



## Keegan Quarries Ltd Tromman Quarry, Rathmolyon



### REMEDIAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT

to accompany a Substitute Consent Planning Application for the erection and operation of unauthorised structures and the continued extraction and use of ancillary buildings and structures post 5th August 2018 at Tromman Quarry

JULY 2019

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## **PART II - INTRODUCTION AND PROPOSED DEVELOPMENT CONTEXT**

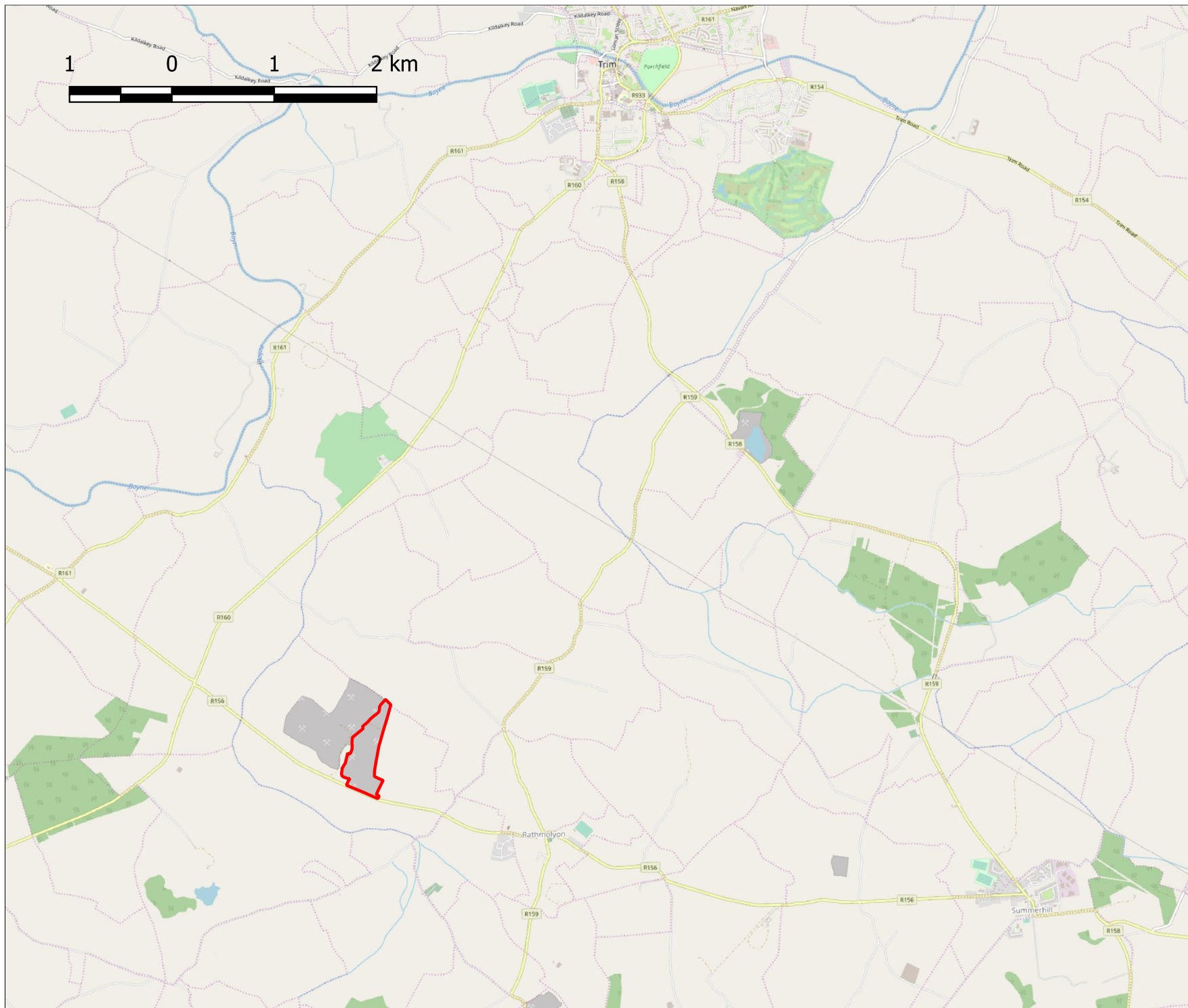
### **1.0 PREAMBLE**

This Remedial Environmental Impact Assessment Report (REIAR) has been prepared in accordance with the direction of An Bord Pleanála (the Board) dated the 9 May 2019 to accompany an application for Substitute Consent (the Application). This direction was served by Board Order ABP-303334-19 made under s.177D of the Planning and Development Act 2000 (as amended) ('the Act') and the Board was satisfied that a determination as to whether an environmental impact assessment is required and that exceptional circumstances exist such that the Board considers it appropriate to permit the opportunity for regularisation of the development by permitting an application for Substitute Consent (SC). A copy of the Order is provided in Appendix 1.1

The Application being submitted to the Board for substitute consent, the Planning Authority in this instance, is for the totality of the operational site to include the existing quarrying operations in the Townland of Tromman, previously permitted under and extended to the 5th August 2018. Specifically, RPL 17.206702 (TA-130400) for the bulk of the quarry originally assessed in 2002 and PL17.235960 (TA-130581) for the southern extension to the site (2010).

The site is located in the Townland of Tromman some 2.2 kilometres northwest of Rathmolyon Village and some 6.4km south of the town of Trim. The site is bounded to the west by Kilsaran's Tromman Quarry, to the south by the regional road R156 and to the north and east by agricultural fields. The precise location of the site's application area can be seen from Figure 1.1.

The application seeks the regularisation of associated structures that Meath County Council consider to be unauthorised and the existing extraction operations and the continued use of those ancillary structures erected under those consents that post-



Notes:

### Legend

#### Keegan

- Substitute Consent Application Boundary



Contains OpenStreetMap Data

Title: Tromman Quarry Location Map

Scale: 1:50,000 @A4

Figure 1.1

Drawn By: APS	Date: 28/06/2019
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date the extended appropriate period of 5<sup>th</sup> of August 2018 for the quarrying operations (this element will be referenced simply as the quarry operations throughout the report). The unauthorised structures considered include an electrical substation, Limestone Powder Plant (which is mistakenly referenced as a second batching plant in enforcement correspondence from the Council) comprising feed hopper, crushing and screening plant, dispatch points, drying plant and storage sheds a batching plant and the unauthorised construction of a precast concrete manufacturing industrial unit. However, it is the extension to the concrete manufacturing structure (the industrial unit) that has triggered the requirement for this REIAR, as without the planning difficulties that the erection of the same presented a standard continuation application would have been possible for the extractive elements.

The remainder of the structures situated in the concrete products area towards the northern end of the site are covered by individual planning consents that run contemporaneously with the mineral extraction consents, other than the concrete silo that has consent that runs until September 2020. Cumulatively, it is considered that the continued operation of the quarry and the associated structures require environmental impact assessment as a single project.

It is understood that the Board will only consider an SC application and can only grant planning permission in terms of the extant operations on site and applied for at the time of submission<sup>1</sup>, therefore excluding future development.

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<sup>1</sup> The Board's interpretation of S/C provided by Assistant Director Philip Jones on 25 October 2012

## 1.1 Planning History

The totality of the operational site has a well-established planning history dating back to the original consent for a quarry and associated works in 1998 (97/1868), followed by ancillary consents for the northern concrete products yard in 2001 (00/2075) and 2003 (TA/20408) which provided consent for the mobile block making plant and for the structure for manufacturing concrete floors and associated works in each instance. The extraction consent was accompanied by an Environmental Impact Statement

In 2004 under PL17.206702 (PA ref. TA/30334) approval was provided for the bulk of what is now the operational quarry, some **13.94 Ha**, the consent consumed and superseded the earlier permission, this application was accompanied by an Environmental Impact Statement and provided for extraction across the quarry void to a level of **13mAOD**. This application was the first at the site considered by the Board, in which they affirmed the Planning Authority's decision. The duration of the permission was extended under PA ref. TA/1 30399 and TA/1 30400 to August 2018.

Under PL17.235960 (and PA ref. TA/900976) the extraction area of the quarry was further extended by c.2.85ha, on land towards the southern extent and to the east of the original quarry. The term of the consent was devised to determine contiguously with the larger operational consent and likewise was extended for a further 5 years under PA ref. TA/130581, again to August 2018.

