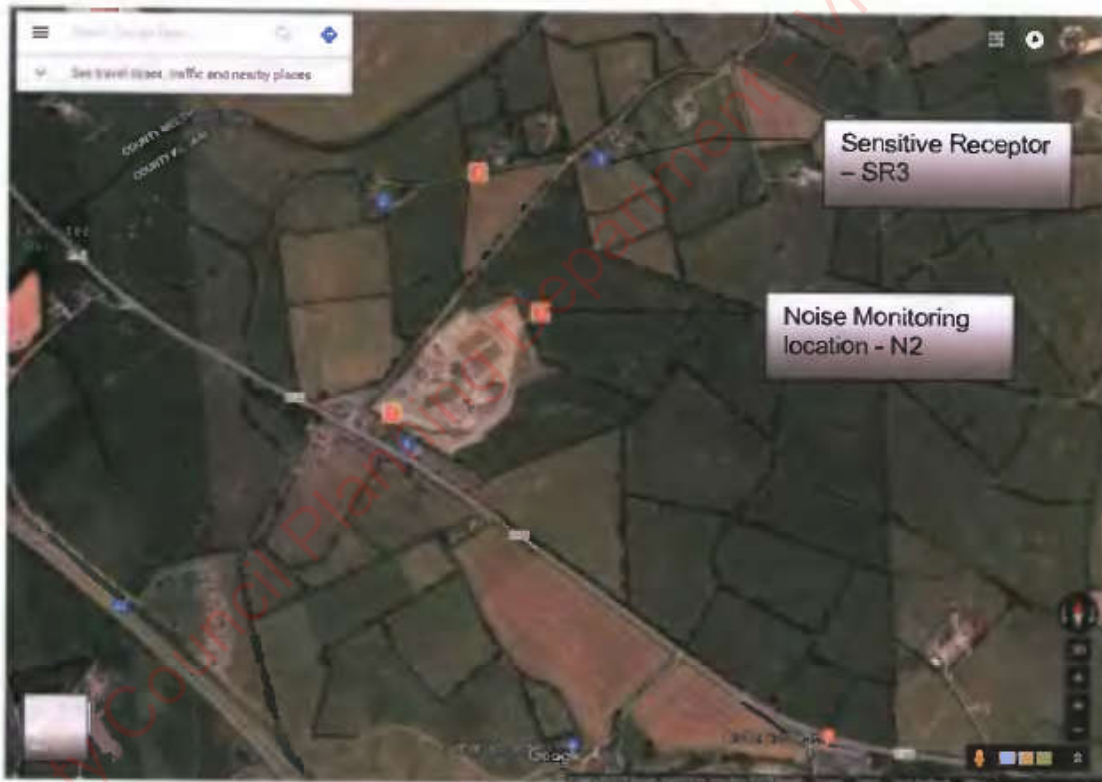


Figure 10.1: Noise Monitoring Locations at Ballyonan Pit. (source: www.google.ie/maps)

The measurements cover a typical period that was selected in order to provide a typical snapshot of the noise levels from the existing and proposed sites.



Table 10.1: Noise Monitoring at N1 - Results (LAeq)

Time		Measured Noise Levels (dB re. 2x10 ⁻⁵ Pa)			
		LAeq	LAm _{ax}	LA10	LA90
Jan 19					
Daytime	10 – 10:30	51	78	58	47
Daytime	12:35 – 13:05	55	81	57	45
Daytime	15:11 – 15:46	46	66	48	39

During the January 2019 monitoring event, Traffic noise from the adjacent local road was the dominant noise source at this location during the monitoring period. The screening plant and two HGVs noted on site. Background noise comprised birdsong and overhead flights.

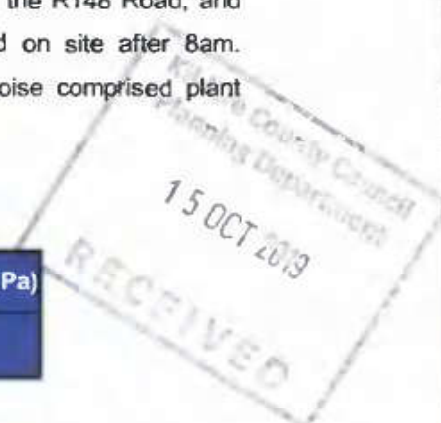
Table 10.2: Noise Monitoring Results at N2 (LAeq)

Time		Measured Noise Levels (dB re. 2x10 ⁻⁵ Pa)			
		LAeq	LAm _{ax}	LA10	LA90
January					
Night time	07:00 – 07:30	44.4	83.4	52.1	42.5
Daytime	09:30 – 10:00	48.1	70.6	56.4	41.8
Daytime	18:30- 19:00	45.7	87.5	55.0	41.6

The main noise sources noted during the survey were distant traffic from the R148 Road, and traffic along the local road. The screening plant and two HGVs noted on site after 8am. Additionally, hedge cutting works were also noted, while background noise comprised plant movement was faintly audible.

Table 10.3: Noise Monitoring at N3 - Results (LAeq)

Time		Measured Noise Levels (dB re. 2x10 ⁻⁵ Pa)			
		LAeq	LAm _{ax}	LA10	LA90



Jan 19					
Daytime	12:00 – 12:30	51	79	58.4	44

The main noise sources noted during the survey were distant traffic from the local roads. Ambient noise levels were in the range of 50 to 55dB L_{Aeq,30mins}. Background noise levels were in the range of 37 to 46dB L_{A90}. Rustling foliage due to higher wind speeds during the last monitoring round were noted to influence the background noise measurement.

N4 was carried out at a similar facility while it was in normal operation. The processes being undertaken at QR45 is similar to that at the proposed development with the addition of the concrete batching plant and block laying machine. The L(A)_{eq} at a similar batching plant is 89 dBA at 10m.

Additional modelling of the predicted noise from proposed plant (e.g. screener, dozers) in the form of prediction calculations were also undertaken to ascertain the likely impact to the surrounding noise sensitive receptors.

The EPA guidance document (EPA, 2006) provides guidance on vibration limits relating to blasting activities, these are defined as follows:

- Groundborne vibration: Peak particle velocity (PPV) of 12mm/s, measured in any of the three mutually orthogonal directions at the receiving location (for vibration with a frequency of less than 40Hz).
- Air Overpressure: 125dB (linear maximum peak value), with a 95% confidence limit.

These limit values are in line with previous operational vibration limits set by An Bord Pleanala for quarrying activity. It should be noted that no rock extraction is proposed on the site and therefore there are no requirements to assess vibration further within this document.

10.3 POTENTIAL EFFECTS - CONSTRUCTION NOISE

The main noise sources associated with the paving plant will be those from the traffic movements at the site, transfer of raw material via conveyors, and the block forming machine. All of the buildings and the associated internal noise attenuation measures have been designed to ensure that the internal noise levels will not exceed 85dB(A). Noise levels at 10m from the outside of the



plant are not expected to exceed 84dB(A). The only other source of noise associated with the production process will be traffic movements.

Potential effects that could occur as a result of works within the application area include:

- Transport of materials to the application area; and
- Noise as a result of transfer of raw material via conveyors, and the block forming machine.

Noise generation at the site will be non-continuous, limited to the hours of operation and lifetime of the facility. Additionally, there will be no changes in concentration of noise levels from traffic movements given that the volume of HGV site traffic will remain the same.

The extractive operations at QR45 is assessed as part of cumulative noise impacts with respect to sites in the surrounding area.

Operational noise levels associated with the proposed development are set as absolute noise levels in line with EPA guidance for industrial and quarrying activities and in line with previous operational noise limits set by An Bord Pleanála for quarrying activity at the site.

These are set as:

Daytime	(08:00hrs to 20:00hrs):	55dB L _{Aeq} (1 hour)
Night-time	(20:00hrs to 08:00hrs):	45dB L _{Aeq} (1 hour)

Prediction calculations for the daily site operation have been conducted generally in accordance with ISO 9613: Acoustics – Attenuation of sound outdoors, Part 2: General method of calculation, 1996 and BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites.

Given the plant operating on the existing site during the monitoring, the predicted impact from proposed plant on noise sensitive receptors was also modelled. Table 10.3 outlined the proposed plant used on site for the works in accordance with BS:5228. To calculate the noise emissions a cumulative impact from all proposed plant / vehicles a 66% utilisation rate of equipment over a working day. Table 10.4 below illustrates the predicted noise impact from the site activities. In reality, utilisation rate for the screener will be less than 40%.

Table 10.4: Summary of on-site equipment and activities

Source	Site Activity	Noise Level at 10m	Noise Source	Estimated % On-time
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Pit	Tracked excavator	82	BS 5228 Ref C9.6 ("Wheeled Excavator)	50
Pit	Wheeled loader	80	BS 5228 Ref C9.7	50
Pit	CDE screener	86	Site measurement	50
Block Plant	Lorry at silo	82	BS5228:2014 A1 Table C9 25	60
Block Plant	Screen, Batching plant loading concrete into HGV, Forklift pass by, Filling Molds	88	Site measurement	50

Using the above data, noise levels at the nearest noise sensitive locations have been predicted using an acoustic model of the site. The calculation methodology used for the model is ISO 9613, 1996: Acoustics – Attenuation of Sound During Propagation Outdoors. Source data is inputted in A-weighted sound power values per octave band. The model calculates sound pressure levels at specified receiver points, taking account of various factors affecting the propagation of sound including the source sound power, attenuation due to distance, screening, and meteorological conditions, where applicable. Noise models were developed for four scenarios representing the phases of the excavation in closest proximity to the nearest noise sensitive locations SR1 to SR3 illustrated in Figures 10.2.

Noise levels associated with the facility are therefore compliant with the relevant daytime noise limits for the site of 55dB LAeq,T between 08:00 and 19:00hrs.

It should be noted that all of the possible plant and vehicles likely to be used on site have been included, providing a very conservative assessment and therefore it is likely that the operational noise emissions will be much lower.

Table 10.5: Noise Level at Sensitive Receptors - Results (LAeq)

Source	Distance (m)	L _A (s)eq
SR1	300	53
SR2	350	50



SR3	360	50
-----	-----	----

During the first proposed operational hour of 07:00 to 08:00hrs, lower noise limits apply, which are set as 45dB LAeq,T. In the event that all operational noise sources associated with the proposed works are operational during this period, noise levels at the closest property would exceed this limit value (i.e. Location SR 1). However, it is proposed to limit noise sources before 08:00. It is not proposed to operate the batching plant or processing during this period would reduce noise levels (41.5dBA) to within the lower noise emission limit value of 45dB LAeq,T.

As outlined in Section 10.5, the facility will not operate in conjunction with any other facilities or proposed developments in the area and therefore there are no cumulative noise impacts from the proposed site.

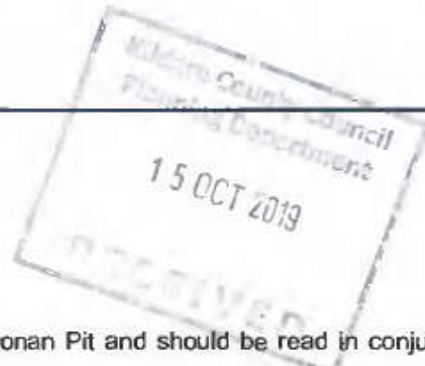
10.4 MITIGATION MEASURES

KQL will endeavour to ensure that noise levels as a result of the proposed activities at Ballyonan Pit will be kept to a minimum and will take all reasonable steps, as far as is practical, to minimise nuisance from noise. Several mitigation measures will be put in place to limit noise levels on site and in the surrounding area:

- Regular maintenance of items of plant to ensure that they are operating efficiently (Note: only one bulldozer will be required for levelling out of incoming material);
- Turn off items of machinery when not in use;
- The turn-over time for deliveries to the site will be managed in order to keep this time to a minimum;
- Maintenance of trucks and site vehicles so that they are not excessively noisy;
- Items of plant and equipment used at the site will comply with the standards outlined in 'European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1996;
- Internal haul roads have been designed so as to have as low a gradient as possible so as to minimise excessive revving of vehicle engines travelling on-site; and
- Avoid unnecessary revving of engines and switch off equipment when not required.
- Locate equipment away from noise sensitive receivers as possible within constraints of the site.
- Erection of screening berm (along western boundary) or temporary noise barriers, where practicable and necessary, to provide acoustic screening.

- There should be no unnecessary sounding of horns whilst on site.
- Drivers making regular deliveries to site to behave in a way that minimises noise disturbance; and
- Investigation and recording of any noise complaints.





11 TRAFFIC

11.1 INTRODUCTION

This chapter presents a traffic assessment of Ballyonan Pit and should be read in conjunction with the site layout plans and project description section (Chapters 1 and 2) of this Environmental Impact Assessment (EIA) Report. This chapter assesses traffic generated from the proposed development.

The approach to this assessment assumes there will be no intensification of works based on the most recent applications.

This report referred to the following:

- The National Roads Authority 'Traffic and Transport Assessment Guidelines 2014';
- The TII publications DN-GEO-03060 (previously NRA TD41-42);
- An Foras Forbartha - RT180 Geometric Design Guidelines;
- Kildare County Development Plan 2017-2023;
- NRA Project Appraisal Guidelines Unit 5.5: Link Based Growth Forecasting (TII)
- NRA Project Appraisal Guidelines Unit 16.2: Expansion Factors for Short Period Traffic Counts (TII); and
- NRA Design Manual for Roads & Bridges, (TII, various dates).

The Department of Culture Heritage and Gaeltacht during consultation raised the issue of NIAH 14404703, which is a stone arch bridge on a local road to the south west of Clonard. KQL has not previously and does not plan to utilise this route.

A planning gain occurs in the relocation of the existing entrance with improved sightlines. The traffic volumes from the site will remain the same with the addition of 2,000 tonnes per annum. The sand and gravel currently produced from the site and hauled to Rathmolyon for block manufacture will cease. The overall traffic impact will reduce in the Kildare/ South Meath area is positive as it reduces the haulage in and out of the Rathmolyon facility.

11.2 RECEIVING ENVIRONMENT

The pit is located in the townland of Ballyonan in County Kildare approximately 2.5km east of the village of Clonard, County Meath. This Traffic Chapter of the EIAR has been prepared by TOBIN Consulting Engineers on behalf of KQL.

This report has been prepared on the basis of information supplied by KQL, and weekday site visits in December 2018 and January 2019 as well as a review of previous consultation with Kildare County Council (KCC) in November 2018 for the proposed development with a total of 20,000 tonnes per annum. Traffic count data for the R148 was also reviewed to provide baseline data for this report.

The main objectives of this report are:

- To consider the levels of traffic currently using the L1011 and the R148 (including traffic generated by the KQL site and other nearby operations),
- Establish future year traffic as a result of TII growth rates,
- Determine the volume of traffic resulting from the proposed development, both in terms of haulage traffic and staff traffic; and
- Quantify the impact of the proposed development on the traffic at this location in the years when the development is taking place, including the cumulative impact.

11.3 EXISTING CONDITIONS

The site location in the context of the surrounding area is indicated in Figure 11.1 below. A sand and gravel pit(QR45) is located to south of the proposed development.

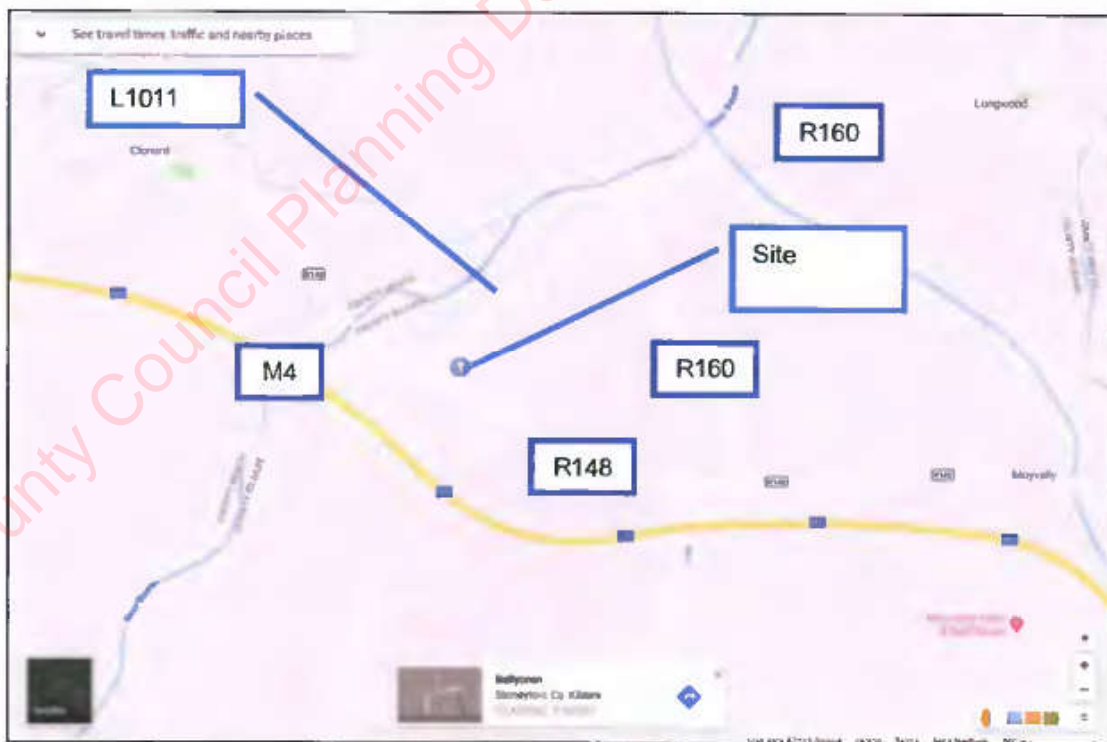


Figure 11.1: Site Location, KQL, Ballyonan, Co Kildare (source: www.google.ie/maps)

The key road serving the area is the R148, which passes through north County Kildare and Meath between Kinnegad and Enfield. The site is located on the L1011. The L1011 connects to the R148 to the south and to the R160 to the north east. The R148 (former N4 route) provides access to the M4 at Junction 9 (Enfield) approx. 11.7km east of the L1011/R148 junction and at Junction 10 (Kinnegad) approx. 7.8km west of the L1011/R148 junction.

The R148 also provides road access to the R160, which connects into the R148 at Ballynadrummy and travels north-east towards Longwood. The TII Traffic Data website ²¹ confirms that the 2017 Annual Average Daily Traffic (AADT) on the R148 between Clonard and Kinnegad was 8,976 vehicles per day, with a HGV content of 8.5%. The AADT value for 2018 was 8,709 vehicles per day, with a HGV content of 8.2%.

The R160 heading north-east towards Longwood has a restricted headroom of 3.77m and limited forward visibility due to twin stone arched bridges which carry the Royal Canal and a railway line over the R160 at Boleykeogh approx. 2.5km from the site. It is not proposed to use this route.

The M4 mainline is tolled to the east of Junction 9, and the west facing slip roads at Junction 9 are also tolled. The TII Traffic Data website confirms that the 2017 AADT on the M4 between J9 (Enfield) and J10 (Kinnegad) was 26,111 vehicles per day, with a HGV content of 11.8%. The AADT value for 2018 was 26,399 with a HGV content of 11.9%.

No schools, public building or major industries are located on the L1011 local road.

To the south of the site, the R148 is approximately 8.1m to 9.0m in carriage width and approx. 12.5m including the hard shoulder. Access to the site from the R148 is via the L1011 Ballyonan Road, at a priority-controlled T-junction 2.8km to the east of Clonard village centre. An 80kmph speed limit applies to the R148 and L1011. Notwithstanding the rural signed speed limit, it is noted from site visits that the typical speed of traffic using the L1011 is significantly lower than the 80kmph limit.

²¹ TII Traffic Data Site – www.nrtrafficedata.ie (Accessed on 14 January 2019)



Generally, the L1011 follows the alignment of the River Boyne which passes through agricultural lands, with occasional dwellings and farm buildings mostly located along the northern section of the road. Limited one-off housing occurs on the L1011.

KQL have operated existing facilities on this section of the road for many years including a quarry (QR45) which is located immediately south of the subject site.

The existing KQL site entrance (providing access to QR45) on the east side of the L1011 is approximately 250m from the R160 junction, as indicated in Figure 11.2. Traffic from the site currently used the L10011 to access the R148 and R160. A new proposed site access is located 260m to the north of the existing access and, as part of the proposed development, it is proposed to close the existing access. Raw materials from the sand and gravel operation will feed the batching plant using an internal access track.



Plate 11.1: View of proposed entrance to the right of L1011





Figure 11.2: L1011 road access from R148 to proposed development, (source: www.google.ie/maps)

Current visibility to the left and right from the existing site access was reviewed and it is noted that looking to the right, the tree line is set back to facilitate a sightline of 160m x 3m setback, but vegetation between the trees and the road edge and alignment can impact slightly on visibility at times of seasonal growth. Notwithstanding that HGVs have an elevated driver position and will typically be able to sight over this vegetation, it is noted that routine maintenance of the verge to the right of the access should be undertaken when the site is operational.

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Looking to the left, the hedgerow and slight rise in the road alignment reduces the available sightline. It was considered that the relocation of the site entrance 260m to the north, will facilitate a sightline of 160m x 3m in both directions.

To the south, where the L1011 joins the R148, existing visibility to the left and right (looking along the R148 towards Clonard and Moyvally, respectively) was observed to be adequate for an 80kmph speed limit section of road.

A volume of HGV traffic generated by the existing QR45 site was developed. Records of materials leaving the site had been maintained for the previous years (2012-2018) so an average annual volume of materials leaving site had been calculated. This information is included in Table 11.1 below:

Table 11.1: Average HGV Departures from Ballyonan

Average HGV Departures from QR45				
Materials Departing	Volume Departing (tonnes annum)	Departures per year ¹	Departures per week ²	Departures per day ³
Total	20,000	1,040	20	4

Notes

- (1) Assumed that 80% of trucks carrying raw materials had a payload of 19 tonnes and remaining 20% had 20 tonne payload.
- (2) 50 working weeks assumed
- (3) 250 day operations occurring between 08:00 and 19:00 on weekdays and between 08:00 and 14:00 on Saturdays

As can be seen from the table above, the daily number of HGV departures per hour was 2.2. Departures of a HGV from the site would have resulted in a corresponding arrival of an empty vehicle. The total number of daily HGV movements at the pit was, therefore, an average of 4 movements each way.

In addition to the Heavy Goods Vehicles, light vehicles to/from the pit due to staff and visitors were also considered. It is estimated that there would have been on average 3 light vehicles arriving on site per day with a corresponding 3 departures (i.e. 6 movements).

The pit is located approximately 15km by road from Rathmolyon. Due to the proximity of the R160, a proportion of site traffic would have travelled to and from the pit using the R160.



The capacity of the L1011 was assessed using the An Foras Forbartha - RT180 Geometric Design Guidelines. For the purposes of this assessment, an average width of 5.8m has been assumed, obstructions on both sides and lateral clearance of 0.0m and visibility of 0% greater than 460m.

This indicates that the two way capacity of the L1011 in the vicinity of the site entrance is approximately 1020 PCU at Level of Service D. Passenger car units is a unit of measurement used for road capacity calculations that involve converting vehicles into an equivalent number of cars. This takes account of the fact that a large vehicle would have a bigger impact on capacity than a car. Existing traffic on the site is described in Table 11.2.

Table 11.2: Existing Development Trip Generation for AM and PM Peak Hour

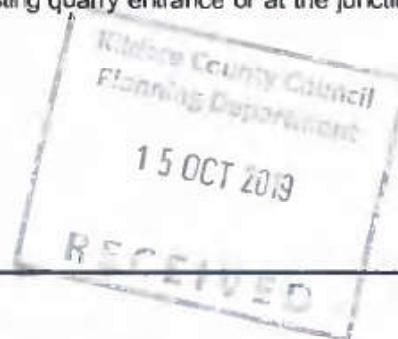
EXPECTED TRIP GENERATION FOR PROPOSED DEVELOPMENT – AM PEAK			
Time	Source	Arrivals	Departures
08:00 - 09:00	LGV/Staff	2	0
	HGV ²²	3	3
AM Peak	Total pcu	9	6.9
Time	Source	Arrivals	Departures
17:00 - 18:00	LGV/Staff	0	2
	HGV ²³	1	3
AM Peak	Total pcu	2.3	9

11.3.1 Road Safety

A review of available Road Safety Authorities (RSA) Collision statistics for 2005 to 2014 does not identify any serious or fatal collisions at the existing quarry entrance or at the junction with

²² 1 HGV = 2.3 pcu

²³ 1 HGV = 2.3 pcu



the R148. There was a recorded minor incident at the junction of the L1011 and the R148 in 2005, 2006 and 2008.

There are no records of any traffic incidents occurring at the existing entrance or along the L1011 in the vicinity of the site during this period either.

11.3.2 Traffic Flow on the R148

Traffic flow data on the R148 was obtained for a full 24hr period, on Wednesday 17th January 2018, using the permanent TII Automatic Traffic Counter (ATC) installed on the R148 between Clonard village and Kinnegad in Ardnamullen. The full record of traffic movements from the counter is presented in Appendix 11.1 and the results are summarised as follows:

Daily (24 hr total):

- Eastbound 3,886 vehicles/day, including 432 HGVs
- Westbound 4,249 vehicles/day, including 446 HGVs

From these figures the total HGV content on the R148 is in the order of 10.8% of the overall daily traffic volume.

Putting the data into hourly context, it is noted that the existing R148 flows during the peak hours are as follows:

AM peak

- Eastbound 351 vehicles, including 15 HGVs (06:00 – 07:00)
- Westbound 223 vehicles, including 30 HGVs (9:00 – 10:00)

PM peak

- Eastbound 265 vehicles, with 21 HGV (17:00 – 18:00)
- Westbound 547 vehicles, with 29 HGVs (17:00 – 18:00)

As expected, the traffic flow is generally even in terms of total directional flow over the 24-hour period, while there is a tidal variance in favour of eastbound towards Moyvally in the AM peak, and westbound towards Clonard in the PM peak. The AM peak varies depending on the direction of traffic flow as set out above; for the combined flow in both directions, the AM peak is from 08:00 to 09:00.

In relation to the volumes of traffic entering and exiting the L1011 at the R148 junction, it is noted that these are low, with short periods of activity which are typically between 08:45 – 11:45 and 12:00 – 15:00 on weekdays.

The volumes of traffic travelling along the L1011 are related to a low number of local access movements and traffic generated by the daily operations at the existing pit (i.e. haul traffic and occasional visitors).

Across the typical weekday period when the operations are taking place, the total volumes passing along the L1011 to the south of the access (towards the R148) ranges from 10 – 20 vehicles each way per hour, including haul trucks and other local movements (i.e. residents and agricultural traffic). This equates to a vehicle every 2 – 5 minutes each way.

In terms of seasonal variation, it is noted that Unit 16.2 of the 'NRA Project Appraisal Guidelines: Expansion Factors for Short Period Traffic Counts, August 2012' (TII) has confirmed that January traffic volumes on a Wednesday for roads in Ireland is as follows: Wednesday is 1.03 of Weekly Average Daily Traffic (WADT), while WADT for January being 0.94 of AADT (i.e. the standard conversion from Wednesday to WADT to AADT would be $0.97 \times 1.06 = 1.028$). Therefore, the data collected is relatively robust and appropriate for use in determining AADT flow in traffic impact assessments.

11.4 POTENTIAL EFFECTS

The new site access layout is illustrated on the site layout drawings submitted with the planning application (Planning Drawing 10592-2001 and 10592-2008 – Site Layout refers). The proposed access will be wide enough to accommodate two-way HGV movements and the haul route into the site extends some distance from the public road to avoid the potential for queuing on the public road.

11.4.1 Road Safety

As stated previously, visibility at the existing site access is somewhat restricted towards the south along the L1011 due to the road elevation and alignment. The proposed new entrance will provide a visibility splay of 3.0 x 160m in each direction in accordance with the NRA DMRB. Advanced signage has been erected at the existing site entrance in accordance with the DoT's 'Traffic Signs Manual' to warn motorists of an entrance to an operational site.

11.4.2 Pedestrians

There is no provision for pedestrian facilities along the L1011 primarily due to the narrow rural nature of the road. There is no dedicated pedestrian walkway along the R148 in the vicinity of



the site but there is a considerable hard shoulder provision which offers separation of pedestrians from the main traffic movements.

There is a footpath on one side of the R148 from the junction with the L8020 into the village of Clonard. To the east, there are short sections of footpath associated with bus stops at the junction of the R148 with the L1002.

The increase in traffic associated with the proposed development will not have a significant effect on pedestrians other than a slight potential increase in delay for pedestrians wishing to cross the road. Any increase in delay for pedestrians wishing to cross would be minor.

11.4.3 Proposed Traffic Generation

The proposed facility will import a total of 2,000 tonnes of cement materials and export 20,000 tonnes of readymix concrete and blocks per annum, over a 20-year period. The existing permitted traffic volume granted in accordance with permission for the quarry (QR45) is 20,000 tonnes per annum. Deliveries of cement to the facility will typically be made using 20 tonne articulated lorries and outgoing concrete blocks will typically have a 18-tonne payload.

It is proposed that, subject to planning permission, the concrete operations at the site would commence in 2019. Therefore, the completion date for the concrete facility operations would be mid-2039 from a proposed start time of mid-2019.

In terms of traffic volumes generated by the proposed operations, the additional volume of 2,000 tonnes concrete import per annum would equate to 0.4 additional HGV arrivals and 0.4 additional HGV departures per working day, based on a 250 day per annum operation. The proposed deliveries will not occur during the AM or PM peak.

The volume of traffic anticipated to be generated by the proposed development during the AM and PM hours are shown below in Table 11.3. As part the ongoing traffic management at the site, there will be no additional traffic leaving the site during the AM or PM peak.



Table 11.3: Proposed Development Trip Generation for AM Peak Hour

EXPECTED TRIP GENERATION FOR PROPOSED DEVELOPMENT – AM PEAK			
Time	Source	Arrivals	Departures
08:00 - 09:00	LGV/Staff	4	0
	HGV	2	2
AM Peak	Total pcu	8.6	4.6

Table 11.4: Proposed Developments Trip Generation for PM Peak Hours

EXPECTED TRIP GENERATION FOR PROPOSED DEVELOPMENT – PM PEAK			
Time	Source	Arrivals	Departures
17:00 - 18:00	LGV/Staff	0	5
	HGV	1	1
PM Peak	Total pcu	2.3	7.3

11.4.4 Design Year Growth

To calculate the future year traffic, the existing background traffic would normally be factored in, using the growth factors in the NRA PAG 5.5 document 'Link-Based Growth Forecasting'.

As the existing site traffic generated remains 'flat' and does not increase Year on Year in line with background traffic growth in a 'Do Nothing' scenario, the methodology has been to isolate that existing site traffic from the existing traffic flows, and then apply the growth factor to the remaining background traffic. After which, the existing development traffic accessing the site is added back in to provide future year 'Do Nothing' traffic figures. This avoids double-counting of the existing development traffic.

An opening year of 2019 was utilised for the purpose of the traffic assessment. In addition to the opening year, and in accordance with TII guidelines, the capacity assessment was also based on traffic conditions forecast for the design years 2024 (+5 years) and 2034 (+ 15 years).

The derived growth factors shown in Table 11.5 were applied to the 2017 flows to determine background traffic flows for the assessment years. The assessment is split into light vehicles and heavy vehicles.



Table 11.5: Medium Growth Factor

Medium Growth Factor Region 2 – Mid East			
	2019	2024	2034
LV	1.0140	1.072	1.188
HV	1.0237	1.124	1.387

Growth Factors for light vehicle (LV) and heavy vehicles (HV) (Source TII PAG Unit 5.5)

In terms of the L1011, background traffic growth will increase the AADT flow by approximately 10 vehicles (two-way, 24hr total), while in each of the peak hours the increase equates to 12 passenger car units (pcu) (two-way, hourly total).

Having regard for the current levels of traffic using the L1011 Road and the R148 through Clonard village, it is noted that these levels of traffic growth will not have a material impact on the operating capacity of the road network. There is no proposed increase in output from the facility and the proposed development will result in a decrease in traffic at the KQL Rathmolyon facility.

Collision data collated by the Road Safety Authority and made available at www.rsa.ie has been reviewed. No recorded incidents have occurred at the entrance to the existing site indicating that the quarry entrance has been operating safely.

Percentage Impact of Development

The Institution of Highways and Transportation (IHT) and TII Guidelines for Transport Assessments state that the thresholds for junction analysis in Transport Assessments are as follows:

- "Traffic to and from the development exceeds 10% of the existing two-way traffic flow on the adjoining highway."
- "Traffic to and from the development exceeds 5% of the existing two-way traffic flow on the adjoining highway, where traffic congestion exists or will exist within the assessment period or in other sensitive locations".

As noted previously, the proposed operations will equate to 5 haul trucks each way per working day, compared to 4 at present.

The capacity of the L1011 has been assessed using the An Foras Forbartha - RT180 Geometric Design Guidelines. The L1011 average width of 6.1m has been assumed with no

obstructions on both sides, a lateral clearance of 2.0m and visibility of 0% greater than 460m (reduced assumption). This indicates that the two-way capacity of the L1011 in the vicinity of the proposed site entrance is approximately 1020 pcu's per hour at Level of Service D. The peak development is predicted to contribute 12 pcu's to the road. This suggests that the development will comprise approximately 1.3% of capacity with the development therefore a full Junction Analysis assessment is not required.

The R148 road average width of 8.5m has been assumed with no obstructions on both sides, a lateral clearance of 2.0m and visibility of 0% greater than 460m (reduced assumption). This indicates that the two-way capacity of the R148 in the vicinity of the site entrance is approximately 11,000 pcu's per hour without the development. The peak development is predicted to contribute 12.9 pcu to the road which is in line with the current peak. This suggests that the development will comprise <0.25% of the road capacity.

It should be noted that in percentage terms, the 'development impact' would reduce slightly from 2018 to 2034 due to the background traffic growth, while the additional development traffic remains constant at a maximum output rate of 20,000 tonnes per annum.

The above assessment is based on a worst case where there is no backloading of the HGVs.

11.5 MITIGATION MEASURES AND MONITORING

As noted in Section 11.3, the proposed development will not result in any significant increases on the L1011 or the R148, and the hourly and daily volumes of traffic using the access junctions along the haul route will not result in capacity issues. There is no proposed increase in output from the overall development which includes QR45.

Notwithstanding this, it is noted that the operators have committed to ensuring that no haul traffic enters or departs the site from the north via the L1011/R160 junction, and that all haul traffic will operate at a maximum speed of 30kmph between the site access and the L1011/R148 junction.

As part of the ongoing monitoring of the proposed operations, data of the volumes of HGVs using the weighbridge can be provided to the Local Authority to confirm that the actual volumes of HGV traffic are reasonably in line with the figures in this report. It is recognised that the average HGVs per day may vary, and the fleet composition may also vary, but that the



maximum outgoing traffic movements will be based on the output of 20,000 tonnes per annum level.

As set out previously, the sightlines at the site entrance will be improved by the relocation of the existing site entrance further north along the L1011 and maintenance of hedge growth at this new location. This will result in a planning gain in terms of sightlines.

It is noted that while the L1011 local road is generally a minimum of 5.5 – 6m wide, there is a slight pinch point to the north of the proposed new site entrance location. However, haulage traffic to and from the site will not access the site entrance from the north and will therefore not have any impact along this narrower section of the L1011.

With consideration of the proposed development, the additional HGV movements (cement deliveries) to the site is equivalent < 1 HGV each way across the working day. Therefore, the likelihood of two haul trucks travelling on the short section of the L1011 at the same time is quite small.

There are sections of the L1011 pavement surface which are in need of repair due to potholes and edge deterioration. It is considered that this can be addressed by an appropriate planning condition with standard contributions applied to the development, to offset the costs of routine maintenance of the road.

It is noted that there is no footpath along the L1011 and that the volumes of road traffic and likelihood of pedestrians would not typically warrant provision of a footpath on a road of this type.

It is also noted that the existing site has operated for many years on the L1011 road, and that the anticipated level of traffic to be generated by the proposed development over the period from 2019 to 2034 will not be significant having regard for existing ongoing operations.

The following mitigation measures are proposed:

- Warning signage on the L1011 either side of the existing entrance, alerting drivers to the presence of the site entrance and to the presence of slow-moving vehicles accessing the site. This signage will be relocated accordingly for the proposed new entrance to the quarry and batching plant;



- In order to prevent vehicles associated with the site operations causing obstructions or queuing on the public road, parking areas are provided within the site area to accommodate both HGVs and light vehicles;
- A wheel wash will be supplied at the entrance to the site during operations to remove dirt and debris from the trucks prior to joining the local road network in order to minimise public nuisance. The wheelwash is set back from the entrance further removing the potential for mud/silt on the road; and
- It is proposed that the sightlines at the entrance will be maintained by hedge trimming such that a 160m visibility splay will be achieved in each direction.

11.6 CONCLUSION

Based on the information available, proposed development will not result in an increase in the AM or PM peak on the public road network. The traffic volumes from the site will remain the same with the addition of 2,000 tonnes per annum cement import. The sand and gravel currently produced from the site and hauled to Rathmolyon for block manufacture will cease. The overall traffic impact will reduce in the Kildare/ South Meath area as it reduces the haulage in and out of the Rathmolyon facility by 20,000 tonnes each way.

The <0.5% additional generated traffic flow on the L1011 is below the 10% threshold in the National Roads Authority, Traffic and Transport Assessment Guidelines. Therefore, no capacity assessment was required to be carried out. This will result in a minor to negligible impact on traffic capacity on the surrounding road network and a slight benefit at the Rathmolyon facility.

In conjunction with the existing operations, it is likely there has been a slight impact on the pavement condition of the roads used to transport materials from the pit.



12 LANDSCAPE AND VISUAL

12.1 INTRODUCTION

This section examines the landscape and visual impact of the proposed works in the townland of Ballyonan, Broadford, Co. Kildare. The assessment also includes a description of the surrounding landscape character and describes any measures required to reduce the visual impact of the development.

Ballyonan is located in the north Western lowlands of County Kildare. It is situated approximately 2.5km east of Clonard and approximately 1.5km west of Moyvally, Co. Kildare. This report assesses the landscape and visual effects of the Planning application Area.

12.1.1 *Basis for the Landscape Impact Assessment*

This report uses the 'Guidelines on the Information to be contained in Environmental Impact Statements' prepared in March 2002 on behalf of the Environmental Protection Agency (EPA) as the basis for the landscape and visual impact assessment.

12.1.2 *Purpose and Structure*

The guidelines describe the central purpose of an EIS (now referred to as an EIAR, following transposition of the EIA Directive in May 2017) as "to identify potentially significant adverse impacts at the pre-consent stage and to propose measures to mitigate or ameliorate such impacts." No significant impacts were identified during the consultation phase of the project.

12.1.3 *Landscape in the Description of the Receiving environment*

The guidelines describe the term 'Landscape' as covering a range of environmental topics including Landscape Character, Landscape Context, Views & Prospects, Historical Landscapes and Man-made Landscapes.