Also, of relevance in this particular case, given that it is the unauthorised industrial structure that has given rise to a requirement for an application for substitute consent. It is on record that an enforcement notice UD/1 5/284 (31<sup>st</sup> March 2017) was served on the applicant in relation to 'unauthorised newly constructed block work electrical sub-station, construction of pre-cast concrete units i.e. silos/storage

bays, 2 no. concrete batching plants and associated plant and a large industrial building’.

A summary of the applications is provided for ease of reference; in reverse chronological order from the most recent to the original application for the sites, as favoured by the Board’s Inspectors.

- In 2018, under PL17.249285 (PA ref: TA/161345) the Board refused the relocation of permitted blockyard and precast manufacturing plant, mixing / batching plant and associated landscaping works to the south of the R156 for the following reasons. The proposed development is dependent on the operation of the existing quarry to the north the existing block yard and existing pre-cast concrete manufacturing facility which expired on the 5th day of August 2018.

The following reasoning was provided: In the absence of a development strategy for these adjacent lands and a valid planning permission for the on-going operation of the quarry, it is considered that the proposed development, located on the opposite side of the R156 to existing quarry activity in the area, on low-lying land, would represent a piecemeal and disorderly approach to the development of the site and to the expansion of overall activities. Having regard to the location of this site the proposed development would seriously injure the amenities of the area and of property in the vicinity by the encroachment of an industrial type activity into an open rural area.

- In 2017, under PL17.248115 (PA ref. TA/161419), the Board granted permission for the temporary, three-year, retention of a concrete silo structure, with a footprint of 99m<sup>2</sup> and measuring 28.6m in height, associated with and ancillary to the existing permitted precast concrete facility permitted under PA ref. TA/20408.
- In 2017 the planning authority considered three declarations sought under Section 5 as to whether or not development that had been carried out at the site (lime drying, batching plant and ESB sub-station) constituted development and was or was not exempted development. For each, the

planning authority considered that the works carried out constituted development requiring planning permission (PA refs. TA/S5/1655; TA/S5/1 656 and TA/S5/1 623).

- In 2013, under PA ref. TA/130581, the planning authority granted permission for the extension of the duration of the permission granted under PA ref. PL1 7.235960 (TA/900976), with permission to expire on the 5th August 2018.
- In 2013, under PA ref. TA/1 30401, the planning authority refused permission for the extension of the duration of PA ref. TA/900976.
- In 2013, under PA ref. TA/1 30400, the planning authority granted permission for the extension of the duration of planning permission granted under PL17.206702 (PA ref. TA/30334), with permission to expire on the 5th August 2018.
- In 2013, under PA ref. TA/1 30399, the planning authority granted permission for the extension of the duration of the permission granted under PA ref. 97/1 868, with permission to expire on the 5th August 2018.
- In 2010, under PL17.235960 (PA ref. TA/900976), the Board decided to grant permission for the extension of the quarry extraction area (2.85ha).
- In 2004, under PL17.206703 and PA ref. TA/30334, the Board decided to grant permission for retention, continuance and extension of quarrying (including modification to layout permitted under PA ref. 97/1868). The application was accompanied by an EIS. Condition no. 7 required the extension and entire quarrying operation to be completed within 15 years as per the conditions granted under PA ref. 97/1 868.
- In 2003, under PA ref. TA/20408, the planning authority granted permission for the erection of a building to manufacture concrete floors, pipes, blocks, bricks and associated products.
- In 2001, under PA ref. 00/2075, the planning authority granted planning permission for a mobile block making plant, concrete yard and water settlement tank, including temporary offices and storage shed.
- In 1998, under PA ref. 97/1 868, the planning authority granted permission (15 years) for a quarry on 8.5ha together with a workshop, a mobile pressing plant, wheel wash, weighbridge and fuel storage unit and truck parking.

## **1.2 Legislative Context for EIA**

The legislative context for the planning application accompanied by an Environmental Impact Assessment Report (EIAR) is derived from the European Communities Directive 85/337/EEC as amended by Directive 92/11/EU on the assessment of the effects of certain public and private projects on the environment.

However, the newly named reporting system has developed because the European Union has adopted a new Directive (2014/52/EU) (The Directive) in relation to Environmental Impact Assessment (EIA). The Directive was published in the Official Journal of the EU on 25th April 2014 and is in force.

The Directive sets out a wide range of changes to the previous EIA Directive (2011/92/EU). The changes have been transposed into Irish law via Statutory Instrument No. 296 of 2018- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 that provides for amendments to the planning and Development Act 2000 (as amended) and the Planning and Development Regulations 2001 (as amended) ('the Regulations'). This EIAR has been prepared in accordance with the amended Act and Regulations.

Schedule 5 Part 2 of the Regulations implements Annexes I and II of the EIA Directive into Irish law and provides the following "thresholds" in respect of the extractive industry and infrastructure projects, so that an EIA is required in respect of, or against which an EIA determination is required :

### **2. *Extractive Industry***

***(b) Extraction of stone, gravel, sand or clay, where the area of extraction would be greater than 5 hectares"***

## **10. Infrastructure projects**

### **(a) Industrial estate development projects, where the area would exceed 15 hectares.**

the Inspector in her report and the Board in their agreement with the Inspector, that the site exceeds the 5 Ha threshold and that the overall project has not been the subject of EIA, and therefore having regard to the scale and nature of the project that it is necessary for the proposed development to be accompanied by an EIAR.

There is no specific guidance in relation to the preparation of a REIAR, however, 177(F)(1) outlines that such a document shall contain:

(a) *a statement of the significant effects, if any, on the environment, **which have occurred, or which are occurring, or which can reasonably be expected to occur** because the development the subject of the substitute consent was carried out<sup>2</sup>;*

(b) *details of—*

- i. any appropriate remedial measures undertaken or proposed to be undertaken by the applicant for substitute consent to remedy any significant adverse effects on the environment;*
- ii. the period of time within which any proposed remedial measures shall be carried out by or on behalf of the applicant;*

(c) *such information as may be prescribed under section 177N.*

*(1A) The remedial environmental impact assessment report shall be prepared by experts with the competence to ensure its completeness and quality.*

Furthermore s.177E(4)(A)(a) of the Act, relating to the Boards evaluation of REIAR, reflects the general requirement under s.171A that:

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<sup>2</sup> Emphasis Added

'The Board shall consider whether a remedial environmental impact assessment report submitted under this section identifies and describes adequately **the direct and indirect significant effects** on the environment of the development.'<sup>3</sup>

In the absence of any specific guidance on the production of REIAR it is considered appropriate to reference the requirements of the Act 2000 and the Regulations along with the general requirements, as far as they are applicable, of the Guidelines for Planning Authorities and An Bord Pleanala on carrying out Environmental Impact Assessment August 2018 ('the Guidelines') and the Draft Guidelines on the Information to be contained in Environmental Impact Assessment Reports - August 2017 (EPA Guidelines).

In preparing this application and accompanying REIAR it is considered essential to take in to account the environmental information; that has been considered previously by the Planning Authority and the Board and has been considered to be representative and acceptable information to provide an accurate environmental baseline for the site upon, which the structures have been built. This is an appropriate approach to avoid unnecessary duplication of information and is recommended by regulation 222A of the Regulations. Table 1.1 below outlines the Environmental Impact Assessments and determinations considered when preparing this Report.

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<sup>3</sup> Emphasis Added

Planning Reference	Applicant	Project Description	Decision
TA30334 / RPL17.206702	Keegan Quarries Ltd.	Continuation and extension of quarrying to 13mAOD.	Approved 2004
TA/70175 / PL17.227088	Cemex (ROI) Ltd.	Extension by deepening of a 16.1Ha site to 24mAOD.	Approved 2009
TA60629 / PL17.226884	Keegan Quarries Ltd.	Extension of an existing quarry with tunnel connecting to the proposed establishment of a precast concrete plant etc to the south of the R156.	Refused 2009
TA900976 / PL17.235960	Keegan Quarries Ltd.	2.85Ha southern extension of Tromman quarry to 50mAOD	Approved 2010
QY76 / QV17.QV0182	Readymix Ltd / Cemex (ROI) Ltd. & Irish Asphalt	Review under s.261A(6)(a)	Council decision set aside.
QY75 / QY17.0217	Keegan Quarries Ltd.	Review under s.261A(6)(a)	Council decision set aside.
TA161345 / PL17.249285	Keegan Quarries Ltd.	Relocation of blockyard, precast concrete and block manufacturing plants to the south of the R156.	Refused 2018

**Table 1.1 Environmental Impact Assessments and determinations considered**

The REIAR also utilises the continuous environmental monitoring information and updated specific environmental reports where applicable to reflect the changes on the Site post the 2013 baseline date.