Landscape impact assessment is a combination of two separate but closely related aspects:

The first is **Landscape Impact** - This aspect defines the impact on the landscape character as a result of physical changes to the fabric of the landscape resulting from assessed development.

The second is **Visual Impact** – This aspect is closely related to landscape impacts but concern changes in views. Visual assessment concerns people's perception and response to visual amenity. Impacts may result from new elements located in the landscape that cause visual intrusion (i.e. interference with or interruption of the view).

The Guidelines recommend systematic, accurate and comprehensive descriptions of the following to be included in any assessment:

Context - Describes areas from which the existing site is visible (with particular attention given to views from roads, residences and designated tourism routes and viewpoints). Areas from where the site can be seen beyond the boundary are noted. Principal landscape features and areas of distinctive character are mapped.

Character – Describes the landscape character differentiates between subjective assessments and objective description. A description of the character of the site that is perceived both from within the site and from the wider landscape is important, as is a description of the intensity and character of land use.

Significance - Description of the quality, value or designation assigned to landscape aspects. It investigates the level of visual intrusion upon designated views, designated landscape and designated landscape amenity areas.

Sensitivities or Vulnerability – These aspects describe changes that altered the character of the landscape significantly. The magnitude of change experienced in the existing landscape or view is described as follows:

High – The existing development has altered significantly the perceived character of the landscape.

Medium – The existing development has altered moderately the perceived character of the landscape.

Low - The existing development has not notably altered the perceived character of the landscape.

12.1.4 *Description of Impacts on the Landscape*

The report presents an assessment of the significant impacts of the part of the pit subject to this EIAR.

Significance of Impacts

As described in this section, this means either the sensitivity to change of the environment that is affected (often reflects its importance), or the importance of the outcome of the impact (the consequences of the change). It is determined by a combination of objective and subjective concerns.

Description of Impacts

The report describes key aspects of impacts, namely character, magnitude, duration and consequence.



12.1.5 Mitigating Impacts on the Landscape

Relevant strategies for impact mitigation as described in the guidelines include:

- **Reduction** – Where the significance of adverse impacts is lessened. Seeks to limit the exposure of the receptor. Reduce the visual intrusiveness of the design and reduce the visibility of the project (e.g. by installing barriers between the location(s) of likely receptors and the source of the impact).
- **Remedy** – Remedy serves to improve adverse conditions by carrying out further works which seek to restore the environment e.g. increased planting of trees/shrubs to offset unavoidable loss of vegetation.
If it is not possible or practical to mitigate an impact (e.g. felling mature trees) this is described as a Residual Impact.

12.1.6 Definition of Visual Impacts

Terminology used in the assessment of impacts is defined as follows:

- **Visual Intrusion** – This occurs where a development impinges on an existing view without obscuring the view.
- **Visual Obstruction** – This occurs where a development obscures an existing view.

The quality of the impact may be described as:

- **Neutral** – A neutral impact neither enhances nor detracts from the landscape character or viewpoint.
- **Positive** – A positive impact improves or enhances the landscape character or viewpoint.
- **Negative** – A negative impact reduces or has an adverse effect on the existing landscape character or viewpoint.

The Duration of impacts is defined as follows:

- | | |
|-----------------------|--|
| • Temporary | Impacts lasting one year or less |
| • Short Term | Impacts lasting one to seven years |
| • Medium Term | Impacts lasting seven to fifteen years |
| • Long Term | Impacts lasting fifteen to sixty years |
| • Permanent | Impacts lasting over sixty years also |
| • Occasional | |
| • Intermittent | |



- **Continuous**

The Significance of impacts may be described as follows:

- **None** – There is no change to an existing view. Arises where existing landform, vegetation or the built environment adequately screens the proposal.
- **Imperceptible** – An impact capable of measurement but without noticeable consequences.
- **Slight** – An impact, which causes noticeable changes in the character of the environment without affecting its sensitivities.
- **Moderate** – An impact that alters the character of the environment in a manner that is consistent with existing and emerging trends.
- **Significant** – An impact which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
- **Profound** – An impact which obliterates sensitive characteristics.

12.1.7 Summary

In summary, this report employs recognised guidelines – 'Guidelines on the Information to be contained in Environmental Impact Statements' prepared in 2002 on behalf of the Environmental Protection Agency (EPA) – as the basis for landscape and visual assessment and recognises the assessment process as being a combination of assessment of impacts on views from key receptors, and of responses towards the combined effects of the development on landscape character.

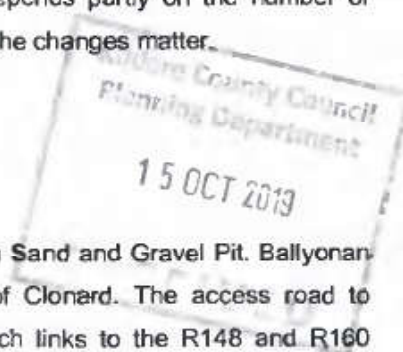
Landscape Context and Character are addressed; also, Significance in relation to planning designations and the inherent Vulnerability of the landscape in question. To ensure clarity, it is deemed important to use stated terminology to define impacts arising from the development.

The significance of impacts on the perceived environment depends partly on the number of people affected but also on value judgements about how much the changes matter.

12.2 THE RECEIVING ENVIRONMENT

12.2.1 Landscape Context

The proposed development is located to the north of Ballyonan Sand and Gravel Pit. Ballyonan Sand and Gravel Pit is located approximately 2.5km east of Clonard. The access road to Ballyonan Sand and Gravel Pit is located off the L1011 which links to the R148 and R160



regional road. There are no scenic views/routas immediately adjacent to the pit in the Kildare County Development Plan 2017-2023.

The main objectives of the assessment are:

- To identify and assess the significance of and the effects of the change resulting from development on the landscape as an environmental resource.
- To identify and assess the significance of and the effects of the change resulting from development on people's views and visual amenity.

(Ref: Guidelines for Landscape and Visual Impact Assessment, Third Edition 2013)

12.2.2 Landscape Character

The study area for this landscape and visual assessment consists of an area of 5km radius around the application site. Ballyonan Pit is surrounded by lowland rolling hills made up of tillage and grassland with a few areas of broadleaf woodland plantations located to the south, west and north of the site.

According to the Landscape Character Assessment of County Kildare, the site is situated within the North Western Lowland Landscape Character Type.



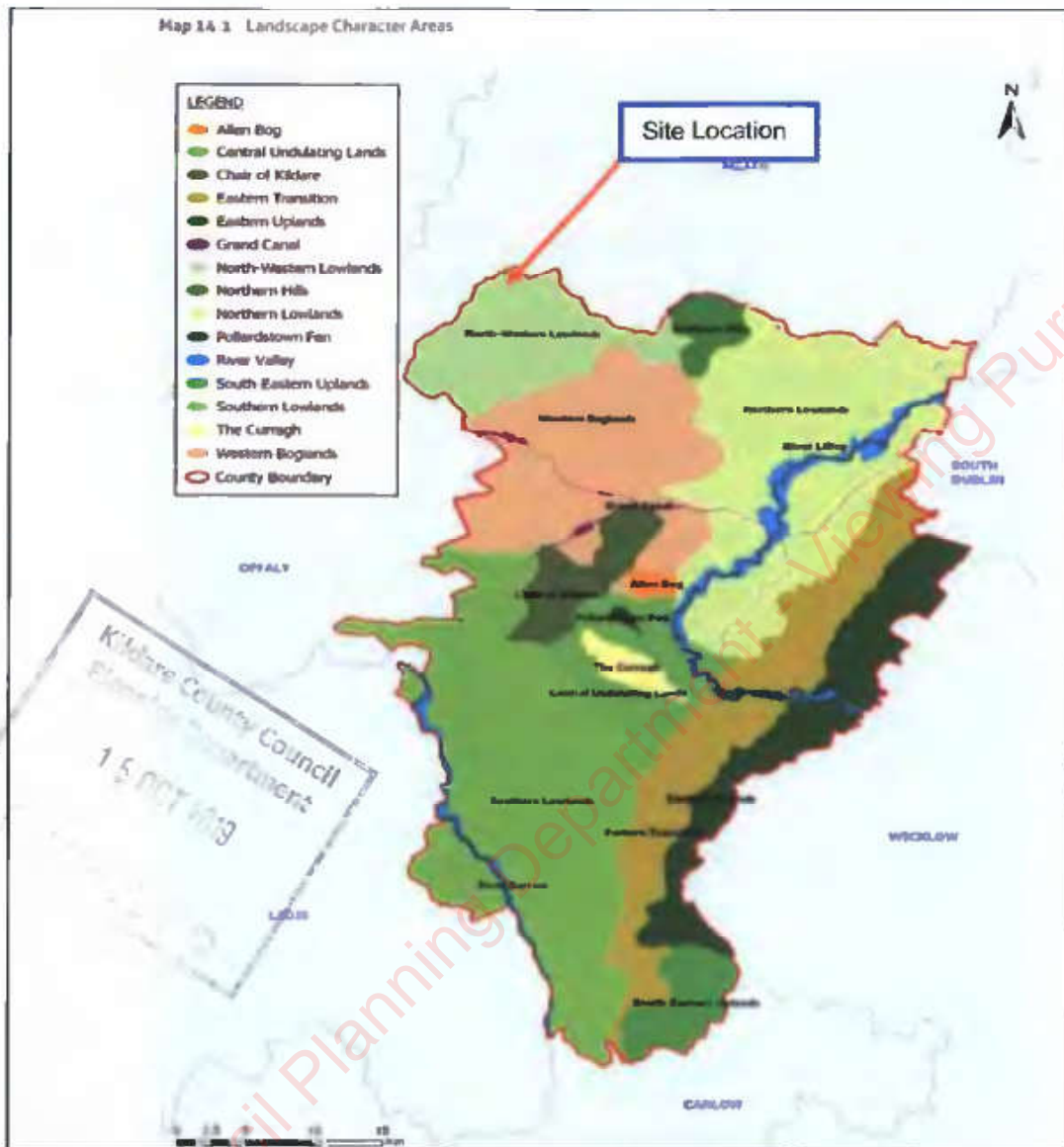


Figure 12.1: Landscape Character Map - Kildare County Development Plan 2017-2023

The lowest parts of the landscape are along the valley of Boyne River and Blackwater River. The lowland landscape area, comprises rolling drumlins and gravel moraines interspersed with numerous large estates and associated parkland.

Thick wooded hedgerows and shelterbelts of beech and ash, separate medium to large fields. Banked hedgerows are a common feature of the landscape in the enclosed rural road corridors. The main transport routes are those radiating from Enfield and Trim including the R148 and R160. This area is less populated, and the built fabric consists of scattered dwellings, with

concentrations of residential dwellings present adjacent to arterial routes within the vicinity of larger villages and towns such as Clonard and Enfield.

Farmland is a variety of scales with square – rectangular fields divided by hedgerows, which are usually clipped to eye-level adjacent to road corridors but are less well managed away from roads. The agricultural landscape comprises a series of medium to large farms with a few small ones. Views within this area are generally limited by the complex topography and mature vegetation.

Views of the application sites are generally restricted to close and medium distance views from areas within 0.25km located to the north and west of the site. Potential views from public roads located to the north, and west are generally blocked by either topography or existing intervening vegetation.

The methodology for this report is based on the recommendations set out in the “*Guidelines for Landscape and Visual Impact Assessment*” Third Edition 2013 (GLVIA3) published by the Landscape Institute and the Institute of Environmental Management and Assessment, in April 2013.

Other guidance and references are taken from:

- Kildare County Development Plan 2017-2023 - Kildare Landscape Character Assessment
- Maps- Viewer at Department of Environment, Community and Local Government www.myplan.ie
- National Monuments Service <http://webgis.archaeology.ie/historicenvironment/>
- Photographs - Landscape Institute Advice Note 01/11; Photography and Photomontage in Landscape and Visual Impact Assessment.

The landscape of the study area contains evidence of human impact such as roads, electricity poles, industry and buildings. There are a number of existing sand and gravel pits/quarries in the study area. Due to the primarily settled rural character, along with the evidence of existing sand pit and industrial activity, the landscape within the study area is considered to be of low sensitivity to workings within a sand and gravel pit.

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The LVIA assesses how the physical effects of the proposal would impact directly on existing landscape features and resources (i.e. trees, hedgerows, ditches, watercourses, ground levels etc.) within the site boundary.

The LVIA also considers impacts on landscape character made by the removal or alteration of existing features and the introduction of new features.

The assessment of the degree of landscape effects is assessed by considering the **sensitivity of the landscape character combined with the magnitude of the effect** of the proposed development.

Assessing the significance of an effect is a key component of the LVIA and is an evidence-based process combining professional judgments on the nature of a landscape or visual receptor's sensitivity, their susceptibility to change and the value attached to the receptor.

12.2.3 Landscape Character Sensitivity

The sensitivity of a landscape relates to its susceptibility to the type of change or development proposed and the value attached to the landscape. The sensitivity of the landscape is graded into three categories: High, Medium and Low as shown in Table 12.1

Table 12.1: Criteria for Landscape Character Sensitivity

HIGH	<ul style="list-style-type: none">• A landscape that exhibits important characteristics, features or of a particularly distinctive character which are highly valued.• Typically, of national importance.• Low potential or capacity for change.
MEDIUM	<ul style="list-style-type: none">• A landscape that is relatively ordinary, with moderately valued characteristics.• Typically, of local importance.• May allow scope for development with some potential or capacity for change.
LOW	<ul style="list-style-type: none">• A landscape that has poorly defined landscape characteristics and features that are of little value or interest.• May allow a higher potential or capacity for change from the development.



12.2.4 Magnitude/Scale of Landscape Effects

The magnitude of landscape effects is the size and scale of the effect, its duration and whether the effect is reversible. The magnitude of landscape effects is graded into several categories, each of which are described in Table 12.2.

Table 12.2: Criteria for Magnitude/Scale of Landscape Effects

LARGE	Total loss of, or major alteration to key elements / features / characteristics of the baseline, i.e. pre-development landscape and/or introduction of elements considered to be totally uncharacteristic when set within the attributes of the receiving landscape.
MEDIUM	Partial loss of, or alteration to key elements / features / characteristics of the baseline, i.e. pre-development landscape and / or introduction of elements that may be prominent but may not necessarily be considered to be substantially uncharacteristic when set within the attributes of the receiving landscape.
SMALL	Minor loss of, or alteration to key elements / features / characteristics of the baseline, i.e. pre-development landscape and / or introduction of elements that may not necessarily be considered to be uncharacteristic when set within the attributes of the receiving landscape.
NEGLIGIBLE	Slight loss of or alteration to key elements / features / characteristics of the baseline, i.e. pre-development landscape and / or introduction of elements that are not uncharacteristic with the surrounding landscape approximating the 'no change' situation.
NONE/ NO CHANGE	No loss, alteration or addition to the receiving landscape resource.

12.2.5 Visual Effects

The assessment of effects on views is an assessment of how the proposed development will affect views throughout the study area. Assessment of visual effects therefore needs to consider:

- Direct impacts of the proposal upon views of the landscape through intrusion or obstruction;
- The reaction of viewers who may be affected, e. g. residents, walkers, road users; &
- The overall impact on visual amenity.



The selection of the viewpoints or Visual Reference Points (VRP) to be used in the assessment should be informed by fieldwork, by desk research on access, and recreation, including footpaths, bridleways and public land access, tourism including popular vantage points and distribution of population. If necessary, Zone of Theoretical Visibility (ZTV) modelling and analysis may also be carried out to inform more distant viewpoints over a wider landscape area.

12.2.6 Sensitivity of Visual Receptors

The sensitivity of visual receptors (people or groups of people) relates to their susceptibility to changes in their views and visual amenity combined with the value attached to a particular view/visual resource.

The sensitivity of visual receptors is graded into three categories: High, Medium and Low as shown in Table 12.3.

Table 12.3: Criteria for Sensitivity of Visual Receptors/Viewers

HIGH	<ul style="list-style-type: none">Viewers looking out from their homes. Viewers pursuing quiet outdoor recreation like walking, cycling, climbing etc. Viewers in public open spaces and viewers of important landscape features of physical, historical or cultural interest.Highly sensitive to visual change.
MEDIUM	<ul style="list-style-type: none">Viewers from schools, playing fields, hunters, horse riders who are outdoors for recreation and other outdoor workers like farmers etc.Moderately sensitive to visual change.
LOW	<ul style="list-style-type: none">Viewers in vehicles passing by on roads or people involved in frequent or infrequent repeated activities.Less sensitive to visual change.

12.2.6.1 Visual resource Sensitivity

Visual resource sensitivity is defined with reference to the landscape sensitivity of the viewpoint location and the view. Other factors affecting visual sensitivity include:

- The location and context of the viewpoint;
- The occupation or activity of the people experiencing the view; and
- The importance or value of the view.

Although the interpretation of viewers' experience can have preferential and subjective components, there is generally clear public agreement that the visual resources of certain landscapes have high visual quality. Visual resource sensitivity is graded into 3 categories as shown in Table 12.4.



Table 12.4: Criteria for Visual Resource Sensitivity

HIGH	<ul style="list-style-type: none"> Views from private residential property. Recreational views from footpaths, cycle routes and other rights of way. Views from public open spaces and important landscape features of physical, historical or cultural interest. Little tolerance to change
MEDIUM	<ul style="list-style-type: none"> Views from schools, playing fields, hunting grounds and farmyards Medium tolerance to change
LOW	<ul style="list-style-type: none"> Views from office buildings, roads, bridges and trains users with views observed in passing at speed and not central to the view. High tolerance to change.

12.2.7 Magnitude of Visual Effects

The magnitude of visual effect will result in the scale and degree of change in existing views from the addition and/or removal of features within the landscape. These views will be further affected by the duration, distance and extent of change of views upon receptors and their activities. Magnitude of visual effects is defined in Table 12.5.

Table 12.5: Criteria for Magnitude of Visual Effects

LARGE	Substantial change in the existing view. Complete change in character and composition of the visual baseline.
MEDIUM	Moderate change in the existing view. This may involve partial obstruction of an existing view or partial change in character and composition of the visual baseline. Change may be noticeable but would not substantially alter the scale and character of the surroundings and the wider setting. Composition of the view would alter. The character of the view may be partially changed through the introduction of features which, though uncharacteristic, may not necessarily be visually discordant.
SMALL	Minor change in the existing view. The change would be distinguishable from the surroundings; however, the composition and character of the view would be similar to the visual baseline.
NEGLIGIBLE	Slight or no change in the existing view. The change would be barely distinguishable from the surroundings leaving the composition and character of the view unaltered.

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NONE	No change to the existing visual amenity.
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12.2.8 Degree of Effects

The overall landscape and visual degree of effects of the proposed development was determined by cross referencing the landscape and visual sensitivity with the predicted magnitude of effects against the matrix in Table 12.6 below. This matrix approach, while helpful is not a prescriptive tool and should also allow for professional judgment in determining the overall degree of effect. The Degree of Effects is shown in Table 12.6

Table 12.6: Determination of Degree of Effects

LANDSCAPE AND VISUAL RECEPTOR SENSITIVITY	MAGNITUDE OF LANDSCAPE AND VISUAL EFFECTS				
	LARGE	MEDIUM	SMALL	NEGLIGIBLE	NONE
HIGH	Major	Major/ Moderate	Moderate/Minor	Minor/ Imperceptible	No change
MEDIUM	Major/Moderate	Moderate	Minor	Imperceptible	No change
LOW	Moderate/Minor	Minor	Minor	Imperceptible	No change

It is to be noted that while the methodology matrix provides a systematic method of evaluation of the visual impact at each viewpoint /Visual Reference Point (VRP), the final judgments are based on the actual visual impact as perceived by the author on the day of the field study.

12.2.9 Planning Policy Context

The overall development strategy ('Core Strategy') for the County is outlined in Chapter 2 of the Kildare County Development Plan (KCDP). This establishes a strategic approach to the management of development in the county. The overall core strategy builds on the principles established in the previous Kildare County Development Plan 2011-2017, and the framework provided by the National Spatial Strategy (NSS) 2002-2020 (see section 2.4.1.1 of this EIA Chapter) and the Regional Planning Guidelines for the Greater Dublin Area (RPGs) 2010-2022.



Section 2.6 of the Development Plan entitled '*SEA and the Settlement Strategy*' contains a map (see Figure 12.1) which illustrates environmental conditions at a very broad, macro strategic level for the county as a whole, having regard to a range of separate environmental factors.

With regards to the location of the proposed development the Development Plan indicates that environmental sensitivities in the County increase towards the north-west due to the presence of bogs and wetlands, and that *"as the map illustrates a broad scale generalisation of sensitivities, all applications for development must be considered having regard to the individual environmental conditions of the subject site"*.

In addition to the above, Section 2.7 of the Plan '*Preferred Development Strategy*' states that a key focus of the core strategy is on *"protecting the environment by implementing an environmental protection policy which recognises the various environmentally sensitive zones within the county but not to mutually exclude appropriate and otherwise acceptable uses and development"*.

The proposed development fully complies with the Development Plan Core Strategy due to its use and its location on a site beside the existing sand and gravel pit. Furthermore, as this EIAR demonstrates, the proposed development has been carefully sited and designed to take account of the individual environmental conditions of the subject site.

Chapter 5 of the Development Plan ('*Economic Development, Enterprise and Tourism*'), highlights a key aim of the Development Plan as being to *"support and facilitate the economic development of the county across a range of sectors"*. Section 5.3.2 identifies a number of factors which will influence the future economic development of the County including the availability of infrastructure. According to the Development Plan:

"Adequate infrastructure is essential to facilitate future economic development in the county and Kildare County Council will continue to work with infrastructure providers to secure adequate water services, effective public transport, energy, telecommunications, waste management and education facilities to support employment development."

As regards movement and transport, Chapter 6 highlights the fact that the social, economic and environmental wellbeing of County Kildare is *"dependent on the efficient and sustainable movement of people and goods within and through the County"*. In this regard policy MT 15 is of specific relevance to the subject proposal.



MT 15: (i) Seek to channel HGV traffic associated with landfill and extractive sites onto the regional and national road network insofar as possible.

(ii) Seek appropriate and proportionate contributions towards the cost of road improvements which benefit the development, in accordance with Sections 48 or 49 of the Planning and Development Act 2000 (as amended)

The proposed development will utilise existing permitted haul routes, predominantly comprising regional and national roads. Refer to Chapter 10 of this EIAR for further details of the Traffic Impact Assessment. The second part of the above policy (MT 15(ii)) reflects the provisions of Section 48 and 49 of the Planning and Development Act 2000, as amended, and as such, the proposed development will be subject to any appropriate conditions imposed in this regard.

12.2.10 Baseline Studies

This section includes the Landscape and Visual baseline studies based on desktop analysis and field survey.

12.2.11 Landscape Baseline

The aim of the landscape baseline study is to provide an understanding of the landscape in the area that may be affected by the proposal – it's constituent elements, it's character and the way this varies spatially, it's geographic extent, it's history, it's condition, the way the landscape is experienced, and the value attached to it. This data was obtained through a desktop study and later reviewed during the field visit.

The landscape baselines study includes the Landscape Character Types of County Kildare.

12.2.12 Landscape Character Area

LCT's are used to categorise the more geographically specific Landscape Character Areas (LCA's). The current Kildare CDP divides the county into 15 Landscape Character Areas (LCA).

The site location in relation to the LCAs can be seen in Appendix 2 Map 2.

The Ballyonan planning application site lies in the **LCT Lowland Landscapes- North Western Lowlands**

Sensitivity:

Low - Areas with the capacity to generally accommodate a wide range of uses without significant adverse effects on the appearance or character of the area.

Landscape Description of NWL-LA Central Lowlands



The lowland plains of County Kildare principally comprise fertile lands with relatively high levels of local population and intensive land management. The slope and topography of areas occur in a shallow / gradual transition; the area is generally characterised by flat terrain and low vegetation. Concentrations of tillage lands in this lowland area tend to be characterised by extensive views across large fields with low, maintained hedges. This area of western lowland is less populated and the built fabric consists of scattered dwellings, with concentrations of residential dwellings present adjacent to arterial routes within the vicinity of larger villages such as Clonard and Enfield.

Farmland in the area is a variety of scales with square – rectangular fields divided by hedgerows, which are usually clipped to eye-level adjacent to road corridors but are less well managed away from roads. The agricultural landscape comprises a series of small farms rather than few large ones.

Views within this area are generally limited by the topography and mature vegetation. There are no significant viewpoints onto the proposed development.

Short-range views are channelled along narrow valleys between drumlins and often along road or river corridors.

12.2.13 Landscape Designations

There are **no designated areas** of pNHA, NHA, SAC and SPA within the application area. Nearby sites of conservation interest include the Boyne and Blackwater SAC and SPA.

12.2.14 Protected structures and Monuments

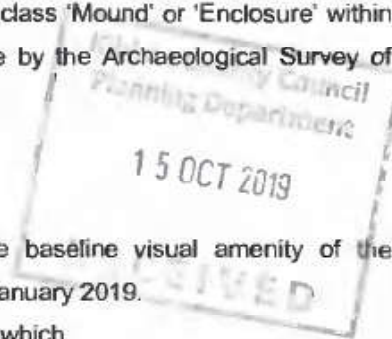
Mounds or enclosures tend to be the monument class which form part of the surrounding landscape. There are no recorded structures in the category class 'Mound' or 'Enclosure' within the study area as listed in the National Monuments Service by the Archaeological Survey of Ireland.

12.2.15 Visual Baseline

A visual appraisal has been carried out to determine the baseline visual amenity of the surrounding landscape. This assessment was undertaken in January 2019.

The aim of the visual baseline study is to establish the area in which

- the development may be visible,
- the different groups of people who may experience views of the development,



- the places where they will be affected and the nature of the views at those points.
(Ref. *Guidelines for Landscape and Visual Impact Assessment, Third Edition, Landscape Institute and Institute for Environmental Management & Assessment*)

12.2.16 Visual Resource

The following visual resources are identified with the potential to have views of the proposed development:

- Views from residential properties;
- Views from the local roads around the site used by motorists, cyclists, pedestrians and other road users that may experience views whilst travelling through the landscape;
- Designated views, prospects and scenic routes

12.2.17 Scenic Routes – Views and Prospects and Scenic Routes

There are no significant views or scenic views in the vicinity of the site.

Significance: None

12.2.18 Visual Receptors

The main visual receptors within the study area that could potentially be affected by the proposed development site are:

- the views from the residential houses on local roads to the south of the proposed application site, and
- Road users from the local roads.

It was assessed that a series of photo plates and descriptive text would best represent the visual baseline due to the small and localised nature of the study area. See Appendix 12.1.

These photo plates are intended to be representative of the existing visual resource of potential receptors.

12.2.19 Landscape Character of Site and Surrounding

Ballyonan pit is located on lands, which are gently undulating to flat. Views from the north of the pit are enclosed, with medium sized roughly rectangular fields enclosed by strong mature hedgerows and tall mature trees.

The landform is a broadly undulating landscape rising from north to south with numerous hills and relatively gentle slopes. Farming is the primary land use – mainly pasture and some arable

crops. The landscape condition is that of an intensively managed agricultural landscape with well-maintained hedgerow boundaries. In aesthetic terms, the landscape is balanced, simple, textured, medium scale, and is quietly pleasant.

The area is not densely populated. There are scattered and well-concealed farmhouses 0.4km to the north of the site. There are houses sited singly and in groups on the local access roads in the vicinity of Clonard.

The views of the landscape looking south and west from the site are enclosed due to a raised ridge between the house and the sand and gravel pit. The landscape is formed of medium to small fields bounded by mature hedgerows, single tall trees, copses on undulating land.

The site is bounded by several small-sized agricultural fields with mature hedgerows and tree boundaries to the north and east. The existing pre-1964 Ballyonan pit (QR45) is located to the south of the site

12.2.20 Site Description and Access

The planning application area is of irregular shape, located east of the L1011, to the north of Ballyonan Pit. The tillage field is under active land management. Existing site boundaries consist of mounding, hedgerows and trees. The Ballyonan Sand and Gravel Pit is accessed via the L1011.

Roads

Most of the views are concentrated in an area in close vicinity to the site, within a 0.1km radius. These views can be experienced from sections of the L1011, adjacent to the entrance area and along the southern boundary of the site, and from nearby local roads south and west of the site. Views from any other direction are screened by either vegetation or topography.

As stated above, the application area is located in the northern section of Ballyonan Pit and the site may not be visible from all residences and locations along these parts of the roads. Area A will also be restored and, therefore, the main visual impact will be during the construction phase of the works. A planning gain occurs in the relocation of the existing entrance with improved sightlines and additional screening of the overall operation..



12.3 POTENTIAL EFFECTS OF THE PROPOSED DEVELOPMENT

The potential effect of the proposed development and its impact on the landscape resources, landscape character areas and visual amenity are noted in this section. Ballyonan pit has been an integral part of the landscape from commencement pre 1964 to-date.

12.3.1 *Landscape Impact on the Resources within the Study Area*

The main landscape impact arising due to the proposed batching plant is the change in landform within the tillage field. The other landscape impact includes the ongoing sand and gravel extraction. Works include the removal of small areas of existing vegetation such as grassland, and grassy verges located in the entrance and stockpiles of the application site area.

The existing hedgerows and trees along the boundary would be retained and allowed to increase in height and width. The majority area of the application site is a tillage field. The potential landscape effects would be largely confined inside the boundary of the pit with short visibility from the existing L1011. There are no views on the site from houses along the R148.

The mature hedgerow and trees and the embankment boundaries around the proposed application site, screen potential views of the proposed works from the surrounding area. The character of the surrounding landscape would not be affected by the proposed development.

The study area includes the surrounding agricultural fields on drumlins and rolling hills, with mature hedgerows and trees, and a few residential houses and farmyards located along the local road. Kildare Landscape Character Assessment, indicates the sensitivity of the landscape character is assessed as **Low sensitivity**.

Hence the magnitude of change to the surrounding landscape is considered minor. The recolonisation and habitat enhancement of Area A will have a slight beneficial effect on the landscape. The sensitivity of the landscape character of the study area is **Medium** and magnitude of change is **Minor/Negligible**.

12.3.2 *Landscape Impact on the Landscape Character Area NWL LA*

As described in the current Kildare County Development Plan Appendix 7: Landscape Character Assessment, NWL-LA is of **Low sensitivity**.

The application site area is very small in size in the overall context of the NWL-LA. The magnitude of the landscape impact arising from the proposed works is **Negligible** on the overall character of the NWL-LA, resulting in an **Imperceptible landscape effect**.



12.3.3 Impact on Protected Structures and Monuments

There are no protected structures on site and therefore there is no impact on the protected structures in the study area due to the proposed development.

12.3.4 Visual Impact of the Proposed Development

Due to the nature of the proposed development, it was found that the actual extent of the development's potential visibility will be restricted to within the application site.

The potential visual impact would be: - the visibility of the operations and the associated infrastructure. The visual elements used during the proposed site operations are the batching plant, mobile block plant and trucks. Infrastructure such as the quarry offices/canteen, wheel wash, weighbridge, settlement tanks. The ongoing sand and gravel extraction in QR45 and recolonization and habitat enhancement of area A is also assessed.

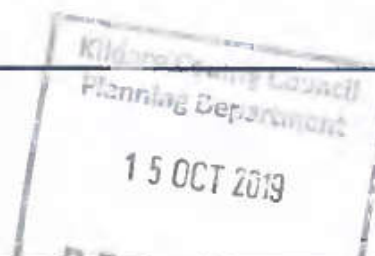
The application site and the wider Ballyonan pit site is bounded by dense hedgerows and mature trees and embankments. Due to the substantial screening, already in place, there would be no views of the proposed operations from around the site boundary within the landscape study area with the exception of short views from the existing entrance.

The proposed operations would be visually screened by dense hedgerow boundaries to the west along the local road and internal hedgerows on site. The proposed works would be screened from the north due to the dense screening provided by the mature hedgerow and treeline boundaries. There are no views of the operations from the south due to a steep gravel ridge (outside of the ownership boundary) and dense hedgerow.

The designated views and prospects in the Kildare County Development Plan are all outside the study area. There will be no change to the visual amenity of any other designated views and prospects in the surrounding landscape.

In conclusion, there would be **no change** to the existing visual amenity of the receptors within the study area due to the proposed works at the application site.

It is proposed that the operations at QR45 would continue. As with the Batching plant the material is well screened in all directions due to topography and intervening vegetation. Therefore, there will be no cumulative impact of both facilities being operational. There are no



additional cumulative impact associated with the proposed development of this site and the subject site. A slight beneficial cumulative impact may occur in the restoration of the land in the longer term.

12.4 MITIGATION

Mitigation measures are measures proposed to prevent, reduce and, where possible, offset any significant adverse effects of the proposed development (or to avoid, reduce and if possible, remedy identified effects.)

Mitigation measures may include the following:

- The majority of landscape features like boundary and internal field hedgerows and mature trees are contained within the proposed development site will be retained and maintained.
- Providing additional hedgerow or tree planting on the proposed berm is required for screening and in order to reduce views onto the site.
- Selection of native species of trees, shrubs and hedgerow species in keeping with the surrounding landscape to maintain and enhance the biodiversity as well as providing visual screening.

12.4.1 Mitigation at Ballyonan pit restoration

The aim of the restoration plan is to provide screening to minimise the visual intrusion that may affect the existing visual amenity of the receptors.

The measures include creating and planting screening berms, embankments, maintaining boundary hedgerows, trees and woodland. The restoration plan has been updated to include the proposed works. (Refer to Draft Restoration Plan)

12.4.2 Planting

The existing and proposed Restoration Plan /Planting Plan aims to screen parts of the proposed development for the duration of the works, particularly in relation to views of the batching plant. The planting will also help secure the boundaries of the site and screen views of site. The proposed planting is suitable to the local site conditions and will result in the creation of a diverse ecosystem.

It is proposed to phase the restoration of the extraction area to agricultural land with some key habitats enhancement. This proposed after-use complies with one of the after-uses listed in the



EPA Guidelines for Environmental Management in the Extractive Industry (2006). Access to the pit will be restricted to the landowners of the site, for ecological, agricultural and security reasons.

The overall conclusion of the assessment would indicate as follows:

- The phased restoration of the sand and gravel pit will have a slightly beneficial (positive) effect as can be expected with developments of this type;
- The development is in keeping with the scale/pattern of the landscape; and
- Sand and gravel extraction work which deepened the depth of the quarry had no impact on any views into and across the site.

12.4.3 Cumulative Effects

There are no likely cumulative effects on the landscape from the proposed development.

Residual Impacts (After Mitigation)

On completion of all mitigation measures it is anticipated that the restoration area within Ballyonan Pit will be restored to align with the surrounding topographical levels. The material will be graded, topsoiled, seeded with grass seed and left to recolonise which will minimise residual landscape and visual impact. In addition, as this is a restoration project within a void created by industrial activity, the works may be described as positive in the long-term.

12.5 CONCLUSION

The proposed development will operate in accordance with planning conditions, DoEHLG quarry guidelines 2004, EPA quarry guidelines 2006 and the ICF Environmental code.

The application site area is small in the overall context of the NWL-LA. The magnitude of the landscape impact arising from the proposed works is Negligible on the overall character of the NWL-LA in a NWL-LA resulting in an **imperceptible** landscape effect on NWL-LA.

The sensitivity of the landscape character of the study area is Medium and magnitude of change is Negligible resulting in an **imperceptible to slight beneficial** landscape effect on the landscape resources within the study area.

The proposed operations would be visually screened by the dense hedgerow and tree boundaries and the pit embankment.

Over time, when the proposed development is fully restored, there would be diverse habitats created, that would be integrated within the surrounding landscape.

Residual effects will occur when the development is operational and after the incorporation of all mitigation measures.



Revised 01 Phase

NO.	DESCRIPTION	DATE
1	Issue for comment and approval	15/10/2018
2	Issue for comment and approval	15/10/2018
3	Issue for comment and approval	15/10/2018
4	Issue for comment and approval	15/10/2018
5	Issue for comment and approval	15/10/2018

Phase 1
 This area is to be landscaped with a mix of native and non-native trees and shrubs. The planting is to be done in a way that creates a naturalistic appearance. The trees and shrubs are to be planted in a way that they will mature and provide shade and shelter for the building. The planting is to be done in a way that it will be a low maintenance area. The trees and shrubs are to be planted in a way that they will be a low maintenance area. The trees and shrubs are to be planted in a way that they will be a low maintenance area.

NO.	DESCRIPTION	DATE
1	Issue for comment and approval	15/10/2018
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4	Issue for comment and approval	15/10/2018
5	Issue for comment and approval	15/10/2018

Client: **KEEGAN O'JARRIES**
 Project: **BALLYONAN BATCHING PLANT PLANNING APPLICATION**
 Title: **LANDSCAPING LAYOUT PLAN**



Scale: 1:1,250
 Prepared by: M. Healy
 Checked by: J. O'Neil
 Date: JULY 2018
 Project Director: D. Gurnan
 Drawing Format: ESWP
TOBIN
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 10000 Kildare Road, Kildare, Co. DU
 Tel: +353 (0)1 852 0000
 Fax: +353 (0)1 852 0001
 Email: info@tobin.ie
 Website: www.tobin.ie
 Drawing No: **Figure 12.2 A**

13 LAND

13.1 INTRODUCTION

13.1.1 *Guidance Used in the Land Impact Assessment*

This chapter describes the effects on land of the proposed development at the Ballyonan Pit, County Kildare in accordance with the relevant Environment Protection Agency (EPA) Guidelines. The following sources and guidelines were used in the assessment:

- 'Guidelines on the Information to be contained in Environmental Impact Statements', EPA, 2002;
- 'Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)', EPA, 2003;
- "Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports", EPA, August 2017;
- Kildare County Development Plan; and
- Ordnance Survey Ireland, 1:50,000 Discovery Mapping.

The amended Directive introduces *Land* as a prescribed environmental factor. Recital 9 gives context to this addition, showing that it relates to the issue of 'land take'. This change aligns the Directive with proceedings of the United Nations Conference on Sustainable Development (Rio de Janeiro, 2012) and with Commission strategy. As detailed in the "Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports", EPA, August 2017, Article 3(1) of the amended EIA Directive requires that the environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on a number of factors including *Land* (listed separately).

Land (with a focus on land use; land take) is therefore included as a separate chapter in this EIAR.

13.1.2 *Characteristics of the Proposed development*

A detailed description of the proposed development is provided in Chapter 3.



13.2 RECEIVING ENVIRONMENT / BASELINE DESCRIPTION

13.2.1 Site Location

The KQL property, as outlined in blue in Chapter 1 on Figure 1.1, is located within the County Kildare townland of Ballyonan.

The application boundary, outlined by the red line on Figure 1.1 (which is defined as the area in which the application for development is being made and within which all activities associated with the proposed development will occur), will be confined to a landbank of approximately 1 ha. Access into the previously permitted Ballyonan Pit has been provided from the local road via a dedicated site entrance.

13.2.2 Land Use

The proposed development is located within a segment of land within the KQL landholding, which is located to the west of the existing access road. The land within the site boundary consists of the flat lying and gently undulating topography typical of north Kildare.