Finally, it is intended to reflect the stated requirements of the Board with reference to the three phases of the specific development cycle outlined. This interpretation originally provided by the Board in 2012 has subsequently been recognised and reflected in subsequent redrafting of the Act and the associated Regulations, see s.177(F)(1)(a) above.



### **1.2.1 An Bord Pleanála: Grant of Leave for Substitute Consent**

An application for leave to apply for substitute consent was (reference LS. 303334) submitted to An Bord Pleanála (the Board) in December 2018 on behalf of the owner / occupier of the land in question, seeking to avail of the facility to apply for substitute consent; as provided for under s.177C(2)(b) of the Act.

The Board held that the subject application was one which met the requirements of Section 177C(2)(a)(ii) and that exceptional circumstances existed in this case and by Order directed the applicant to make an application for substitute consent, accompanied by REIAR and RNIS. Appendix 1.1.

### **1.3 REIAR Format and Structure**

It is considered that the most appropriate method /structure, for ease of reporting and also reading, is one that provides analysis of the potential for significant environmental effects under each individual heading, as prescribed by the Regulations.

In addition to the above general basis of production of a REIAR, the Board have advised in their determination on leave to apply for substitute consent and previous guidance to the author with respect to this and other substitute consent application cases, as follows:

- The 2013 commencement of construction of unauthorised structures is the appropriate commencement date to be considered as a baseline for EIA purposes.
- Any previous inspector's report and any criticisms of previous EIS's should be taken into account.
- in the preparation of an REIAR, it is appropriate to consider the requirements of prescribed bodies as outlined in responding to previous statements and

determinations in relation to the site and in this case the adjacent site in order to determine an accurate scope for the REIAR.

- the REIAR should include an informative and honest statement in relation to any data, deficiencies or difficulties encountered.
- the application to be accompanied by a remedial Natura Impact Statement.

The “matters for inclusion” in an EIAR are outlined in Section 4.2 of the Guidance and Article 5(1)(A) to (f) of the Directive, the overall structuring and scope of the Report has regard to the informational requirements of the Directives and Irish Statutory Regulations.

This REIAR is produced in the Grouped Format Structure and is compiled and presented in as transparent and as open a manner as possible. The various authors involved in its compilation have attempted to present their findings and recommendations in a clear and unambiguous fashion. The REIAR comprises two separate parts, The Non-Technical Summary and the Main Report.

## **Non-Technical Summary**

### **The Main Report**

- |               |   |
|---------------|---|
| Section 1     | The preamble outlines the background and terms of reference for the REIAR and outlines the format and the assumptions that underpin the statement.  |
| Section 2     | Review of the reasonable alternatives considered by the applicant and the scope of the assessment with respect to the site’s particular characteristics.  |
| Section 3     | describes the features of the progression of the unauthorised development from 2013-2018, prior to considering the continuation of quarrying and outlines the proposed development and provides a review of the alternative designs considered and disregarded. |
| Section 4     | defines the planning and development context in which the planning application is assessed  |
| Sections 5-16 | incorporates the main body of the REIAR and outlines the aspects of the environment likely to be significantly affected by the  |

proposed development and the interrelationship of each discipline, as identified in the Regulations.

***population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and the landscape.***

As the REIAR is produced in the Grouped Format Structure, this approach can lead to certain topics, such as human health, being covered to varying degrees in most of the individual Sections, whereas other specific areas required under legislation fall almost exclusively into one Section. For those aspects of the environment likely to be significantly affected by the proposed development, that fall neatly into one or two sections the sections within which they are covered are shown overleaf.

**Table 1.2 Sections within EIAR that cover the Aspects Required to be covered under the Regulations**

<b>Section</b>	<b>Heading</b>	<b>Aspects Required to be covered under the Regulations</b>
5	Geological Assessment	Soil – Material Asset
6	Water Environment	Water
7	Air Quality & Climate	Air – Human Health
8	Noise and Vibration	Human health – Material Assets
9	Landscape	Landscape
10	Extractive Waste Management	Landscape – Material Assets
11	Ecology	Biodiversity
12	Traffic Impacts	Population – Human Health
13	Soil - Natural Resources	Soil
14	Socio-Economic Impacts	Population
15	Cultural Heritage	Cultural Heritage
16	Interactions	Inter-relationship of above factors

## 1.4 REIAR Baseline

The requirement for this substitute consent application has been determined by the construction of unauthorised structures in the concrete manufacturing area of the site, with the relevant date of the construction being 2013, in addition the continued operation of the extraction activities in the quarry beyond the 5<sup>th</sup> August 2018. It is considered by the Applicant and as agreed by the Board, by the grant for leave to apply for substitute consent, that they are satisfied that the erection of the structures in the manufacturing area, in combination with continued quarrying activities as a single project would have triggered a requirement for environmental impact assessment.

Accordingly, the commencement of the construction of structures provides the effective commencement of the baseline against which the environmental impact assessment reporting will be assessed.

Post 2013 forms the baseline commencement date upon which the significant effects, if any, on the environment;

- which **have** occurred;
- or which **are** occurring;
- or which can reasonably be expected **to occur** because the development the subject of the substitute consent was carried out.

will be assessed.

In addition, it is also considered appropriate to consider the continued environmental impact of the remainder of the site from the 5<sup>th</sup> August 2018 onwards, the point at which the continuation of site activities became unauthorised, it is considered that these in combination effects will allow the site to be assessed as a single project, as required by the Inspector.

It is considered that this baseline plus assessment up to the 4<sup>th</sup> August 2018 provides for the assessment of impacts that **have occurred**.

It is considered that, effectively the 5<sup>th</sup> August 2018 comprises an additional baseline date, following which the environmental impact of all the site activities will need to be cumulatively considered, as substitute consent is also being sought for the continuation of activities in the lacuna between expiration of consent and the submission of the application.

The additional baseline provides for the period post 5 August 2018 until the present and allows for the assessment of impacts **that are occurring**.

The final stage of the assessment is considered will cover the remedial impacts that can **reasonably be expected to occur** in providing restoration and post restoration of the site.

## **1.5 Pre application Consultations**

Pre application consultations have not been held with the Board, for a combination of reasons, firstly the importance of rationalising operations at the earliest opportunity is paramount in the Applicant's opinion and secondly, it was considered that the 12 week period available for the production of the REIAR should not be extended given the actual threat of s.160 enforcement proceedings by a third party. However, because there have been numerous applications over a period of 20 years, accompanied by EIS's for the subject site and the adjacent site and the recent determination by the Board with respect to s.261A, all considered by the Board and consultees, it is considered that the Scope of this submission is well established.

## **1.6 Difficulties Encountered whilst preparing the REIAR**

- Difficulties encountered gaining access to some neighbouring properties with water wells to obtain water level and quality data, to include those under Kilsaran's control.
- Limited specific guidance on production of REIAR and baselines leading to application of generic guidance and reference to legislative requirements;

## **1.7 Competent Experts**

The production of this REIAR has been project managed by Andrew Scurfield BSc MRICS – Chartered Mineral Surveyor of Quarryplan, with all external consultants having been appointed by the Project Manager. The individual chapter and or specialist reports, held within Appendices, have been included in their entirety or summarised by the contributor for ease of reading, however, the full reports, where available, are held within the Appendices.

Provided below is the contributor to each Section of the Statement, in the instance where there is a full report appended the authors name, qualifications and experience is provided within the relevant section and the appended assessment.

No significant difficulties were encountered while compiling the necessary information for the REIAR.

The specialist reports include assessments of the past and present impacts associated with the quarry complex; which is considered to be compliant with the national legislation with respect to REIAR. However, the specialist reports also consider the Company's residual / future development proposal in order to provide

an ex ante assessment in line with the European legislative requirements for EIA and the production of the REIAR.

**Table 1.3 Specialist Contributors to REIAR**

<b>Section</b>	<b>Heading</b>	<b>Specialist Contributor</b>
1	Preamble	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan
2	Alternative Location and Project Scoping	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan
3	Project Description	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan
4	Geological Setting	Mike Williams EurGeol, QuarryDesign
5	Water Environment	Henry Lister BSc MSc – Hydrogeologist BCL Hydrogeologists Limited
6	Air Quality & Climate	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan
7	Noise Vibration	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan
8	Vibration as a Result of Blasting	Irish Industrial Explosives Limited Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan
9	Landscape	Pete Mullin -Chartered Landscape Architect Mullin Design Associates
10	Waste Management	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan Mike Williams EurGeol, QuarryDesign
11	Ecology	Will Woodrow, MSc. MCIEEM, CEng Woodrow Sustainable Solutions
12	Traffic Impacts	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan
13	Natural Resources	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan
14	Socio-Economic Impacts	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan
15	Cultural Heritage	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan Reports considered by Arch-Tech Ltd (2009) & Archaeological Services Limited (2004)
16	Interactions	Andrew Scurfield BSc MRICS (Chartered Mineral Surveyor), Quarryplan

## **1.8 Trans-boundary Issues**

The Site is located a considerable distance from the national boundary between two member states, namely Northern Ireland and the Republic of Ireland, it has been concluded that it is unlikely that there will be areas where there is a potential for trans-boundary effects.