Land use on and adjacent to the proposed development site is primarily agricultural with a pre-1964 sand and gravel pit located to the south. There are no public amenities on the proposed development site such as walking routes. There are no agricultural, horticultural or commercial forestry activities taking place on the subject lands.

Immediately adjacent to the proposed development site there are areas of land where agricultural usage is evident.





Plate 13.1: View of proposed location

13.2.3 Topography

The proposed site is situated in relatively flat low-lying area with levels ranging from 64 m to 71 mOD. Whilst the topography throughout the overall landholding is also relatively flat, screening of the site operations from the adjoining roads will be provided by existing hedgerows and tree lines, which will be augmented by additional planting surrounding the proposed development.

The remote nature of the location of the facility footprint provides considerable separation distances between the proposed development and adjacent roads.

13.2.4 Likely Future Receiving Environment / Do Nothing Scenario

All components of the baseline are constantly changing due to a combination of natural and human processes. When predicting likely direct and indirect effects it is important to remember that there are two available for comparison: the existing baseline environment and the future



baseline environment without the implementation of the proposed development but considering natural changes only.

In land use terms, if the development did not go ahead, the proposed development site will remain as an area of regenerating bare ground. The succession and maturing of vegetation will continue depending on a number of factors for example existing soil / peat conditions, the likelihood of erosion, water levels and the re-establishment of a balanced ecosystem.

13.3 POTENTIAL EFFECTS ON LAND

13.3.1 Land Use

This section outlines the potential direct or indirect effects on the land (land use) at the proposed development site which are closely related to the scale and nature of the proposed development. The proposed development, described in detail in Chapter 3, will be gradually developed, within the site. The change of land use at the proposed development site will also include the construction of buildings, surface water attenuation lagoons within the site.

The proposed development will continue the emerging trend within the KQL land holding at the Ballyonan Pit of land changing in use from agricultural land to sand and gravel extraction and associated facilities.

There are no horticultural or commercial forestry activities taking place on the subject lands. Direct and permanent change to the land will occur locally where the proposed development will be physically located resulting in a land take for the proposed development and change in land use at the proposed site. The magnitude of change within the proposed development site is considered slight impact.

13.4 MITIGATION MEASURES

Mitigation is a term used to describe the measures or actions that may be taken to minimise environmental effects. The purpose of mitigation is to avoid, reduce and where possible remedy or offset, any significant adverse direct and indirect effects on the environment arising from the proposed development.

Given the scale and nature of the proposed development and that the most significant effect on the land is due to the actual physical imposition of the development on the land the possibility of mitigation measures is somewhat restricted. However, the following mitigation measures are proposed for the facility.



Retention of all existing perimeter planting and re-generating vegetation where possible. Disturbance of existing vegetation will be minimised where possible and proposed planting will help integrate the proposed development into the current land use. The main long-term mitigation measure will be the staged topsoil and grassing of the area.

13.5 RESIDUAL EFFECTS

Effective implementation and establishment of proposed mitigation measures will have a beneficial impact and help to reduce effects associated with the proposed development on the current land use.

13.6 CONCLUSION

As this infrastructure will be located adjacent to the existing extractive activity, it is considered that it will not result in a significant change of use to the overall KQL landholding at the Ballyonan Pit. However, the scale, nature and physical footprint of the proposed development will have a long-term slight beneficial effect on the land use at the proposed development site.



14 CULTURAL & ARCHAEOLOGICAL HERITAGE

14.1 INTRODUCTION

This environmental impact assessment report (EIAR) prepared on behalf of Patrick J TOBIN & Co. Ltd has been undertaken to assess the significant effects, if any, on the cultural heritage, archaeology and architecture which can reasonably be expected to occur because of the proposal by KQL to develop a concrete batching plant, block yard, weighbridge, wheelwash and associated infrastructure, for the purpose of developing added value products to the existing sand and gravel extraction pit located at the north-eastern end of Ballyonan Pit.

The proposed development consists of a served concrete block making facility, which will involve a small concrete batching plant, aggregate stockpiling area, with the aggregate being supplied from the existing sand and gravel pit and offloaded into storage bays. Limited volumes of cement will be imported by road, and the finished blocks will be exported by road to local markets.

A wide variety of paper, cartographic, photographic, and archival sources was consulted. All the lands of the application area were visually inspected.

This study which complies with the requirements of Directive EIA 2014/52/EU is an assessment of the known or potential cultural heritage resource within a specified area and includes the information that may be required for reaching a reasoned conclusion on the significant effects of the project on the environment, considering current knowledge and methods of assessment. It consists of a collation of existing written and graphic information to identify the context, character, significance, and sensitivity of the known or potential cultural heritage, archaeological and structural resource using an appropriate methodology (EPA 2002 and 2003).

The study involved detailed investigation of the cultural heritage including the archaeological, architectural, and historical background of the application area and the surrounding area up to 1km from the application area indicated on Fig 12.1. This area was examined using information from the:

- Record of Monuments and Places (RMP) of Co. Kildare
- Sites and Monuments Record
- Kildare County Development Plan 2017-23;
- Aerial photographs;



- Excavation reports;
- Cartographic; and
- Documentary sources.

A field assessment was carried out on the 23 January 2019 to identify and assess any known archaeological sites and structures and previously unrecorded features, finds and structures within the application area.

An impact assessment and mitigation strategy has been prepared. The assessment has been undertaken to assess the significant effects, if any, on the cultural heritage, archaeology and architecture which can reasonably be expected to occur because of the proposal, while a mitigation strategy has been designed to remedy any significant adverse effects on cultural heritage.

The assessment was prepared by Dr. Charles Mount who has more than twenty-five years of cultural heritage assessment experience. He holds B.A., M.A., and Ph.D. degrees in archaeology as well as a professional diploma in EIA and SEA Management and is a member of the Institute of Archaeologists of Ireland and the Discovery Programme.

14.2 EXISTING CULTURAL HERITAGE ENVIRONMENT

The Landscape

The application area is situated in the north-west of County Kildare on OS six-inch sheet 1, c.2.7km south-east of the town of Clonard, Co. Meath and just to the north of the R148 road.

Historical and archaeological development of the study area

The following is a summary of the archaeological and historical development of the study area and the main types of sites and monuments that are known from the surrounding landscape. The information is drawn from the assessment. It is intended to indicate the types of sites and monuments known to be present in the study area as well as the pattern of landholding and to place this material in its cultural heritage context. The application area is situated in the townland of Ballyonan, the civil parish of Ballynadrumny and the barony of Carbury. Note the spellings of place names varied throughout history, the historical spellings are used here.



Prehistoric Period

The only definite prehistoric monument known from the study area is a fulacht fiadh identified in Kilrathmurry townland and preserved by record during the development of the M4 Kinnegad–Enfield–Kilcock Motorway Scheme (02E0097). A mound in Clonard New townland (RMP KD001-009---) may be a prehistoric burial mound, but there is no record of any investigation of the site.

Early Medieval Period

In the Early Medieval period the study area formed part of the Kingdom of Uí Fáeláin (MacCotter 2008, 174-7). The area known as Cairbre (Carbury) was occupied by the Ua Ciardha (O'Keary) sept from the mid tenth century AD onwards. There are numerous references to the Ua Ciardha in the Annals of the Four Masters commencing in 952 and ending in 1176.

Classically settlement at this period is indicated by the presence of enclosed farmsteads known as ringforts, when enclosed with earthen banks, and cashels when enclosed by stone walls. There is one ringfort known in the study area in Ballynakill townland (RMP KD001-002---).

The Later Medieval Period

On the death of King Diarmait Mac Murchade in 1171 his son-in-law Richard fitz Gilbert de Clare claimed the Lordship of Leinster. By the time of his death in 1176, when Leinster passed to King Henry II, the process of sub-infeudation (the granting of lands by lords to their dependents, to be held by feudal tenure) was well under way in much of Leinster. The Ua Ciardha lands in the Barony of Carbury were granted by de Clare to Meiler fitz Henry, who had landed in Bannow Bay with his uncle Robert fitz Stephen in May 1169 and had assisted in the conquest of Leinster (Otway Ruthven 1980, 43). But as the Annals indicate that Donnell O'Keary was still Lord of Carbury in 1176, fitz Henry probably had not occupied them yet. About 1202 fitz Henry granted 4 carucates of land in his barony of Carbury to the Augustinian Priory of Great Connell so Carbury would have been occupied by that time (Sweetman Vol. I, No. 273).

Fitz Henry entered a monastery in 1216 and as he had no son his lands reverted to the successor of de Clare as Earl of Leinster, William Marshall (Otway-Ruthven 1980, 87). Carbury barony passed in turn to Marshall's five sons and eventually to his daughter Sibilla and her husband, William Ferrars. Carbury then passed through their daughter, Agnes Ferrars, to her husband William de Vescy and to their son William de Vesci, who in 1297 surrendered Carbury and Kildare to King Edward I (Sweetman Vol. II, No. 2324).



The process of sub-infeudation is normally associated with the construction of timber castles, known as Motte and Baileys. These earthwork fortifications were used to house and defend the Norman lords and their retinues while they set about the process of pacifying and organizing their new fiefs. The motte is a raised earth mound, usually artificial and topped with a wooden or stone structure. There are no Mottes in the study area, the closest example is situated to the north-west in Clonard outside the study area (RMP ME047-004----).

Manorialism describes the organisation of the feudal rural economy and society characterised by the vesting of legal and economic power in a lord supported economically from his own direct landholding and from the obligatory contributions of a legally subject part of the peasant population under his jurisdiction. In Ireland the Lord's manor house was also often enclosed by a rectangular moat and these sites are referred to as moated sites. They are a useful indicator of Anglo-Norman settlement. There are no moated sites known in the study area but there is one just outside to the west in Kilrathmurry townland (RMP KD001-003---).

A pit containing charcoal was identified outside the application area in Ballyonan townland during the development of the M4 Kinnegad–Enfield– Kilcock Motorway Scheme (02E1087) and was dated to cal. AD 1200–1300. A possibly medieval kiln, limekiln, spread, smelting pits and hearth were identified in Kilrathmurry townland during the same scheme (04E0383, 04E1181).

The fifteenth century was characterised by the decline of Anglo-Norman power in Ireland which had been ebbing since the early fourteenth century. Part of the response to this was the construction of masonry tower houses which sprang up after King Henry VI introduced a building subsidy of £10 in 1429 (Sweetman 1999, 137). However, there are no tower houses known from the study area.

Throughout the fifteenth century the Berminghams controlled Carbury and were in rebellion and the barony was the subject of repeated invasions. In 1421 the Earl of Desmond and the Baron of Delvin invaded Carbury and destroyed the crops of Meiler Bermingham (Annals of the Four Masters 1421). In 1466 Con O'Connor Faly defeated the Earl of Desmond and imprisoned him in Carbury castle (Annals of the Four Masters 1466.13). In 1475 Hugh Roe O'Donnell destroyed Carbury castle (Annals of the Four Masters 1475.12).

The Post-Medieval Period

In 1540 the Crown Survey (Mac Niocaill 1992, 202) records that the Villata of Ballyowenan (Ballyonan) as held from Walter Fitzgerald by William Birmingham. The Down Survey records



that in 1641 Ballyonan, was in the hands of Patrick Plunkett of Longwood but by 1670 had come to Lord John Kingston (<http://downsurvey.tcd.ie>). By 1888 Ballyonan was held by the Rev. John Errington (HMSO 1888, 26).

Buildings

Designated structures

The Kildare County Development Plan 2017-23 the Meath County Development Plan 2013-19 were examined as part of the baseline study for this section of the EIAR. The review established that there are no structures situated within the application area. There are three protected structures situated within the study area (see Fig. 14.1 and Table 14.1 below).

Table 14.1 Protected Structures in the study area.

RPS No.	Structure Name	Townland	Description
B01-01	Ballynakill Rath	Ballynakill	Rath
B01-02	Ballyonan Corn Mill	Ballyonan	Corn Mill
B01-03	Leinster Bridge, Co. Kildare	Clonard New	Bridge

The closest Protected Structure externally to the application area is Ballyonan Corn Mill (RPS B01-02) which is situated 0.48km south-west of the application area on the far side of R148 road. The Structure will not be directly or indirectly impacted by the proposal and has no view of the application area. The remaining Protected Structures in the study are at a greater distance and are considered too far distant to be directly or indirectly impacted by the proposal.

Non-designated structures

The National Inventory of Architectural Heritage (NIAH) which is maintained by the Department of Culture, Heritage and the Gaeltacht was examined on the 16 January 2019. The review established that there are no additional structures listed in the NIAH situated within the application area. There are also no additional structures listed in the NIAH situated within the study area.

Field Inspection

On the 23 January 2019 fieldwork was carried out to identify any additional upstanding non-designated structures in the vicinity of the application area. This involved assessing all



upstanding structures that are marked on the 1911 edition of the six-inch Ordnance Survey mapping either within or within 100m of the application area (see Fig. 12-1). There are no such structures situated in this area.

Archaeological Assessment

Recorded Monuments

The Record of Monuments and Places (RMP) which is maintained by the Department of Culture, Heritage and the Gaeltacht was examined. There are no Recorded Monument situated within the application area listed in the Record. The closest Recorded Monument externally to the application area is a mound in Clonard New townland RMP KD001-009—. This monument is situated more than 0.7km north-west of the application area and is considered too far distant to be directly or indirectly impacted by the proposal. The other Recorded Monument in the study area is further away and is too far distant to be directly or indirectly impacted by the proposal (See Appendix 14.1).

Monuments included in the Sites and Monuments Record

The Sites and Monuments Record (SMR) which is maintained by the Department of Culture, Heritage and the Gaeltacht was examined on the 15 January 2019. There are no monuments included in the SMR within the application area. There is a Road - road/trackway in Clonard New townland SMR KD001-012— in the study area included in the SMR. This monument is situated more than 0.7km west of the application area and is considered too far distant to be directly or indirectly impacted (See Appendix 14.2).

Cartographic Sources

The Ordnance Survey 1st and 3rd edition six-inch maps of the study areas were examined. This analysis did not indicate any previously unrecorded archaeological sites or monuments in the study area.

Aerial Photographs

Ordnance Survey 1995, 2000 and 2005 imagery as well as Google Earth imagery from 2006, 2009, 2011, 2016, 2017 and 2018 Bing imagery from 2011 was examined any additional cultural heritage sites. A Google earth image taken during drought conditions on 28 June 2018 indicated several linear features appearing as cropmarks in the application area (see Pl. 12.1). Overlaying the 1836 OS 1st edition map over the aerial image indicated that these are the remains of field boundaries represented on the 1st edition mapping that have been levelled (see Pl. 12.2). These



levelled field boundaries are not considered to be of archaeological or cultural heritage significance.

Place Name Evidence

The place names were extracted from the cartography to facilitate the search for structures and monuments and small finds, to help identify any unrecorded monuments or structures, to search for any published papers and documents related to the study area and to assist in the study of the historical development of the area. The English translations of the townland names of the study presented below are based on the Place Names Database of Ireland.

Townland	Townland origin
Ashfield or Screeboge	Originally Scriobóg, a small race course
Ballinlig	Townland of the hollow
Ballyonan	Eoghanáin's townland
Ballynadrumny	Townland of the ridge
Ballynakill	Townland of the church
Clonard New	Lawn of the height or hill new
Clonard Old	Lawn of the height or hill old
Mulphedder	Peter's hill
Kilrathmurry	Wood of the fort of Murray

The place names do not indicate any additional cultural heritage items in the application area. They refer mostly to topographical features, landcover and proprietors' names except for Kilrathmurry.

Other sources

Examination of archaeological corpus works on prehistoric artefacts (Harbison 1969, Eogan 1965, 1983, 2000, Kavanagh 1991, Simpson 1990), and pottery (O'Riordáin and Waddell 1993) and Iron Age material (Raftery 1983) did not indicate any additional cultural heritage material in the study area.

Licensed Archaeological Excavations



Examinations of the Excavations Bulletin www.excavations.ie indicated that there have been no licensed archaeological excavations carried out in the application area. There have been several excavations carried out in the study area (see below).

Ballyonan 1 Pit 02E1087

Excavation was carried out on behalf of Westmeath County Council at Ballyonan 1, Co. Kildare, before the construction of the M4 Kinnegad–Enfield– Kilcock Motorway Scheme, Contract 2, from 23 to 26 September 2002. The excavated area was just north of the River Glash, on the outskirts of Broadford village. A layer of topsoil, 0.2–0.3m deep, was mechanically excavated, revealing compact, yellow/grey marl, within which were a number of geological depressions and channels containing compact clay, the result of hydraulic action. An area of 30m by 40m was stripped but failed to reveal any features apart from a thinly spread deposit of compact charcoal flecking. There was no evidence of burning in situ, either within the spread or in the immediate area. No cultural material was recovered to suggest a function. The deposit measured 1m north–south by 1.1m and was 0.03m thick. No cut was recorded for the feature. Its north-western side had been clipped by one of a series of shallow field drains that ran north-east/south-west through the excavated area. It provided a radiocarbon date of cal. AD 1200–1300 (possibly a result of old wood effect).

Kilrathmurry and Ballinlig Kiln 04E0383

An assessment of two borrow pits was carried out from 28 July to 3 August 2004. The first borrow pit was located in the townland of Kilrathmurry and the second in Ballinlig. Both were used for the extraction of material for use in the construction of the M4 Kinnegad–Kilcock Motorway.

Kilrathmurry

A total of 30 trenches were excavated throughout the site. The area to be tested was originally spread out over six fields, but it was decided to use only three of these fields for quarrying. Three features of archaeological significance were exposed: a stone feature, a spread associated with metalworking and an oxidised and charcoal spread.

The stone feature was located within Field 1. The exact function of this feature is not known, but it may represent the remains of a kiln. The second area of significance, a spread, was located within Field 3. Slag was recovered from this feature and it was probably associated with metalworking. The third area of significance was also located within Field 3 and consisted of a charcoal and oxidised spread.



As all of these features were to be impacted upon, full archaeological excavation was recommended. This was carried out by Linda Clarke under licence 04E1181.

Ballinlig

A total of seventeen trenches were excavated throughout the site. No features of archaeological significance were exposed and no finds were recovered.

Kilrathmurry Limekiln, spread, smelting pit and hearth 04E1181

This excavation was carried out between 28 July and 3 August 2004 following the recommendations of an assessment of the proposed Kilrathmurry borrow pit site by Donald Murphy. The site extended over three fields and three features of archaeological significance were exposed in two of these fields during the assessment. These were a stone feature (F3) that represented the remains of a possible kiln, a spread associated with metalworking (F5) and an oxidised charcoal spread (F6) that represented the remains of a possible hearth.

Ten metres by 10m was stripped around F3, 10m by 15m was stripped around F5 and an area of 10m by 10m was stripped around F6. One additional feature of archaeological significance was identified close to F6. This was a bowl furnace. A portion of an old boundary ditch and an associated drain were also exposed; these were non-archaeological.

Four features of archaeological significance were identified. The most significant was located in Field 1 and was initially identified as the possible remains of a kiln. The remains consisted of a spread of rubble and the slight trace of a flue. Upon excavation, the remains of a limekiln were identified. The upper portion of this feature had collapsed, but the bowl of the kiln and a flue, defined by two walls, were also identified. The kiln was almost keyhole in shape. The pit (bowl) was almost circular in shape and had a diameter of 1.7m. It also survived to a maximum height of 1.25m. It would initially have been significantly higher, as up to 0.8m of rubble was removed before the upper stones of the bowl were uncovered.

The other three features of significance were identified within Field 3. These may all be linked. They consisted of a spread associated with metalworking, the truncated remains of a bowl furnace and the truncated remains of a hearth. This hearth may represent the remains of a smithing hearth and was in all likelihood used in conjunction with the bowl furnace.

Kilrathmurry Fulacht fiadh 02E0097



An assessment of this site, near a moated site and mill-race (Site 30) and an enclosure and mill-race (Site 31; SMR 1:3 and 1:1), was carried out before the construction of the M4 Kinnegad–Enfield–Kilcock Motorway Scheme, Contract 2, on behalf of Westmeath County Council. Site 30 consisted of a bank-and-ditch arrangement showing evidence of internal subdivisions. The site was destroyed in the 1970s, as was the mill-race in the vicinity. Present-day aerial photography shows evidence of the enclosure and mill-race only. Site 31 was also destroyed in the 1970s, and present-day aerial photography shows evidence of the enclosure only.

A total of 21 test-trenches were excavated in the area of the proposed motorway near both sites. A trench was excavated along the centre-line of the road, and twenty further trenches were excavated at various intervals at right angles to the centre-line trench. Two ditches were exposed toward the centre of the field. The position of these ditches is similar to that of field boundaries depicted on the 1837 and 1911 OS maps. A series of furrows was also exposed toward the centre of the field. These were more concentrated on the top of a small ridge but extended toward the south-eastern corner of the field. Most were aligned north–south, in the same direction as the modern cultivation furrows and the existing field boundary. A cluster of features, initially identified as possible pits and post-holes, was exposed on the top of this small ridge. These features were filled with a compact, sterile, orange clay, but further investigation proved them to be natural anomalies. A number of shallow, linear field drains were also exposed throughout this site.

Two features of archaeological interest were, however, exposed within this site: a small, heavily truncated, burnt stone spread measuring 2m by 2.5m was exposed in Trenches 1 and 2; and a small, charcoal/grey, sticky spread measuring 1m by 1.4m was revealed in Trench 9. This site was excavated as Kilrathmurray 2.

Kilrathmurry 18th-/19th-century house 02E0099

An assessment of this site, near a cemetery (Site 32) and linear cropmarks (Site AE8), was carried out before the construction of the M4 Kinnegad–Enfield–Kilcock Motorway Scheme, Contract 2, on behalf of Westmeath County Council. The cemetery represents a burial-ground for the Wexford casualties from the Battle of Clonard in 1798. It is considered a historical site and is indicated on the 1909 OS 6-inch map as 'Croppies Grave'. It is not an SMR site and is c. 50m from the road-take. The cropmarks appear as a series of linear features in a rectangular pattern and may represent drains.



Nineteen trenches were excavated within the road-take adjacent to Site 32. The only feature of significance exposed was a rubble stone wall in Trenches 1 and 5. This may be the remains of a building depicted on the 1837 OS map.

An additional twelve trenches were excavated in the area of the road-take adjacent to Site AE8. No features of archaeological significance were noted. Part of this area was not tested, as requested by the landowner, owing to the presence of field drains. These may be the linear features identified on this site via aerial photography. This untested area is marked on the 1837 OS map as the 'Bulls Ring'.

The construction of the road will have a direct impact on the exposed wall. This feature was archaeologically resolved as Kilrathmurry 1 (02E1085).

Kilrathmurry Cottage 02E1085

Excavation was carried out, on behalf of Westmeath County Council, at Kilrathmurry 1, Co. Kildare, before the construction of the M4 Kinnegad– Enfield–Kilcock Motorway Scheme, Contract 2, from 6 to 13 September 2002. The excavated area was close to the site of the Battle of Clonard. A number of monuments relating to that battle survive in the landscape. These include Tyrell's fortified mansion and Croppies' Graves. The present bridge was built in 1831, the original having been situated c. 50m downstream. Some local historians place the tollhouse connected to this bridge at the location of the structure under discussion, while others mention thatched cottages. A structure is marked here on the 1837 OS map. This structure, though possibly built by 1837, appeared to have belonged more to the latter half of that century. The finds from the site were all relatively modern, including black-glazed ware, clay pipes and iron nails. The walls were built directly onto subsoil (mostly boulder clay but with extensive pockets of coarse grey sand in areas).

The structure was rectangular, with the north, south and east gable walls surviving intact at foundation level. The western gable was not within the limits of excavation. There were no internal dividing walls. The lack of slates or roof tiles indicates a thatched or sod roof. The front and rear walls (i.e. north and south) were stone constructions; both sides were faced (in a random, uncoursed construction), with an inner rubble core. There was no obvious evidence of an entrance through either wall, but access may have been gained through the northern wall. The eastern gable wall was constructed of clay with red-brick fragments throughout. Only the base of the wall remained intact. The western wall was probably of clay construction also. Other parts of wall remained in places, including part of an L-shaped extension/ porch made of clay and



heavily mortared loose rubble. Patches of internal surfacing occurred within the structure. There were two types: a smooth metalled surface and a rougher, more uneven surface. These deposits were separated by an internal gully, perhaps suggesting an early date for the structure. The differing surfaces may indicate an internal byre.

Field Inspection

A field inspection took place on the 23 January 2019. This involved an inspection of all the lands of the application area (see Plate 14.1). The application area is situated in agricultural land used for tillage.

Area 1

This is the area of the proposed concrete batching plant, block yard, weighbridge, wheelwash and associated infrastructure and access. It is situated in a flat to undulating agricultural field that had been recently harrowed (see Plates 14.3 & 14.4). There was no visible indication of any archaeological cultural heritage material.

Area 2

This is the area of the proposed extraction. It is situated in a flat to undulating agricultural field that had been recently harrowed (see Plate 14.5). There was no visible indication of any archaeological or cultural heritage material.

14.3 SIGNIFICANT IMPACTS

Direct impacts

There are no impacts on any other known items of cultural heritage, archaeology, or buildings of heritage interest in the application area or the vicinity.

Indirect impacts

There are no indirect impacts on any known items of cultural heritage, archaeology, or buildings of heritage interest in the application area or the vicinity.

Interaction with other impacts

No interactions were identified during the assessment.

'Worst case' impact

In the worst case scenario soil-stripping of unstripped land within areas 1 & 2 may impact previously unknown subsurface archaeological deposits or artefacts without preservation by record taking place.

14.4 MITIGATION MEASURES

Direct impacts

Due to the possibility of the survival of previously unknown subsurface archaeological deposits or finds within areas 1 & 2 soil-stripping in these areas should be archaeologically monitored.

Indirect Impacts

No indirect impacts warranting specific mitigation were identified during the cultural heritage assessment.



15 INTERACTION OF THE FOREGOING

This Environmental Impact Assessment Report (EIAR) has been prepared by TOBIN on behalf of KQL and accompanies a planning application to Kildare County Council for the Ballyonan Pit, Broadford, Co. Kildare.

The potential environmental impacts of works at this location have been outlined in this report. This section discusses the potential for interaction between impacts of the different environmental aspects.

15.1 DISCUSSION OF INTERACTIONS

Human Beings/Socio Economic

Human Beings will interact with other environmental aspects given the nature of the recycling and proposed works.

Adverse impacts that may be associated with noise and vehicular disturbance during proposed works within the application area are likely to be slight, short term and best practice management systems will be implemented during the proposed activities to fully comply with all relevant surface water pollution prevention legislation and thus avoid impacts to surface and groundwater drainage systems.

Noise and dust controls will be in accordance with strict Department Guidelines and EPA Guidelines. KQL will implement a range of best practice methods to ensure that any potential effects will be negligible.

Social and travel patterns, pedestrian or otherwise, will not be disrupted by the works within the proposed application area as no roads or pedestrian ways will be altered.

Flora and Fauna/ Water

Local rivers, especially those with fisheries value and downstream SPAs and SACs, will be protected by the continued implementation of standard measures to ensure that there will be no contamination or impact on the local surface water environment and the associated ecological environment as a result of activities within the application area. There are no direct surface water discharges from the site.

Dust and noise impacts on adjacent habitats and fauna will be minor as dust and noise controls will be implemented in accordance with strict Department and EPA Guidelines. In addition, the impact on local fauna will be negligible as the adjacent pre-1964 area is already subject to these disturbances and species are already utilising relatively disturbed zones.

Soils/Geology and Hydrogeology

All incoming natural materials will be managed on site according to best practice. This will mitigate against any adverse effects on the local environment. There will be no significant alteration to the natural geological conditions in the local or regional area, with the exception of the restoration of the topographical levels in the immediate area of the proposed development.

Water

The surface water and groundwater environment in the vicinity of the pit will not be impacted by the development. As a result, there will be no adverse effect on groundwater levels in any adjacent private wells, or areas outside the property boundary of Ballyonan Pit. No works will occur below the water table. Mitigation measures, including the Surface Water Management Plan, will be implemented to ensure that there will be no contamination or impact on the surface water environment and the associated ecological environment as a result of surface water runoff from the site and importation material.

Air Quality and Climate

Works within the application area will have no effect on the microclimate in the immediate vicinity of the site.

Dust suppression and a wheelwash will mitigate against the impact of windblown dust around the site and to nearby dwellings. These measures will reduce the impact on human beings and material assets in the community. KQL will adhere to a dust control regime in accordance with the requirements of the EPA and Kildare County Council's Environment Section.

Noise and Vibration

Noise will emanate from the temporary working of machinery associated with the works within the application area. However, site activities will be effectively managed to ensure that all potential noise and vibration impacts are minimised to acceptable levels.



Landscape & Visual Assessment

A number of landscape and visual impacts interact with both the local human population, and flora and fauna as detailed above. A restoration plan for the Planning application area is submitted as part of this application.

Cultural Heritage & Archaeology

There are no items of cultural heritage, archaeological sites, monuments or artefacts or designated or undesignated structures known or recorded within the application area.

Traffic and Road Assessment

Traffic generated as a result of the proposed project will not have a significant impact on traffic on the L1011 and it is not anticipated that there will be a significant impact resulting from the proposed works. The volume of traffic to/from Ballyonan Pit will result in a minor to negligible impact on traffic capacity on the surrounding road network which will not impact on the use of the L1011 by local residents and/or passers-by. The proposed facility will have a benefit on roads to and from the Rathmolyon facility.

Dust control measures will be implemented with respect to the entrance and access route.

15.2 CONCLUSION

While there is potential for the above parameters to interact and result in a cumulative impact, it has been demonstrated within this EIAR that none of these cumulative impacts will result in significant environmental degradation. The mitigation measures that have been and will continue to be implemented at Ballyonan are designed to ameliorate the impact of the proposed works within the application area and the overall site on the wider environment.



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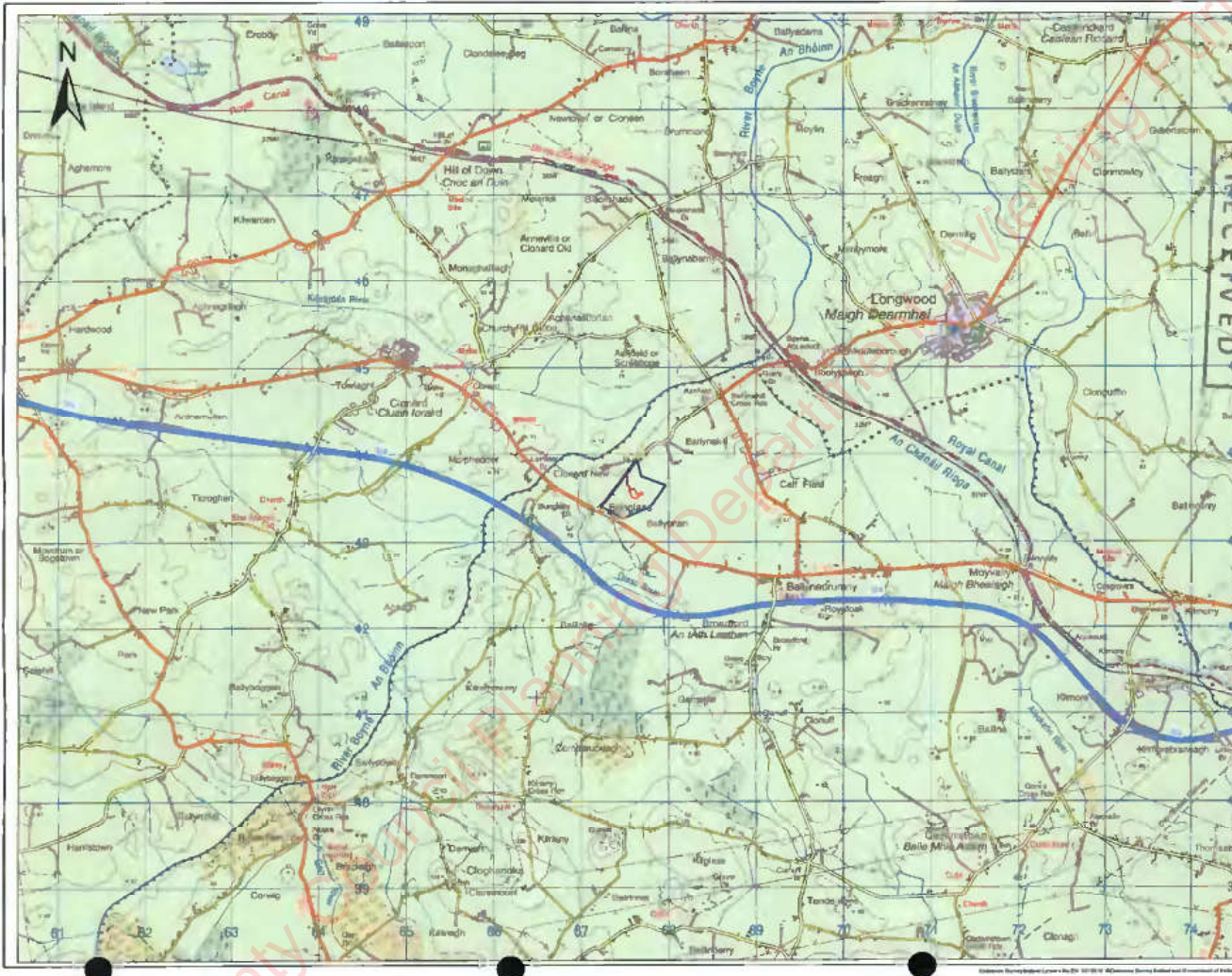
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Legend

- Application Boundary
- Ownership Boundary
- All areas within Ownership Boundary incl QR45 assessed as part of the EIA

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Scale @ A1 1:40,000

Prepared by: J. O'Brien
Checked: J. O'Brien
Date: July 2018

Project: BALLYOMAN BATCHING PLANT - PLANNING APPLICATION

Title: Regional Site Location Map

Client: **KEEGAN QUARRIES**

Project: BALLYOMAN BATCHING PLANT - PLANNING APPLICATION

Title: Regional Site Location Map

Scale @ A1 1:40,000

Prepared by: J. O'Brien
Checked: J. O'Brien
Date: July 2018

Project: BALLYOMAN BATCHING PLANT - PLANNING APPLICATION

Title: Regional Site Location Map

Client: **TOBIN**

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Fax: +353 (0) 43 832001
www.tobin.ie

Figure 1 D01



Legend

- Area A
- Application Boundary
- Ownership Boundary

All areas within Ownership Boundary incl. QR45 assessed as part of the EIA/R

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NOTES

1. Planning application for the proposed Ballyonan Batch Plant.
2. All planning for the proposed Ballyonan Batch Plant will be subject to a development plan for the county and will be subject to a public hearing.
3. All planning for the proposed Ballyonan Batch Plant will be subject to a public hearing.

Rev	Date	Drawn	By	Check	By
001	07/10/19	001	J. Tobin		
002	07/10/19	002	J. Tobin		

Client
KEEGAN QUARRIES
20021 Limerick Road, Kildare

Project
BALLYONAN BATCHING PLANT - PLANNING APPLICATION

Title
Site Location Map

Scale @ A3 1:8,000

Prepared by Charred
Checked by J. Tobin
Project Director N. Tynan

Date
July 2019

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Figure 1.2 D01

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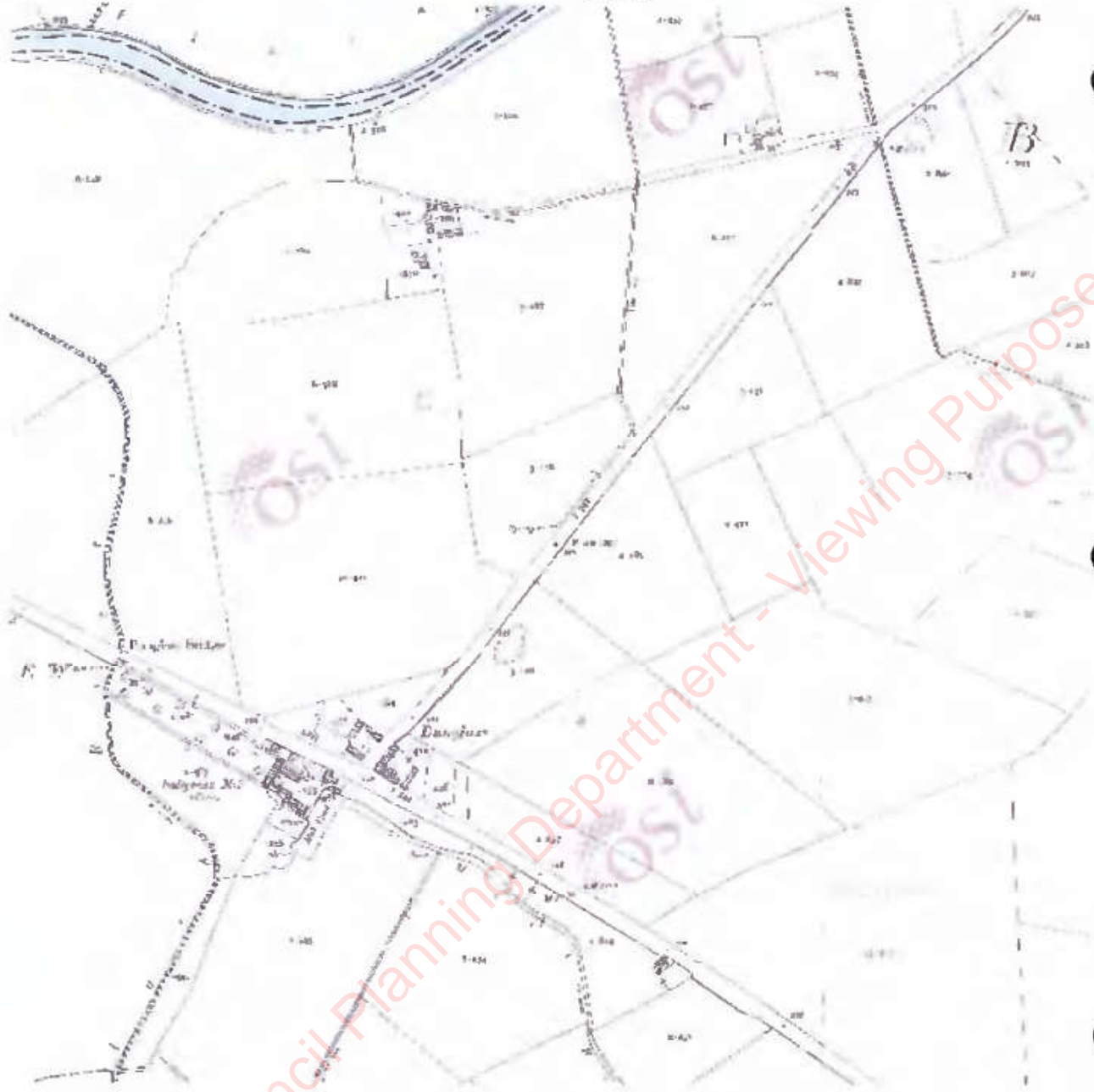
OSI 1840s 6" mapping