If any such areas should arise within the individual assessments they have been dealt with, where they occur, in the individual reports.



## 2.0 REASONABLE ALTERNATIVES AND PROJECT SCOPING

It is recognised within both the Act, the Guidelines and Draft Guidelines on the Information to be contained in EIAR produced by the EPA August 2017 reflect the requirements of the Directive in that:

*'A description of the **reasonable alternatives** studied by the person or persons who prepared the EIAR, **which are relevant** to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.'*<sup>4</sup>

Indeed, the Guidelines recognise at paragraph 4.13 that:

"For example, some projects may be site specific so the consideration of alternative sites may not be relevant."<sup>5</sup>

Furthermore, s.177D and s.177E are intrinsically linked to the substitute consent process, it arguably removes the potential for alternative site consideration as the legislation directs an applicant to, and indeed is only applicable to the site in question, rendering the alternative site element of the REIAR redundant.

It is considered that the Board in arriving at their direction under s.177D, have determined that the project satisfies the parameters of exceptional circumstances and has determined that the extant development, is the one for which an application is to be made, which provides no leeway for alternative developments.

Notwithstanding the above, it is considered that the information provided herein, demonstrates compliance with the requirements of the EIA Directive, regarding alternatives, as transposed into Irish Planning law.

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<sup>4</sup> Planning and Development Regulations 2001 as amended - Schedule 6 – Emphasis added.

<sup>5</sup> Page 27 Guidelines for Planning Authorities and AnBord Pleanála on carrying out EIA, August 2018.

## 2.1 **Scope of the Environmental Impact Study**

Legislation and guidelines outline that the scope of an EIAR needs to be determined by evaluating the aspects of the environment likely to be significantly affected by the development with reference to the following categories and their inter relationship.

- **Human Health**
- **Biodiversity**
- **Population**
- **Soil**
- **Water**
- **Air**
- **Climate**
- **Material Assets**
- **Cultural Heritage**
- **Landscape**

This rEIAR considers the potential significant effects and consequences on the environment of the development both in the past, currently and in the future and assesses whether such effects are:

- Direct or indirect;
- short, medium or long-term;
- reversible or irreversible;
- beneficial or adverse.

Where significant adverse effects are identified a description of the measures necessary to avoid, reduce or remedy these effects is provided (mitigation measures).

To determine the environmental aspects that should be addressed within this EIAR, each of the main activities within the development were examined and potential impacts arising from those activities were identified, together with receptors of any such impacts. The main site activities, impacts and receptors are all identified within Table 2.1 below.

**Table 2.1. Site Activities, Impacts and Receptors**

<b>Extant Activity</b>	<b>Potential Source of Impact (alphabetical order)</b>	<b>Potential Receptors (Alphabetical Order)</b>
Construction and operation of the structures in the concrete manufacturing area of the site.	Air Landscape Noise Traffic	Human Health Landscape Population
Placement of overburden and processing waste into storage.	Land Use Noise	Human health Landscape
Maintenance of site waters	Discharge of ground water and surface water quality.	Human Health Water
Drill and Blast Crush and Haul	Air Noise	Air Quality Ecology Human Health Landscape Water Environment
Transport to and from site	Traffic	Human health / Population
Restoration and after use	Land use Visual	Landscape Ecology Population Water Environment

From the identification of potential impacts and receptors, a scoping matrix has been compiled which gives a clear indication of the main impacts to be assessed within this EIA. The scoping matrix is set out below in Table 2.2 and has been prepared in response to the various elements given detailed consideration in the Inspector's reports associated with the Environmental Impact Assessments undertaken by the Board in Table 1.1 above.

**Table 2.2. Scoping Matrix**

Potential Source of Impact	Potential Receptor						
	Agriculture	Archaeology	Humans	Landscape	Water Environment	Ecology	Air Quality
Overburden	✓	✓	✓	✓	✓	✓	✓
Stockpiling							
Drill & Blast	✓	✓	✓	✓	✓	✓	✓
Visual			✓	✓			
Noise			✓			✓	
Dust	✓		✓	✓	✓	✓	✓
Traffic			✓				✓
After-use	✓		✓	✓	✓	✓	

The importance of keeping REIAR's as tightly focused as possible, is recognised by the legislation when requiring reference to preceding EIA documentation. This objective can be further achieved by avoidance of duplication of optimised assessments and by focusing upon the "Likely and Significant" effects of a development. These elements need to be discussed in detail whereas other issues, with little or no significance, may require a brief investigation. This will indicate that an area has been given due consideration but has been rejected from requiring a full investigation.

The environmental elements chosen for commissioning of renewed specialist reports and updating with detailed scrutiny are as follows:

**Ecology (Flora and Fauna)**

**Landscape**

**Water Environment (Surface and Groundwater)**

**Air Quality**

**Noise and Vibration (Blasting)**

Those elements that have been the subject of continuous monitoring or periodic monitoring for the period starting with beginning of the baseline are:

## **Material Assets / Geology**

### **Traffic (via sales records / weighbridge)**

Other areas that are considered less significant or have no potential for change since previous assessments were considered include, **Cultural Heritage, Soils, and Human Beings.**

Separate reports have been prepared for each of the significant elements by specialist consultants (experts), whilst analysis of the monitoring report results have been undertaken by the EIAR author and presented against the standards provided for within the Quarries and Ancillary Activities, Guidelines for Planning Authorities - April 2004. Each report considers the following:

- baseline study;
- identifying potential impacts past and future
- predicting and evaluating the magnitude and significance of those impacts;
- proposing mitigation measures, where necessary.

The remit of an EIAR is to consider all environmental aspects, which could experience impact from the proposed development, from which the identification of mitigation measures can be undertaken.

The purpose of the mitigation measures is to ensure that the development could be undertaken without creating any significant or unacceptable adverse impacts on the environment or amenity of the area going forward.

### 2.1.1 Impacts related to risks of major accidents and disasters

The Directive requires “a description of the likely significant effects of the project on the environment resulting from, inter alia:

(d) the risks to human health, cultural heritage or the environment (for example due to accidents or disasters)

Given that this statement is prepared in the Group Format, where such a potential exists it will be covered in the individual report. However, Annex IV point 8 of the Directive further outlines that:

*“(8) A description of the expected significant adverse effects of the project on the environment deriving from the vulnerability to risks of major accidents and or disasters **which are relevant**<sup>6</sup> to the project concerned....Where appropriate, this description should include... details of the preparedness for and proposed response to such emergencies.”*

Consideration has been given to this specified requirement under the upgraded legislation and it is considered given that the project is to all intents and purpose complete and that the potential restoration of the site has previously been assessed with particular attention to geotechnical stability. It has been determined that major accidents and response plans are covered to an appropriate degree in the individual sections and the site’s associated Environmental Management Plan and that disasters are not relevant to this project.

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<sup>6</sup> Emphasis added

### **3.0 PROJECT DESCRIPTION**

This Remedial Environmental Impact Assessment Report (REIAR) accompanies the planning application submitted to the Board for substitute consent (SC) for the erection of the unauthorised structures in the concrete products manufacturing Northern area of the site and the unauthorised quarrying operations post the 5 August 2018 at Tromman Quarry, Co. Meath.

As previously outlined the site is located in the Townland of Tromman some 2.2 kilometres northwest of Rathmolyon Village and some 6.4km south of the town of Trim. The site is bounded to the west by Kilsaran's Tromman Quarry, to the south by the regional road R156 and to the north and east by agricultural fields. The precise location of the site's application area can be seen from Figure 1.1.

#### **3.1 Previous Site Activity in the Context of a Substitute Consent Application**

As outlined earlier in this REIAR the Board have granted leave to apply for substitute consent and the baseline and format of the report has been detailed.

The Author through previous experience of such matters and discussions with the Board is aware that the general content of a REIAR must adhere to the legislative requirements as outlined in Schedule 6 of Planning and Development Regulations 2001 (as amended) and also it is appropriate to reflect the Guidelines and the EPA Guidelines as previously intimated in Section 1.2 above.

There is no specific guidance in relation to the preparation of a REIAR, however, 177(F)(1) outlines that such a document shall contain:

- a) a statement of the significant effects, if any, on the environment, which **have occurred** or which **are occurring** or which can **reasonably be expected to occur** because the development, the subject of the substitute consent was carried out;
- b) details of—
  - i. any appropriate remedial measures undertaken or proposed to be undertaken by the applicant for substitute consent to remedy any significant adverse effects on the environment;
  - ii. the period of time within which any proposed remedial measures shall be carried out by or on behalf of the applicant;

Furthermore, the Board's evaluation of REIAR will reflect the general requirement under s.171A that:

'The Board shall consider whether a remedial environmental impact assessment report submitted under this section identifies and describes adequately the **direct and indirect significant effects** on the environment of the development.'

In order to address the effects that have occurred since the unauthorised development in late 2013 which it is understood constitutes the baseline for the unauthorised structures at the concrete products manufacturing facility and 5 August 2018 for the quarrying operations, it is considered appropriate to reference monitoring returns of past and present activities, aerial photography, before addressing the impacts that might reasonably be expected.

It is widely accepted that the quarry itself has been an authorised operation since 1998 upon approval of the first application, accompanied by an Environmental Impact Statement until August 2018 and therefore from before the baseline date suggested by the Board and has operated in accordance with the approvals and assessments.



Given the relatively recent nature of the unauthorised development that triggered the requirement for SC, the development progression is accurately documented in the Google earth aerial date stamped imagery below, the specific potential impacts of the development will be considered in the individual headings as prescribed by the Regulations, as far as is applicable and practicable. The imagery is provided to illustrate and corroborate the timeline involved and to provide confirmation of the nature and extent of the physical changes that took place during the period from 2013 to present time, initially in the northern manufacturing extent of the site and ultimately referencing the whole site.

In addition to the construction of unauthorised structures, it is also considered appropriate to consider the continued environmental impact of the remainder of the site from the 5<sup>th</sup> August 2018 onwards, the point at which the continuation of site activities became unauthorised.

### 3.1.1 “Have occurred”

In terms of the s177(F) legislative requirements it is considered that with reference to the precast manufacturing structures and ancillary developments, this baseline covers the period from 2013 to include environmental monitoring up to the 4<sup>th</sup> August 2018 provides for the assessment of impacts that **have occurred**.

### 3.1.2 “Are occurring”

It is considered that the 5<sup>th</sup> August 2018 constitutes an additional baseline date, following which the environmental impact of all the site activities will need to be **cumulatively considered**, as substitute consent is also being sought for the continuation of activities in the lacuna between expiration of consent, to include quarrying and the associated operations whose operational end date is prescribed in their consents as being co-terminus with the end date of quarrying activities and therefore the submission date of the application.

The additional baseline provides for the period post 5 August 2018 until the present and allows for the assessment of impacts **that are occurring**.

### **3.1.3 “Reasonably expected to occur”**

The final stage of the assessment is to consider the significant effects, or impacts, that can **reasonably be expected to occur** as a result of the development for which substitute consent is required in providing restoration of and post restoration of the site, considering both the prospect of immediate remediation, or the alternative of continued operations under separate consent under s.37L of the Act, following consideration by the Competent Authority.

It is understood that continued operational development whilst not part of the substitute consent application, is an outcome that could also be “reasonably expected to occur” and warrants consideration in line with legislative direction.

It is envisaged that the potential for continuation of use of the site, in line with the environmental parameters previously assessed, would continue to be environmentally acceptable. It is not intended to duplicate the s.37L application and its associated EIAR in this document, but outline consideration will be provided on this basis, to cover all reasonable expectations.

### **3.1.4 Unauthorised development Chronology**

Sequential historical imagery from Google Earth has been used below to illustrate the chronology of the construction of the unauthorised structures within the established footprint of the concrete manufacturing area of the Tromman Quarry site. It is considered that this verifies the introduction of each element and the final image illustrates the progression of the quarry faces post the 5 August 2018.



**18 April 2009**

The above image is provided to illustrate that the development at the site was in accordance with extant planning permissions and provides a record of activities that predate the 2013 REIAR baseline.



**12 July 2013**

The above image has been annotated to clearly mark up the introduction of a ready mixed concrete batching plant in the south east corner of the manufacturing area and the upgrading of the ESB substation on the western boundary at the beginning of the baseline period.



### 17 July 2016

The aerial image from July 2016 confirms that at this time the concrete manufacturing yard including the recently erected limestone fines plant, circled red and the concrete batching plant, blockyard and pre-cast manufacturing structure and provided for a paved surface throughout the entirety of the northern extent of the site, with the storage of concrete blocks occurring on the open yard, immediately to the east of the dominant permitted building (see inset).



## 24 March 2017

However, only some 8 months later the present layout is in place with the erection of the portal frame extension to the pre-cast manufacturing unit on the eastern element of the concrete yard and the internal arrangement of the concrete block making yard and storage, reverting to the central location, see inset.



**14 July 2018**

The final Google image is provided to illustrate that there has been no further alteration to the ancillary infrastructure towards the northern extent of the operational site, by way of verification, prior to providing the Applicant's own orthophotography below which provides a snap shot of the whole site during the month of August benefitting from the higher resolution of a low level drone.



27 August 2018



The final image provided illustrates the organised nature of the operational site, which to a degree is the product of the restricted lateral extent of the site combined with associated good management. The image reflects the continuation of concrete product manufacturing activities in the northern extent of the site and illustrates that extraction activities are continuing to source materials from the floor of the quarry and the faces are developing in a generally southerly direction.

### **3.2 The location and extent of the Site**

The overall substitute planning application site extends to some 21.64Ha in extent and is located completely within the Townland of Tromman, near Rathmolyon. The application boundary, for reasons previously outlined, incorporates the totality of the Applicant's operations and provides for the combined approach to development control previously sought by the Board when considering historical applications. As provided in Figure 3.1.

### **3.3 Physical and Development Characteristics**


The concrete manufacturing area of the site is fully paved and was in advance of the construction of the various structures. The northern extent of the site's appearance reflects the manufacturing nature of the activities and has the appearance of an industrial estate, albeit within a rural setting.

The site's extraction activities have been the subject of numerous EIA's as outlined in Table 1.1 and it is considered that the geological baseline is well established.

The site is subdivided into two distinct formations, with the active extraction area almost exclusively being underlain by the Waulsortian limestone formation and the north western extent of the site being underlain by the Lucan formation.



### Legend

 Substitute Consent Application Boundary

Ordnance Survey Ireland Licence No. EN0042019  
©Ordnance Survey Ireland/Government of Ireland

Projection= IRENET95\_Irish\_Transverse\_Mercator

Extracted from  
Map Series | Map Sheets  
1:2,500 | 2915-B  
1:5,000 | 2915  
1:5,000 | 2847



Title: Tromman Quarry -  
Substitute Consent Application  
Area a

Scale: 1:2500 @ A3

Figure 3.1

Drawn By:  
APS

Date:  
19/06/2019

### **3.3.1 Construction**

As provided for in the pictorial timeline above each item is either plant and machinery of steel portal frame construction, or in the case of the manufacturing extension a mixture precast concrete and steel portal frame leading to prefabrication prior to bringing the same to site and resulting in short assembly periods of less than 6 months in each case, this is further reflected in the limited groundworks and additional services required.

The construction of each structure constituted the erection of the steel frame with a crane on site prior to cladding of the same with the plastic-coated box profile cladding.

In addition, and in advance of the above, the site's ESB transformer was upgraded in 2013 to provide continuity of supply, for the projected increased onsite electrical demand. The upgrade of the facility ensured that there was no requirement for secondary off-site projects in order to deliver an enhanced supply.

### **3.3.2 Processes Concrete Batching Plant**

Concrete is manufactured at the plant by mixing Portland cement and other cement graded materials with aggregates, sand and water in controlled proportions.

Sand is imported to site and combined with indigenous limestone dust, sized aggregates drawn from the adjacent quarry area by loading shovel or dump truck and is fed into the reception hopper. Selected aggregates and sand materials fed into the feed hoppers will be proportioned by a weighing system to achieve the desired aggregate content in the mix recipe. The weighed proportioned aggregate batch will then be fed by inclined conveyer into the mixer in sequence, as required by the mixing program, for eventual direct loading as a completed wet batch into a truck mix vehicle.

Alternatively, the batch may be diverted into the dry batch bypass directly into a concrete truck mixer vehicle to eventually complete final mixing after introduction of cement powders and additives.