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1913 25" mapping

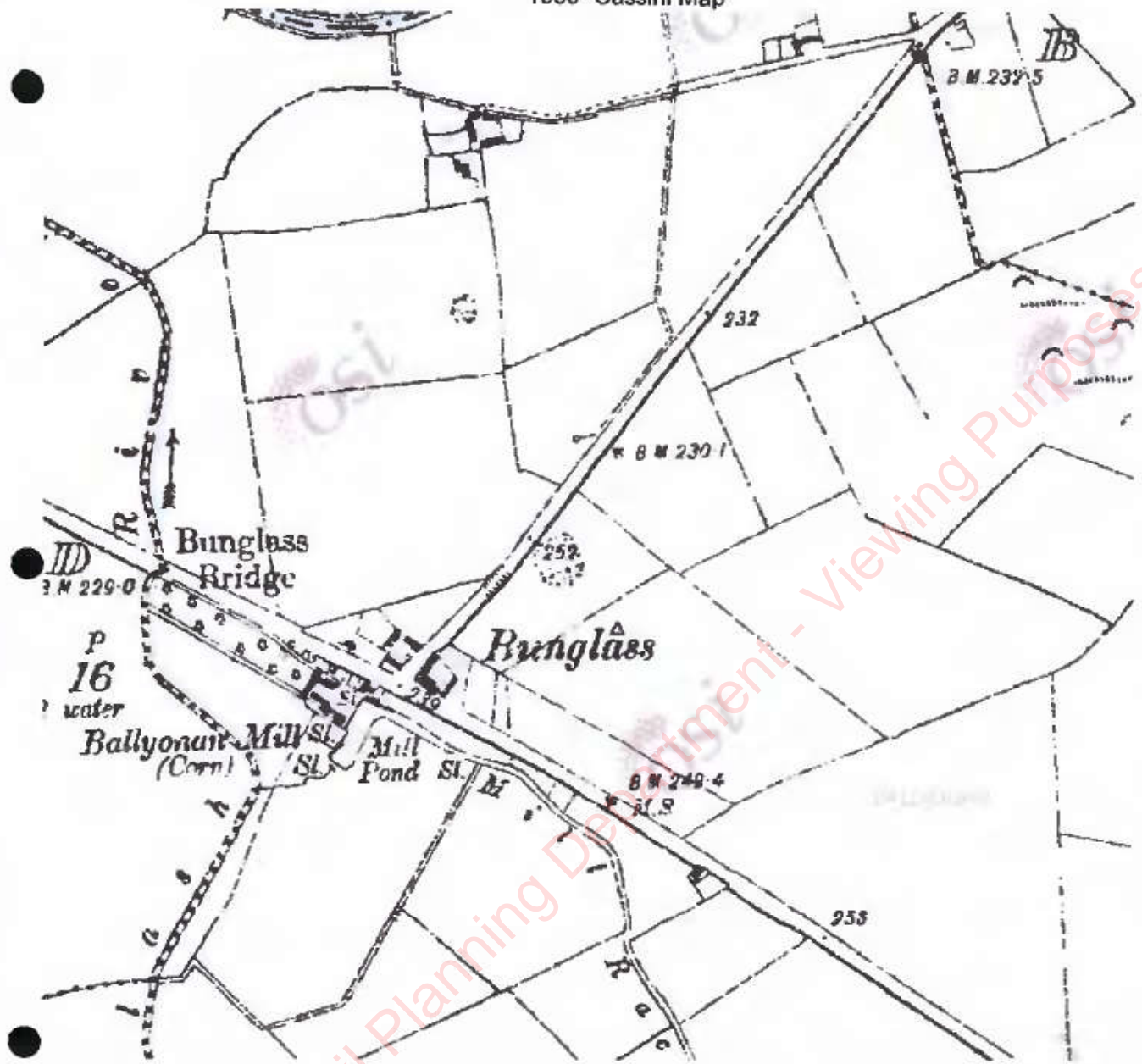


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1930- Cassini Map



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Aerial Map 1995



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Aerial Map 2000



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Aerial Map 2005



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Aerial Map 2005-2013



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Keegan Quarries Ltd

Ballyonan Pit and Concrete Batching Plant

Appropriate Assessment Screening

June 2019



TOBIN CONSULTING ENGINEERS



Appropriate Assessment Screening

PROJECT: Ballyonan Concrete Batching plant and associated works

CLIENT: Keegan Quarries Ltd

COMPANY: TOBIN Consulting Engineers
Block 10-4
Blanchardstown Corporate Park
Dublin 15

www.tobin.ie

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DOCUMENT AMENDMENT RECORD

Client:	Keegan Quarries Ltd.
Project:	Ballyonan Concrete Batching plant and associated works
Title:	AA Screening

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PROJECT NUMBER: 10592				DOCUMENT REF: AA Ballyonan			
Revision	Description & Rationale	Originated	Date	Checked	Date	Authorised	Date
A	Issued	CM	10/03/18	JD	02/06/19	DG	02/06/19
TOBIN Consulting Engineers							

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1 INTRODUCTION

The purpose of this Screening report is to inform the Appropriate Assessment process which is carried out by the appropriate planning authority. Appropriate Assessment (AA) is an assessment of whether a plan or project, alone or in combination with other plans or projects, could have significant effects on a European (Natura 2000) site in view of the site's conservation objectives.

This report provides information for an Appropriate Assessment Screening for the proposed batching plant and associated works in the townland of Ballyonan, Broadford, Co. Kildare. The purpose of this Screening Report is to inform the Appropriate Assessment process. Appropriate Assessment (AA) is an assessment of whether a plan or project, alone and in combination with other plans or projects, could result in significant effects on a European Site otherwise known as Natura 2000 sites (as designated under the EC Habitats Directive 92/43/EEC, more formally referred to as Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora), in view of the site's Conservation Objectives. The report was drafted by an experienced trained ecologist from TOBIN Consulting Engineers who is a full member of Chartered Institute of Ecology and Environmental Management (MCIEEM) and by a hydrologist from TOBIN Consulting Engineers.

The location of the proposed development relative to European Sites in the area is detailed in Figure 5-1 below.



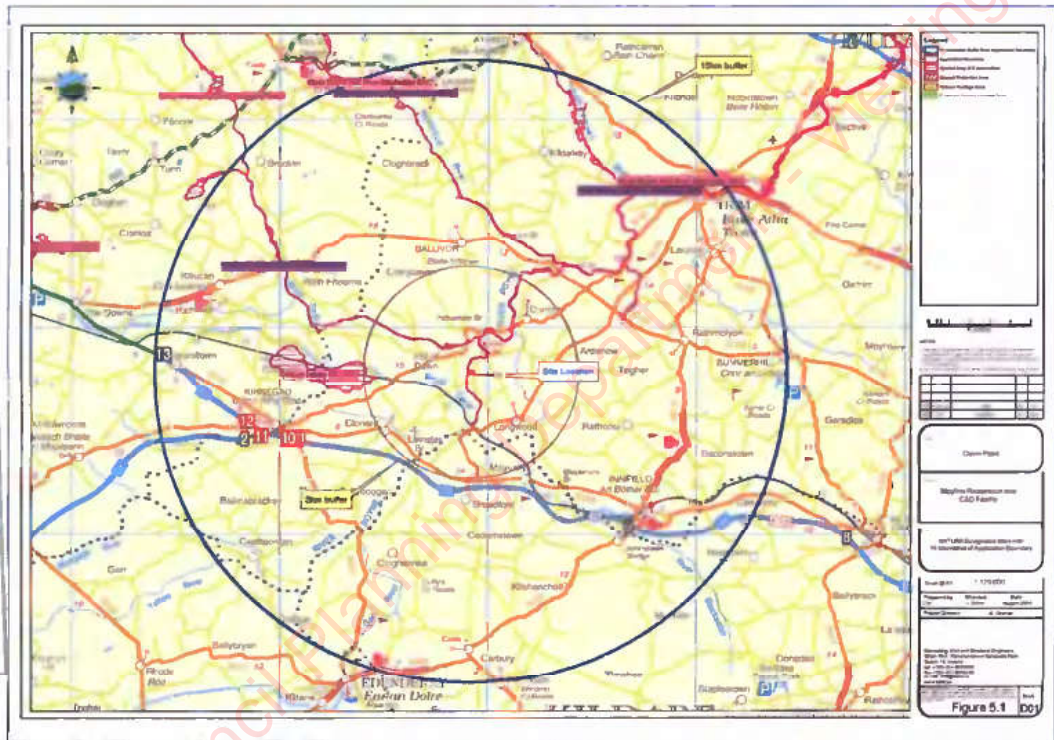


Figure 5-1 Natura sites within 15km

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2 THE APPROPRIATE ASSESSMENT PROCESS

2.1 INTRODUCTION

The AA process is an assessment of the potential adverse or negative effects of a plan or project, in combination with other plans or projects, on the Conservation Objectives a European Site(s) (Natura 2000 site). The Natura 2000 network is made up of Special Protection Areas (SPAs), established under the EU Birds Directive (79/409/EEC), and Special Areas of Conservation (SACs), established under the EU Habitats Directive (92/43/EEC) (more generally referred to as the Habitats Directive). The Natura 2000 network helps provide for the protection and long-term survival of Europe's most valuable and threatened species and habitats.

2.2 LEGISLATIVE BACKGROUND

The Habitats Directive has been transposed into Irish law by The European Communities (EC) (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011; hereafter referred to as the Birds and Habitats Regulations). The Birds Directive (Directive 2009/147/EC) on the Conservation of Wild Birds, seeks to protect birds of special importance by the designation of Special Protection Areas (SPAs). The Habitats Directive does the same for habitats and other species groups with Special Areas of Conservation (SACs).

The requirement for an AA is outlined in Article 6(3) of the Habitats Directive. Article 6(3) of the Habitats Directive requires that:-

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's Conservation Objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

Appropriate Assessment should be based on best scientific knowledge. This Screening Report informs the first stage in the process.

2.3 APPROPRIATE ASSESSMENT METHODOLOGY

There are potentially 4 no. stages in the AA process; the result of each stage determines the requirement for assessment under the next.

Stage One: Screening – This process identifies the likely significant impacts upon a European Site from a proposed project or plan. Its purpose is to determine, on the basis of a preliminary assessment and objective criteria, whether a plan or project which is not directly connected with or necessary to the management of the site as a European Site, individually or in combination with other plans or projects is likely to have a significant effect upon the European Site, in view of its Conservation Objectives. A project may be "screened-in" if there is a possibility or uncertainty of possible effects upon the European Site, requiring a Stage Two AA. If there is no evidence to suggest significant effects due to the proposed plan or development the project is "screened-out" from further assessment. It is this stage that is the focus of this report.

Stage Two: Appropriate Assessment - Consideration is given if the impact of the project or plan would adversely affect the integrity of surrounding European Sites, either alone or in-combination with other projects or plans, with respect to the site's structure and function and its Conservation Objectives. Additionally, where adverse impacts have been identified, an assessment of the

potential mitigation to avoid/reduce such impacts is required. A Natura Impact Statement is often produced at this stage to inform the Appropriate Assessment. This stage is required where uncertainty of effect arises or a potential effect has been defined which requires further procedures/mitigation to remove uncertainty of a defined impact.

Stage Three: Assessment of Alternative Solutions – Where adverse effects on a European Site are identified at the end of Stage Two despite the application of mitigation, this third stage examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European Site.

Stage Four: Assessment Where Adverse Impacts Remain – The fourth and final stage provides applies where the project can only proceed for Imperative Reasons of Overriding Public Interest (IROPI), despite the plan or project resulting in adverse effects on European Site(s). This stage provides for an assessment of compensation measures to maintain or enhance the overall coherence of the Natura 2000 network.

This report details Stage One, preparation of a Screening Report to assist Carlow County Council in their Screening for the proposed Met Mast development.

2.4 GUIDANCE

This report has been carried out using the following guidance:

- Managing Natura 2000 Sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC. European Commission (EC, 2018);
- Interpretation Manual of European Union Habitats. Version EUR 28. European Commission (EC, 2013).
- Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities, (Department of the Environment, Heritage and Local Government DEHLG, 2010);
- Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, and opinion of the commission. Office for Official Publications of the European Communities, Luxembourg (EC, 2007);
- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg (EC, 2001); and
- Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg (EC, 2000).

Definitions of conservation status, integrity and significance used in this assessment are defined in accordance with 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' (EC, 2000):

- The conservation status of a natural habitat is defined as the sum of the influences acting on a natural habitat and its typical species that may affect its long-term natural distribution, structure and functions as well as the long-term survival of its typical species;
- The conservation status of a species is defined as the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its population;

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- The integrity of a European Site is defined as the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified;
- Significant effect should be determined in relation to the specific features and environmental conditions of the protected site concerned by the plan or project, taking particular account of the site's Conservation Objectives.



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3 SCREENING ASSESSMENT

3.1 INTRODUCTION

The Screening Stage of the AA process identifies any likely significant effects upon European Sites from the project alone or in-combination with other projects or plans. A series of questions are asked during the Screening Stage of the AA process in order to determine:

- whether a plan or project can be excluded from AA requirements because it is directly connected with or necessary to the management of a European Site; and
- whether the project or plan will have a potentially significant effect on a European Site, either alone or in combination with other projects or plans, in view of the site's Conservation Objectives or if residual uncertainty exists regarding potential impacts.

This report comprises a Screening Assessment of the proposed development. Potential impacts to European Sites arising from the proposed development are considered. Best practice construction methods described below will be required for the proposed development and are therefore considered as an integral part of the proposed development.

4 STAGE 1 SCREENING ASSESSMENT

4.1 INTRODUCTION

Screening for Appropriate Assessment (AA) was undertaken for this project based on the following:

1. Project Description;
2. Identification of relevant European Sites, and compilation of information on their qualifying interests and conservation objectives;
3. Assessment of likely significant effects – direct, indirect and cumulative – undertaken based on available information; and
4. Screening conclusions.

4.2 DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed works include for the concrete batching plant, block yard, wheelwash, weighbridge, existing sand and gravel extraction and associated infrastructure site to agricultural land (Kildare Quarry Ref. No. QR45). The site is located 3.1 km to the River Boyne and River Blackwater SAC (Site Code 002299) / River Boyne and Blackwater SPA (Site Code 004232). In combination including Sand and Gravel extraction is also assessed.

Precautionary pollution controls based on standard best practice pollution control will be implemented over the timescale (short term) of proposed works. Sediment release prevention measures will be installed prior to any works commencing. There are no existing or proposed drainage outlet to the River Boyne.

Ballyonan Pit is located in a primarily agricultural area within the townland of Ballyonan, Broadford, County Kildare approximately 2.5km east of the village of Clonard, County Meath. The entrance to the site is located on the northern boundary of the pit, on the local road, the L1011. The former N4, now the R148 is located 0.3km to the south of the development. The R148 links the growing towns of Enfield and Kinnegad.

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It is proposed to relocate the concrete manufacturing facility from KQL Rathmolyan to the subject site, as the majority of aggregates supplied to block yard originate from the Ballyonan Pit. The current situation entails hauling aggregate to Rathmolyan, with the majority of the resultant block and concrete products being hauled back towards the north Kildare area. Due to increased demand in other high value precast operation at Rathmolyan, the concrete batching plant has limited the potential for Rathmolyan to reach its full capacity.

The Ballyonan Pit, a pre-1964 quarry - QR45 will continue to be utilised for sand and gravel extraction. The extraction at the site had taken place above the water table and located within the section 261 site boundary. This is noted in the current application and, in particular, in the Natura Impact Assessment that accompanied the application. As reported by Scott Cawley Ltd. (July 2012), the site is located outside the re-advertised 2006 SAC boundary for the River Boyne and River Blackwater SAC, which was reduced in extent in 2006.

The proposed development will provide employment for 6 persons and provide added value to the raw materials previously produced on the site. Indirect employment is generated in terms of contract transport operators, suppliers of products and services, machinery suppliers and environmental monitoring etc.

The application area of the Planning application area is approximately 1 hectare (ha), including the access road and the proposed block yard and concrete batching plant. The proposed development will relocate the current site entrance and provide a new entrance which has improved sightlines and alignment. The assessment includes the potential cumulative impact of the proposed development with the existing pre 1964 development, QR45 and adjacent lands. This report aims to assess these works will have on the environment at, and surrounding, Ballyonan Pit.

4.2.1 Desktop study

An ecological desktop study was completed comprising the following elements:

- Identification of European Sites within the Zone of Influence (Zol) of the proposed development area through the identification of potential pathways links for specific sites. This study zone should account for any European Sites connected to the site by watercourses.
- Review of the National Parks and Wildlife Service (NPWS) site synopsis and conservation objectives for European Sites¹ with identification of potential pathways from the site.

¹ <http://www.npws.ie/protectedsites/>



- Review of available literature and web data. This included a detailed review of the NPWS website including mapping and available reports² for relevant sites and sensitive qualifying interests described and their conservation objectives.

An outline of the key datasets and information sources reviewed is provided below:

- NPWS database of areas designated (and proposed) for nature conservation³;
- National Biodiversity Data Centre database⁴;
- EPA Envision database⁵; and
- GSI database⁶.

Aerial photography and mapping were used to identify non-designated semi-natural habitats such as rivers, woodland and hedgerows of local ecological importance.

Site visits in October 2018 and May 2019 confirmed the low ecological importance of the tillage field and surrounding habitats. There are no key ecological receptors within the red line boundary. The overall landholding is dominated by tillage, with improved grassland and bare ground/ re-colonising bare ground on the pit floor, with occasional willow scrub.

4.3 DESCRIPTION OF EXISTING ENVIRONMENT – QUALIFYING INTERESTS

The site consists of a agricultural tillage field with an adjacent sand and gravel pit. The ecology survey conducted aimed to identify if any qualifying species/ habitats of the River Boyne and Blackwater SAC / SPA occurs 3.1km to the north. The following was noted from the survey:

Kingfisher (Qualifying Species – River Boyne and Blackwater SPA)

No suitable habitat exists on the site or in the vicinity of here. The River Boyne is located 400m to the west of the site.

Alkaline fens (Qualifying Habitat – River Boyne and Blackwater SPA)

No alkaline fen habitat exists on the site or in the vicinity of here. There is no surface water connection between the site and the River Boyne.

Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae). (Qualifying Habitat – River Boyne and Blackwater SPA)

No Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* habitat exist on the site or in the vicinity of here. There is no surface water connection between the site and the River Boyne.

Otter *Lutra lutra* (Qualifying Species – River Boyne and Blackwater SAC)

No Otter breeding sites or potential habitat was recorded on the site. There is no surface water connection between the site and the River Boyne.

***Lampetra fluviatilis*, (Qualifying Species – River Boyne and Blackwater SAC)**

² <http://www.npws.ie/mapsanddata/>

³ National Parks and Wildlife Service: <http://www.npws.ie/maps-and-data/>;

⁴ National Biodiversity Data Centre: <http://maps.biodiversityireland.ie/#/Map>

⁵ Environmental Protection Agency; (<http://gis.epa.ie/Envision>)

⁶ Geological Survey Ireland: <http://spatial.dcenr.gov.ie/GeologicalSurvey/Groundwater/index.html>



The habitat in the main River Boyne channel 400m to the site consists of relatively silted slow flowing lowland river. This provides good potential nursery habitat for Lamprey species larvae. Previous surveys of the River Boyne indicate lamprey is present at Leinster Bridge and Ashfield Bridge, upgradient and downgradient of the site. No suitable habitat or streams exist on the site. There is no surface water connection between the site and the River Boyne.