Bulk cement and other powders stored within sealed and vented silos, will be separately conveyed to dedicated weigh hoppers by sealed screw conveyors for sequenced addition into the mixer or directly into the loading area of a truck mixer to complete the final product. Water and liquid admixture materials may also be separately pumped from adjacent tanks into additional dedicated weighing hoppers for controlled addition into product mix.

### **3.3.3 Limestone Powder Plant**

The Limestone Powder Plant processes the 97-98% pure Calcium Carbonate Tromman resource, the process is made up of 3 main elements:

- Reduction (Crushing);
- Sizing (Screening) and;
- Drying.

All 3 activities are undertaken simultaneously, providing for continual blending to provide a tightly specified end product.

The raw limestone feed is introduced from the adjacent Tromman Quarry directly into two feed hoppers and comprises:

- An 8m down product (limestone grit to dust) and;
- a 30mm single sized aggregate.

The two material are introduced simultaneously from their individual feed hoppers to their individual processes. The 30mm is passes along an incline conveyor to a

Lanway (Hammer) Mill which reduces the incoming product to a minus 3mm output. Simultaneously the 8mm down is fed by conveyor onto a multi deck screen which divides the material into 4 different sizes:

1. Minus 8mm & plus 6mm;
2. Minus 6mm & plus 3mm;
3. Minus 3mm & plus 1.5mm and;
4. Minus 1.5mm.

All the minus 1.5mm is forwarded directly to the gas fired, fluid bed dryer which super heats the material and dries it to less than 0.1% moisture. The material is then elevated to 3 tumbler screens on top of the silos.

The material is divided into 4 separate powder products at this stage;

1. Greater than 0.25mm,
2. Minus 0.25 & plus 0.50mm,
3. Minus 0.5 & plus 1.50mm and;
4. Less than 1.50mm.

During the drying process, the minus 100µm is removed by an air hood extraction system which is then elevated to a storage silo prior to delivery via tanker to the end user. The materials which are now located in the silos are conveyed from the storage silos, to weigh hoppers prior to loading.

The plant produces 7 different individually sized products, these products can then either be blended to specific requirements for both internal consumption in the high specification precast products or to external customer requirements.

### 3.3.4 Processes Pre-cast Concrete

The extension to the original precast factory provides a modern state of the art operation to produce twin wall insulated for the paint ready construction process, helping to revolutionise housing construction methods in Ireland. A video of the process from start to finish can be found at the following link, however, the process is summarised below.

<https://www.youtube.com/watch?v=X1JxNReZt3A>

Firstly, what is noticeable from the process is the airy nature of the structure, low noise emissions and the precise and high-tech nature of the production line; with the general process being fully automated / robotic and Computer Aided Design driven. The designs originate in the Company's Head Office, also based on site, with the design department producing structural designs for final construction purposes.

This design is then forwarded to the host computer at the manufacturing site, which then plots the design on to a steel pallet, to include the detail for any electrical boxes and conduits.

The next station introduces the reinforcement spacers, in preparation for the next stage which is the introduction of the steel rebar from a fully automated robotic station for precision placement, in accordance with the structural requirements of the CAD design.

Following the placement of all reinforcement, spacers and conduits the concrete is ordered from the associated concrete batching plant, all of the aggregates are produced either on site in the case of aggregates or supplemented from the Company's sand and gravel sites in the case of the sand products.

The precision concrete mix process is fully automated and is then batched into a hopper that provides for accurate spreading of the 40N concrete within the waiting panel, which spreads the material on the now oscillating panel that ensures the removal of any air bubbles and ensures a high level of finish, negating the requirement for plastering either inside or out.

The panel then proceeds to the curing chamber, still under the control of the host computer and the second wall is created in exactly the same way before the two walls are joined by a fully automated process and once cured are stored on bespoke delivery trailers for storage, prior to delivery to site.

### **3.3.5 Natural Resource Consumption**

As outlined immediately above aggregates are sourced from the adjacent quarry, supplemented with sand from other company locations within Meath. Limestone aggregates are produced at a rate of up to a maximum of 250,000 tonnes per annum as prescribed in previous EIS's. The introduction of this additional line is to differentiate the Applicant's operations from other limestone and pre-cast producers and has provided a new market for the company to supply whilst maximising the end use of the resource. The Company continues to strive to maximise the end use of the high-quality limestone resource with the material used in powders, pre-cast concrete, ready mixed concrete and concrete blocks, in addition to using the high chemical purity of the limestone in pyrite remediation.

### **3.3.6 Operational Emissions**

The self-contained nature of the factory unit ensures that emissions, either air or noise are reduced to a minimum and kept within appropriate limits. In addition, the remainder of the manufacturing process, whether that be the ready mixed concrete, the powdered lime, or the block making facilities are all controlled by the Company's Environmental Management System.

### **3.3.7 Employment**

Although a predominantly automated process the extended manufacturing process has provided some additional 10 full time skilled operative jobs, but the value-added facility helps to underpin the 130 direct employees and 30 sub-contractors.

### **3.3.8 Waste Management**

The precise nature of manufacturing employed in the pre-cast walling manufacturing unit ensures that wastage is kept to an absolute minimum with only the exact amounts of materials are utilised in the production of the product. Therefore, the minimal wastage arising is separated and stored or placed into skips for either recycling or on to a licenced carrier.

## **3.4 Processes Quarrying**

Quarrying has occurred on the site in accordance with environmentally assessed development control protocols since the first approval in December 1998. The general approach to operations has not varied substantially since this first approval and the unauthorised activities post 5<sup>th</sup> August 2018 have been confined to the main quarry sinking and therefore within the confines of the disturbed extent and the activities have continued to be operated in accordance with the Board environmentally impact assessed parameters, with only the development control authorisation having lapsed.

The remainder of this section will summarise the continued activities and intervening period post the second baseline date. As outlined in Section 2 above it is recognised that the REIAR must reflect the requirements of Schedule 6 of the Regulations and detailed studies of the individual areas, where relevant, are



provided in sections 4 to 15 of this report and are not unnecessarily repeated in the sections covered below.

### **3.4.1 Drilling and Blasting**

The process adopted to produce blast rock for the purposes of processing utilises a fully mobile air drill rig, with drilling being undertaken on average two days every month. The impacts of this drill rig and mitigation measures adopted are outlined in the Air Quality and Noise and Vibration Sections, 7 and 8 respectively.

There have been some 9 blasts to date post the 5<sup>th</sup> August 2018, with one blast occurring up to twice every month. This involves the controlled filling of the drilled holes with explosive material and the inclusion of detonators and charges. The holes are then detonated in a tight time sequence to ensure that the potential impact is limited to the equivalent nature of one component hole of the blast.

The measured impacts for the unauthorised blasts are considered in detail in Section 8.

### **3.4.2 Processing of Material**

The processing of material within the site has continued to be undertaken, as with the past decade within the quarry void, with the blast pile being fed into the existing mobile primary jaw crusher, using a loading shovel. This enables the blast material to be reduced to the optimum size for introduction into associated secondary and tertiary mobile screening facilities.

The crushing and screening units are fully mobile and are able to operate on any standard bench removing the requirement for the blast rock to be hauled. The primary reduced material is delivered into a semi fixed secondary and tertiary crushing and screening unit. Modern mobile primary track crushing and screening

units are fitted with dust suppression units and enclosures of all potential emission points.

The benefits of mobile plant are numerous, there is an obvious reduction in internal haulage from blast pile, in addition to the potential emission points with respect to dust and noise being adjacent to a working face and for the completed development at levels significantly below the level of the surrounding lands, which affords significant natural attenuation.

### **3.4.3 Vehicle Movements**

The site continues to operate with vehicle movements at a level below the 55 two-way trips per day, which equates to annual mineral extraction in the region of 250,000 tonnes. With transport being made up of a combination of articulated vehicles, both flat bed and tippers and standard eight-wheel rigid lorries and concrete mixer trucks, these movements are analysed in Chapter 12.

### **3.4.4 Hours of Operation**

The quarry previously operated to industry standard hours of 07.00 to 19.00 Monday to Friday and from 07.00-14.00 on Saturdays. The quarry does not operate on Sundays or Bank Holidays.

### **3.4.5 Quarry Employment**

The quarry directly employs 8 employees, directly in the production process, but all activities of the Keegan business are reliant upon the continuation of the high quality resource therefore it is realistic to state that the entirety of the Company workforce now numbering 130 direct employees and the 30 indirect sub-contractors rely implicitly on the continuation of the primary resource supply.

### 3.4.6 Discharge and Fuel Storage

The site continues to operate in an identical fashion to that which has achieved compliance with the prescribed water quality standards. The site is subject to a Discharge Consent Licence and the discharge water continues to pass through the approved infrastructure in the north east corner of the Site. The efficacy of this facility is discussed in greater detail in Section 6 and Appendix 6.1.

With respect fuel storage, the site operates a two-tier system with road going vehicles being fuelled from the fully bunded and enclosed double skin tanks within the quarry workshop adjacent to the quarry offices.

The mobile plant within the void will continue to be fuelled from a mobile fuel tanker. All the remaining machinery in the quarry void is of a mobile nature and it is intended that fuel should only be within the perimeter of the site during the process of refuelling.

The fuel for the face excavators and primary crusher will be held and delivered via this double skinned tanker system. The operatives have been trained in best practice for refuelling of machinery and also in emergency procedures.

### 3.5 Decommissioning – Remediation - Restoration – Potential Continuation of Operations

As outlined above the final stage of the development cycle is to be considered and to provide assessment of the significant effects / impacts that can **reasonably be expected to occur** as a result of the development the subject of the substitute consent was carried out.

This forms a particularly controversial area of assessment given that the substitute consent whilst triggered by the potential for an EIA determination, but the delay that

this drove into the project led to the subsequent unauthorised quarrying development and then a more comprehensive project to cover all activities on site.

Therefore, consideration has been given to the full range of alternatives that could reasonably be expected to occur as a result of the extension of the concrete products manufacturing area from 2013 onwards and the continued quarrying operations from the 5<sup>th</sup> August 2018. These are considered to include effects from delivering restoration of and post restoration of the site, considering both the prospect of immediate remediation, and the alternative of continued operations under separate consent under s.37L of the Act, following consideration by the Competent Authority.

In the first instance dealing with the concrete product manufacturing area the structures can be decommissioned, with the buildings and structures being of a steel frame specification with cladding being fixed to or into a concrete base. The structures and plant and machinery can be dismantled, and the remediation completed by the removal of the concrete yard, this would involve rock breaking the yard and removal from site. It is maintained that this remediation would be sufficient to comply with the requirements of the consents to “all plant etc. shall be removed off site and the area shall be made good.”

It is understood that the quarry consents provide for bench and margin treatment and planting, with placement of some overburden resources around the quarry and then for the quarry void to be allowed to flood with anticipated water rebound levels of the order of 62mAOD (+/-2m). However, the work undertaken for this process suggest that the rebound level is more likely to be in the region of 65mAOD (see Chapter 6), which is still comfortably within the quarry void. There is no apparent provision for the removal of the overburden landform that separates the quarry void from the manufacturing area.

However, rather than the removal of all the structures / site infrastructure and the loss of socio-economic beneficial activities, it is proposed that it is reasonable to

consider the potential for continuation of use of the site in line with the environmental parameters previously assessed to be acceptable. It is considered that this continuation and proposed maximising of resource at this location would provide improvements in residual impact in landscaping terms by providing for the removal of the overburden landform from the wider landscape and also avoid the necessity for additional impacts elsewhere, potentially in a virgin location to meet the established demand for the primary limestone resource. In this instance the residual impacts would see a status quo with respect to the potential for significant effects, during the period whilst the continuation of activities is assessed by the Board under the s.37L contiguous approval approach. It is considered that the maintenance of the activity levels and the associated socio-economic benefits outweigh the potential impacts. In this instance the effects are known and have been quantified whereas the socio-economic effects of closing and or removing plant and machinery, even temporarily, would be a prediction and therefore open to challenge.

### **3.6 Alternatives Considered**

As outlined above the remedial nature of this REIAR and the parameters of the substitute consent process removes the potential to consider either design or locational alternatives.

The extended pre-cast factory and associated ancillary development design, is as is constructed, whereas the extraction element post 5<sup>th</sup> August 2018 has adhered to the previously approved and environmentally assessed development, to ensure that the only alteration is the breach of the deadline introduced by the development control system.

## **4.0 PLANNING POLICY FRAMEWORK**

### **4.1 Introduction**

This section considers the development in the context of the following contemporary planning policy sources:

- Meath County Development Plan (2013-2019);
- The National Spatial Strategy (2002-2020);
- Sustainable Development- A Strategy for Ireland (1997);
- National Planning Framework (2018); and
- Regional Planning Guidelines for the Greater Dublin Area 2010-2022.

The level of compliance with the policies and objectives outlined in these documents indicates the suitability of the development from a planning and sustainable development perspective.

### **4.2 Meath County Development Plan (2013-2019)**

The subject site is within the County Meath Administrative Area. The Meath County Development Plan (MCDP) was adopted in December 2012 and came into effect in January 2013. The plan sets out a vision and an overall strategy for the proper planning and sustainable development of the County for a six-year period. It also sets out guiding policies and objectives for the development of the County in terms of physical growth and renewal, economic, social and cultural activity, and environmental protection and enhancement.

It is noted that the Development Plan for the period 2019 to 2025 is being prepared with the first step in the Pre-Draft Public Consultation phase taking place in January and February 2017. The Stage 2 Draft stage consultation is yet to take place. Given

that the plan is still in the early stages of preparation it is not considered any further at this point.

#### **4.2.1 Extractive Industry Policies**

Section 10.12 of the MCDP states that:

*“Meath contains a variety of natural resources such as building raw materials in the form of sand, gravel, stone reserves including high purity limestones and shale used in cement and magnesia manufacture and base metal deposits. The potential of these resources to underpin construction output and provide employment and economic growth in the local and regional economy is recognised as is the need to exploit such resources in an environmentally sound and sustainable manner”.*

The plan states how the goal in the County in relation to the extractive industry is:

*“To facilitate adequate supplies of aggregate resources to meet the future growth needs of the County and the wider region while addressing key environmental, traffic and social impacts and details of rehabilitation”.*

The development at the site is considered to accord with this goal in that it assists with delivering a supply of aggregate which contributes towards growth in both the County and the wider region. As demonstrated through this REIAR, no significant effects are considered to have occurred, are occurring to date or can reasonably be expected to occur in the future in terms of environmental, traffic and social impacts. As a result, the development is considered to accord with the County Council’s goal in relation to the extractive industry.

The MCDP lists 7 policies (Policies RD POL 21- 27) which are to be considered when assessing proposals related to the extractive industry. Each of the policies are considered in turn below.

**Policy RD POL 21** states:

*“To ensure that projects associated with the extractive industry carry out screening for Appropriate Assessment in accordance with Article 6(3) of the E.C. Habitats Directive, where required”.*

An Appropriate Assessment screening exercise has been undertaken by Woodrow Sustainable Solutions. A copy of the Screening Report is appended is provided as a standalone document. The report concludes that that there has been and will be no significant effects, either individually or in combination with other plans or projects adversely affecting the conservation interests or conservation objectives of the River Boyne and Blackwater SAC and the River Boyne and Blackwater SPA. The development is therefore considered to accord with Policy RD POL 21 of the MCDP.

**Policy RD POL 22** states:

*“To facilitate the exploitation of the county’s natural resources and to exercise appropriate control over the types of development taking place in areas containing proven deposits, whilst also ensuring that such developments are carried out in a manner which would not unduly impinge on the visual amenity or environmental quality in the area”.*

The development site consists of an existing quarry, used for the winning and working of the Waulsortian and Lucan limestone formations with associated related industrial development linked with the working of the mineral won at the site, including a pre-cast concrete products factory, block yard and batching plant. As detailed at Section 9 of this REIAR, the development has not resulted in any significant effects that have occurred, are occurring or can reasonably be expected to occur in the future in terms of visual impact. As detailed at various sections of this report (See Water Environment; Noise; Dust; Ecology; Traffic Sections), the



development has also not resulted in any significant effects that have occurred, are occurring or can reasonably be expected to occur in the future. The development is therefore considered to accord with **Policy RD POL 22** of the MCDP.

**Policy RD POL 23** states:

*“To support the extractive industry where it would not unduly compromise the environmental quality of the county and where detailed rehabilitation proposals are provided”.*

As detailed throughout this Report, the development has not resulted in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future upon the environment. It can therefore be demonstrated and concluded that it has not unduly compromised the environmental quality of the county.

In terms of rehabilitation proposals, this application seeks Substitute Consent in relation to development undertaken at the site. There is no scope within the legislation to allow for future development at the site which would require planning permission, as such, the available options with regards to restoration proposals are limited. However, it is proposed that the site will be restored in accordance with previously approved restoration proposals and centres around the concept of allowing the quarry void to flood to create a waterbody.