***Salmo salar*, (Qualifying Species – River Boyne and Blackwater SAC)**

The habitat in the main River Boyne channel 400m to the site consists of relatively silted slow flowing lowland river. This is not suitable spawning or juvenile salmon habitat. It is likely that adult and smolt (juvenile) salmon pass through this section of the channel on migration only at certain times of the year though they may stay in this area for short periods. No suitable spawning habitat or streams exist on the site. There is no surface water connection between the site and the River Boyne.

4.4 DESCRIPTION OF THE NATURA 2000 SITES AND ZONE OF INFLUENCE

A standard source-receptor-pathway conceptual model was used to identify a preliminary list of 'relevant' European Sites (i.e. those which could be potentially affected). This conceptual model is a standard tool in environmental assessment. In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism means there is no likelihood for the effect to occur. In the context of the proposed works, the model comprises:

- Source (s) – e.g. sediment run-off from proposed works;
- Pathway (s) – e.g. drains and streams connecting to a European Site; and
- Receptor (s) – Qualifying habitats and species of European Sites.

Using the Source, Pathway, Receptor model, no European Sites were identified that were within the Zone of Influence (Zol) of the proposed development, due to the lack of potential for hydrological links within the development; There are several other European Sites which were reviewed as part of the assessment but are not considered to be within the Zol of the proposed development area.

In accordance with the guidelines issued by the Department of the Environment and Local Government Natura 2000 sites potentially linked to impacts associated with the proposed works were considered in particular regarding sensitivity of specific qualifying interests and conservation objectives. Table 1 details all Natura 2000 sites located within 15km of the study area.

The following Natura 2000 Sites were considered as relevant for consideration as they are very close and possibly linked by impacts associated with the proposed development, refer to Table 1:



Table 1: European sites considered as requiring consideration regarding impacts associated with the proposed development.

Site Name and designation	Qualifying Interests (QI)	Distance (m) to European Site	Linkage of QI to effects of the proposed development	Screen in or out of Appropriate Assessment
River Boyne and Blackwater SAC (Site Code 002299)	Annex I habitats for which the cSAC has been selected at favourable conservation status: Alkaline fens; Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae). To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: <i>Lampetra fluviatilis</i> , <i>Salmo salar</i> , <i>Lutra lutra</i> .	3.1km	No qualifying habitats in site area (see section 4.3 above). Water pollution controls are proposed and there is no direct or indirect connection with the River Boyne which will allow avoidance of measurable effects (see section 4.2 above) associated with possible soil water runoff during site restoration works. This assessment has high certainty of success based on an understanding of the type and limited scale of the proposed works.	OUT, no hydrological link to River Boyne
River Boyne and Blackwater SPA (Site Code 004232).	<i>Alcedo atthis</i> [breeding Kingfisher]T	3.1km	No measurable effects likely as no potential breeding sites occur on site or immediately downstream and risks to water quality (indirect effects) are no plausible.	OUT
Mount Hervey Bog (Site Code 002342)	Raised Bog	4900m	None. The Mount Hervey Bog is not connected to the application site.	Out
The Long Derries (Site Code 000925)	Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>)	14000m	None. The Long Derries is not connected to the application site.	OUT

All other Natura 2000 sites can also be screened out as the limited scale of the works and distance from other sites mean no measurable effects or linkage to effects of the development are identified. No in combination / cumulative impacts with other plans or projects are likely.

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Indirect effects include disturbance from noise, dust and physical presence from construction machinery and personnel was also considered. Due to the separation distance, the potential for construction related impacts does not exist.

4.5 CONSERVATION OBJECTIVES FOR NATURA 2000 SITES

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

Specific conservation objectives for Natura 2000 sites identified 400m to the proposed works area and considered specifically in this screening appraisal are summarised below.

River Boyne and Blackwater SAC

Objective 1: To maintain the Annex I habitats for which the cSAC has been selected at favourable conservation status: Alkaline fens; Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae).

Objective 2: To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: *Lampetra fluviatilis*, *Salmo salar*, *Lutra lutra*.

Objective 3: To maintain the extent, species richness and biodiversity of the entire site.

Objective 4: To establish effective liaison and co-operation with landowners, legal users and relevant authorities.

River Boyne and Blackwater SPA

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

- 004232 *Alcedo atthis* [breeding Kingfisher]T



4.6 SUMMARY ASSESSMENT CRITERIA

The River Boyne and Blackwater SAC/ SPA summary assessment of potential effects of the proposed works is considered below.

<p><i>Brief description of the project or the plan</i></p>	<p>Ballyonan Block plant, access road, block yard and associated development, sand and gravel extraction (See Section 4.2 above)</p>
<p><i>Brief description of the River Boyne and Blackwater SAC/SPA</i></p>	<p>Descriptions of both designations are provided in Section 4.3 above.</p>
<p><i>Describe the individual elements of the project (either alone or in combination with other plans or projects) likely to give rise to impacts on the Natura 2000 site</i></p>	<p>There are no in combination impacts likely to give rise to impacts on the Natura 2000 sites</p>
<p><i>Describe any likely direct, indirect or secondary impacts of the project (either alone or in combination with other plans or projects) on the Natura 2000 site by virtue of:</i></p> <ul style="list-style-type: none"> • Size and scale • Land take • Distance from Natura 2000 site of key features of the site • Resource requirements (water abstraction etc) • Emissions (disposal to land, water or air) • Excavation requirements • Transportation requirements • Duration of construction, operation, decommissioning etc • Other 	<p>The proposed works are 3.1km to River Boyne and Blackwater SAC/SPA boundary. Impacts to habitats in the SAC/SPA are not possible as there is no water connectivity with the site. No works are proposed within the SAC.</p>
<p><i>Describe any likely changes to the site arising as a result of:</i></p> <ul style="list-style-type: none"> • Reduction of habitat area • Disturbance to key species • Habitat or species fragmentation • Reduction in species density • Changes in key indicators of conservation value (water quality etc.) 	<p>No changes to the River Boyne and Blackwater SAC/SPA are likely.</p> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 10px auto; width: fit-content;"> <p>Kildare County Council Planning Department</p> <p>15 OCT 2019</p> <p>RECEIVED</p> </div>

<ul style="list-style-type: none"> • <i>Climate Change</i> 	
<p><i>Describe any likely impacts on the Natura 2000 site as a whole in terms of:</i></p> <ul style="list-style-type: none"> • <i>Interference with the key relationships that define the structure of the site.</i> • <i>Interference with key relationships that define the function of the site.</i> 	<p>The proposed works will not result in impacts likely to interfere with the key relationships that define the structure and function of the River Boyne and Blackwater SAC/SPA. Habitats will be undisturbed and water quality will not be affected.</p> <ul style="list-style-type: none"> • Noise from vehicles/machinery (detailed above); • Introduction and/or spread of non-native invasive species within the proposed development site, extending to roadside and designated European Sites.
<p><i>Provide indicators of significance as a result of the identification of effects set out above in terms of:</i></p> <ul style="list-style-type: none"> • <i>Loss (Estimated percentage of lost area of habitat) Fragmentation</i> • <i>Disruption & disturbance</i> • <i>Change to key elements of the site (e.g. water quality etc.).</i> 	<p>No significant effects are likely to the River Boyne and Blackwater SAC/SPA.</p>
<p><i>Describe from the above those elements of the project or plan, or combination of elements, where the above impacts are likely to be significant or where the scale or magnitude of impacts is unknown</i></p>	<p>Following this screening assessment, it is considered that <u>significant effects</u> on Natura 2000 sites and specifically the River Boyne and Blackwater SAC/SPA can be ruled out.</p>

4.7 SCREENING CONCLUSION

By applying the precautionary principle, it was determined that the proposed development, alone or in-combination with other plans or projects could not have significant effects on these European Sites. These can be ruled out without the provision of mitigation measures.



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Appendix 11.1

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Daily Volume Report NRA 00000001045 2018-01-17
 Site Name TMU R148 040.0 W
 Site ID 00000001045
 Grid 262039244785
 Description R148 East of Kinnegad, Ardnamullen, Co. Meath







Setup 1045 N4 Clonard
 Channel Each Direction
 Time Period 30 minutes
 Class HGV_ART
 Exclude data: None



	Average Daily Flow	West	East
00:00:00	1	0 0.00%	1 100.00%
00:30:00	4	1 25.00%	3 75.00%
01:00:00	4	1 25.00%	3 75.00%
01:30:00	0	0	0
02:00:00	2	2 100.00%	0 0.00%
02:30:00	2	1 50.00%	1 50.00%
03:00:00	6	2 33.30%	4 66.70%
03:30:00	4	4 100.00%	0 0.00%
04:00:00	2	1 50.00%	1 50.00%
04:30:00	5	3 60.00%	2 40.00%
05:00:00	9	1 11.10%	8 88.90%
05:30:00	5	2 40.00%	3 60.00%
06:00:00	7	3 42.90%	4 57.10%
06:30:00	14	7 50.00%	7 50.00%
07:00:00	19	11 57.90%	8 42.10%
07:30:00	11	3 27.30%	8 72.70%
08:00:00	18	8 44.40%	10 55.60%
08:30:00	14	5 35.70%	9 64.30%
09:00:00	15	10 66.70%	5 33.30%
09:30:00	26	14 53.80%	12 46.20%
10:00:00	25	15 60.00%	10 40.00%
10:30:00	30	9 30.00%	21 70.00%
11:00:00	19	10 52.60%	9 47.40%
11:30:00	23	14 60.90%	9 39.10%
12:00:00	22	7 31.80%	15 68.20%
12:30:00	33	23 69.70%	10 30.30%
13:00:00	26	12 46.20%	14 53.80%
13:30:00	16	9 56.30%	7 43.80%
14:00:00	30	17 56.70%	13 43.30%
14:30:00	21	11 52.40%	10 47.60%
15:00:00	17	10 58.80%	7 41.20%
15:30:00	31	19 61.30%	12 38.70%
16:00:00	17	8 47.10%	9 52.90%
16:30:00	18	10 55.60%	8 44.40%
17:00:00	18	10 55.60%	8 44.40%
17:30:00	16	9 56.30%	7 43.80%
18:00:00	12	6 50.00%	6 50.00%
18:30:00	9	3 33.30%	6 66.70%
19:00:00	7	2 28.60%	5 71.40%
19:30:00	8	4 50.00%	4 50.00%
20:00:00	15	10 66.70%	5 33.30%
20:30:00	3	2 66.70%	1 33.30%
21:00:00	11	6 54.50%	5 45.50%
21:30:00	9	8 88.90%	1 11.10%
22:00:00	9	8 88.90%	1 11.10%
22:30:00	9	4 44.40%	5 55.60%
23:00:00	4	4 100.00%	0 0.00%
23:30:00	8	4 50.00%	4 50.00%
07-19	486	253 52.10%	233 47.90%

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06-22	560	295	52.70%	265	47.30%
06-24	590	315	53.40%	275	46.60%
00-24	634	333	52.50%	301	47.50%
am Peak	10:00:00	09:00:00		10:00:00	
Peak Volume	55	24		31	
Peak Factor	0.809	0.6		0.705	
pm Peak	12:00:00	12:00:00		12:00:00	
Peak Volume	55	30		25	
Peak Factor	0.724	0.625		0.694	

Event key:  Accident  Road Works  Special  Road Closed  Holiday  Offline

Notes on data  Weekends and defined holidays

Averages are calculated as the simple average of values across the period.

Holidays & Events:

None



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Daily Volume Report NRA 00000001045 2018-01-17

Site Name: TMU R148 040.0 W
 Site ID: 00000001045
 Grid: 262039244785
 Description: R148 East of Kinnegad, Ardnamullen, Co. Meath








Setup: 1045 N4 Clonard
 Channel: Each Direction
 Time Period: 30 minutes
 Class: HGV_RIG
 Exclude data: None



	Average Daily Flow	West		East	
00:00:00	3	1	33.30%	2	66.70%
00:30:00	1	1	100.00%	0	0.00%
01:00:00	0	0		0	
01:30:00	1	1	100.00%	0	0.00%
02:00:00	0	0		0	
02:30:00	3	3	100.00%	0	0.00%
03:00:00	1	0	0.00%	1	100.00%
03:30:00	0	0		0	
04:00:00	0	0		0	
04:30:00	0	0		0	
05:00:00	0	0		0	
05:30:00	2	1	50.00%	1	50.00%
06:00:00	4	0	0.00%	4	100.00%
06:30:00	1	1	100.00%	0	0.00%
07:00:00	3	0	0.00%	3	100.00%
07:30:00	8	4	50.00%	4	50.00%
08:00:00	4	2	50.00%	2	50.00%
08:30:00	13	7	53.80%	6	46.20%
09:00:00	9	3	33.30%	6	66.70%
09:30:00	7	3	42.90%	4	57.10%
10:00:00	10	6	60.00%	4	40.00%
10:30:00	8	4	50.00%	4	50.00%
11:00:00	10	5	50.00%	5	50.00%
11:30:00	11	2	18.20%	9	81.80%
12:00:00	7	1	14.30%	6	85.70%
12:30:00	9	4	44.40%	5	55.60%
13:00:00	14	6	42.90%	8	57.10%
13:30:00	5	2	40.00%	3	60.00%
14:00:00	10	6	60.00%	4	40.00%
14:30:00	9	5	55.60%	4	44.40%
15:00:00	7	4	57.10%	3	42.90%
15:30:00	18	8	44.40%	10	55.60%
16:00:00	9	5	55.60%	4	44.40%
16:30:00	8	2	25.00%	6	75.00%
17:00:00	11	8	72.70%	3	27.30%
17:30:00	5	2	40.00%	3	60.00%
18:00:00	5	3	60.00%	2	40.00%
18:30:00	2	2	100.00%	0	0.00%
19:00:00	4	3	75.00%	1	25.00%
19:30:00	2	0	0.00%	2	100.00%
20:00:00	2	1	50.00%	1	50.00%
20:30:00	3	2	66.70%	1	33.30%
21:00:00	3	2	66.70%	1	33.30%
21:30:00	0	0		0	
22:00:00	2	0	0.00%	2	100.00%
22:30:00	3	1	33.30%	2	66.70%
23:00:00	4	2	50.00%	2	50.00%
23:30:00	3	0	0.00%	3	100.00%
07-19	202	94	46.50%	108	53.50%

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06-22	221	103	46.60%	118	53.40%
06-24	233	106	45.50%	127	54.50%
00-24	244	113	46.30%	131	53.70%
am Peak	11:00:00	10:00:00		11:00:00	
Peak Volume	21	10		14	
Peak Factor	0.875	0.5		0.7	
pm Peak	15:00:00	15:00:00		15:00:00	
Peak Volume	25	12		13	
Peak Factor	0.625	0.75		0.542	

Event key:  Accident  Road Works  Special  Road Closed  Holiday  Offline
 Weekends and defined holidays

Notes on data:

Averages are calculated as the simple average of values across the period

Holidays & Events:

None



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Appendix 12.1

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Photo 1. View of site from existing sand and gravel pit – QR45.

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Photo 2. View of existing sand and gravel pit – QR45, looking south.



Photo 3. View across proposed site looking south-east.

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Photo 4. View along access to the local road looking north.



Photo 5 – View along L1001 to the north of the site

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Appendix 14.1



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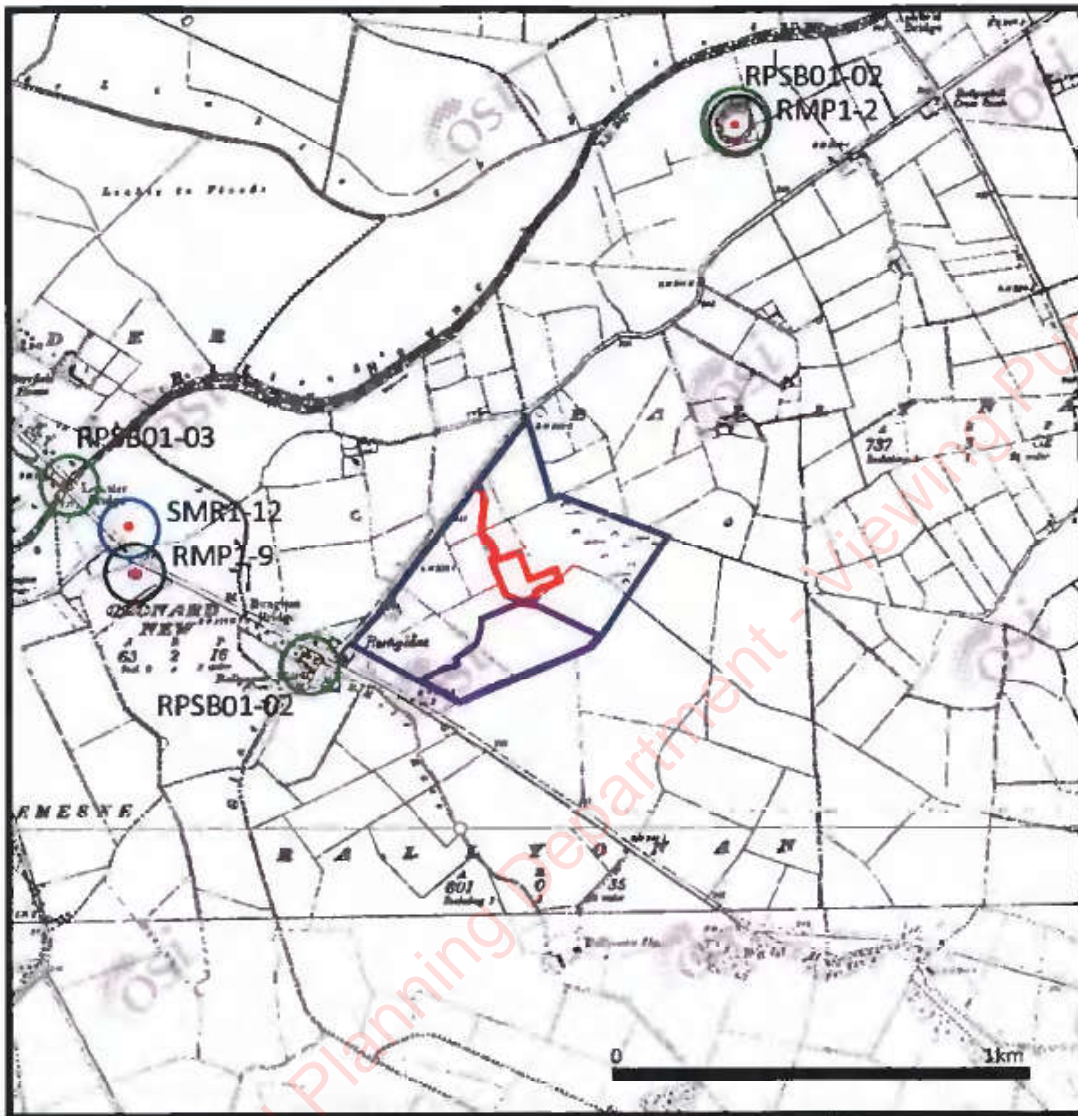


Figure 14.1. The excerpt from the Sites and Monuments Record represents the study area. The applicants land interest is indicated with a blue line, the application area with a red line and future extraction with the purple line. The sites in the Record of Monuments (RMP) are indicated with black circles, in the Sites and Monuments Record (SMR) with a blue circle, in the Record of Protected Structures with green circles.

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Plate 14.1. View of the application area and future extraction indicated by the red and purple lines on a Google earth aerial image of the application area taken during drought conditions in June 2018 indicating linear cropmarks.

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Plate 14.2. OS 1st edition six-inch mapping (in white) overlaying the Google earth aerial image of the application area indicating that the linear cropmarks are the remains of levelled field boundaries.

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Plate 14.3. View area 1 looking south-east.



Plate 14.4. View area 1 access to the road looking north.



Plate 14.5. Panoramic view of area 2 looking north-east.

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