The development is therefore considered to accord with **Policy RD POL 23** of the MCDP.

**Policy RD POL 24** states:

*“To seek to ensure that the extraction of minerals and aggregates minimise the*

*detraction from the visual quality of the landscape and do not adversely affect the environment or adjoining existing land uses”.*

As detailed at Section 9 of this report, it has been demonstrated that the development has not resulted in any significant effects upon the environment which have occurred, are occurring or can reasonably be expected to occur in the future by virtue of the impact upon the local landscape. It has also been demonstrated that the development has not resulted in significant effects by virtue of noise; dust or blasting. As a result, the development is considered unlikely to have resulted in any significant effects upon the local environment and adjoining, existing land uses. The development is therefore considered to accord with **Policy RD POL 24** of the MCDP.

**Policy RD POL 25** states:

*“To ensure that the extractive industry and associated development minimises adverse impacts on the road network in the area and that the full cost of road improvements, including during operations and at time of closure, which are necessary to facilitate those industries are borne by the industry itself”.*

As detailed at Section 12 of this report, the development is not considered to have resulted in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future upon the highway network. The development is therefore considered to accord with **Policy RD POL 25** of the MCDP.

**Policy RD POL 26** states:

*“To ensure that all existing workings shall be rehabilitated to suitable land uses and that all future extraction activities will allow for the rehabilitation of pits and*

*proper land use management. The biodiversity value of the site should be considered in the first instance when preparing restoration plans. Where land filling is proposed, inert material is the preferred method. Each planning application shall be considered on a case by case basis and where relevant will be dealt with under the relevant regional Waste Management Plan”.*

As detailed in Section 9 of this report, the application site will be restored in accordance with the previously approved proposed restoration scheme for the site whereby the quarry void will be allowed to fill with water to form a waterbody. Given that this approach has been previously assessed as part of previous EIA's and approved, this approach is considered acceptable and the development is therefore considered to accord with **Policy RD POL 26** of the MCDP.

**Policy RD POL 27** states:

*“To ensure that development for aggregates / mineral extraction, processing and associated processes does not significantly impact in the following areas: Existing & Proposed Special Areas of Conservation (SACs);*

- i. Special Protection Areas (SPAs);*
- ii. Natural Heritage Areas and Proposed Natural Heritage Areas;*
- iii. Other areas of importance for the conservation of flora and fauna;*
- iv. Areas of significant archaeological potential;*
- v. In the vicinity of a recorded monument, and;*
- vi. Sensitive landscapes*
- vii. World Heritage Sites”.*

As demonstrated in the Ecology, Archaeology and Landscape and Visual Sections of this report, the development is not considered to have given rise to any unacceptable impacts upon any of the designations identified above. As a result, the development is considered to accord with **Policy RD POL 27** of the MCDP.

#### 4.2.2 Economic Development Policies

The MCDP includes a range of other policies which indirectly impact upon the development. A summary of the policies and a brief analysis of each is provided below.

Policies ED POL 1- 50 relate to economic development in the County. The aim of the policies is to build on and enhance the competitiveness and attractiveness of County Meath in order to make it one of Ireland's prime locations for indigenous and foreign economic and employment generating investment in accordance with the objectives and recommendations of the Economic Development Strategy for County Meath 2014-2022.

The policies primarily relate to zoning for economic uses and focussing economic development around strategic growth towns and corridors. Policy **ED POL 6** states:

*“To recognise the contribution of rural employment to the continued and sustainable growth of the economy and to promote this continued growth by encouraging rural enterprise generally, especially those activities that are resource dependent, including energy production, extractive industry, small scale industry and tourism in a sustainable manner and at appropriate locations”.*

The existing operations (stone, powders and fill; Precast and concrete block manufacture) at Tromman provide direct employment for some 130 staff and a further 30 full-time sub-contractors with a direct wage bill and associated contractors wage bill approaching €7.5M. Keegan Quarries, making a significant contribution to the rural Meath economy and providing a highly skilled workforce. A significant amount of the Company's total revenue stream is now derived from export sales to the UK, bringing external revenue into the 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.

The development at the site has been necessary in order to retain existing employment at the site and allowed for the continued supply of mineral and manufacturing of products associated with the extraction of the mineral won at the site.

Policies **ED POL 7 and 8** state that Council will encourage developments which generate significant freight movements to locate close to the national road network. Due to the nature of minerals, they can only work where they are found. In this instance, the impact of vehicle movements to and from the site have been previously assessed with past EIA's and considered acceptable. As detailed within the traffic section of this EIAR the development is not considered to have resulted in significant effects which have occurred, are occurring or can reasonably be expected to occur in the future.

Policy **ED POL 17** states that Meath Co Co will seek to:

To promote rural economic development by recognising the need to advance the long term sustainable social and environmental development of rural areas and encouraging economic diversification and facilitating growth of rural enterprises.

The operation at Tromman provides an alternative rural economic enterprise away from agriculture and the agri-foods sector. In terms of social development, the population of Meath showed an increase of 5.9% from the 2011 to the 2016 census. The employment generated across the group has increased from less than 40 people in 2010 to over 100 in 2019. These jobs are vital to the local economy.

The 2016 census showed the average travel time of commuting workers in Ireland is 28.2 minutes. Meath however, due to the high numbers of people commuting to

Dublin, had the highest commuting time of 34.6 minutes. Creating employment and generating economic activity in areas within the County, provides significant social and environmental benefits, as people do not need to spend longer travelling to places of employment outside the County. Upon analysis of the Keegan Group workforce the majority of employees work and live within a 10 km radius of travel. The operations at Tromman have allowed for sustainable patterns of working and travelling.

Policy **ED POL 19** states:

*“To recognise the contribution of rural employment to the overall growth of the economy and to promote this growth by encouraging rural enterprise and diversification generally and to promote certain types of rural enterprise, especially those activities which are rural resource dependent, including renewable energy production, food production / processing and the extractive industries”.*

The significant contribution that the Applicant’s business makes to the rural economy is set out above and for that reason, it is not considered necessary to repeat.

Policies **ED POL 20 and ED POL 21** relate to the expansion of existing authorised industrial or business enterprises in the countryside and states that these will normally be permitted provide that the development would not result in negative impacts. As demonstrated throughout this report, the development would not result in any significant adverse effects upon the environment.

Policies **ED POL 30-45** seek to promote sustainable tourism within the County and resist development would conflict with this. As demonstrated in this report, the development would not result in any significant adverse effects upon the environment. For example, the impact upon cultural heritage assets which may form

tourist attractions has been assessed as part of the EIA. The impact upon the highway network has also been assessed.

Given the above, the development is considered to accord with the economic development policies of the MCDP.

### **4.2.3 Social Development Policies**

The social development policies named within the MCDP seek to develop a society based on equality, inclusion and participation for all, with each individual having a right to live their life in a pleasant, safe environment with access to necessary services and facilities to fulfil their aspirations and potentials.

The policies seek to deliver social infrastructure such as community facilities; public space and schools and support the implementation of several social inclusion strategies. The policies also seek to deliver education infrastructure; childcare and healthcare facilities; sports and leisure facilities; libraries; arts and cultural facilities.

The policies are of little relevance to the development, other than to note that the delivery of all the above-named infrastructure is dependent upon an adequate supply of aggregate, to be used either directly in construction or indirectly via the products (e.g. precast concrete and blocks) manufactured from the mineral. The Applicant's quarry has been a key supplier of aggregate and value-added products, which has indirectly supported the delivery of the social infrastructure described above.

### **4.2.4 Transportation Policies**

Chapter 6 of the MCDP relates to transportation. The Council's aim is to promote and facilitate the provision of the necessary transport infrastructure to fully accommodate existing and future population needs as well as the demand for

economic development in an environmentally sustainable manner.

The policies seek to promote the sustainable development of walking, cycling and public transport and allow for the efficient movement of goods and people. The policies also seek to promote road and traffic safety; carry out improvements when required and address traffic problems where they arise.

As detailed in the Traffic Chapter (12), HGV movements from the site have been previously assessed and subsequently permitted. The development has been demonstrated to not have result in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future by virtue of highway traffic or safety. The site has utilised an approved access and adequate car parking is available for staff and visitors within the site.

The development is therefore considered to accord with the transportation policies of the MCDP.

#### **4.2.5 Water, Drainage and Environmental Services Policies**

The MCDP seeks to develop, protect, improve and extend water, wastewater, surface water and flood alleviation services throughout the county and to prioritise the provision of water services infrastructure to complement the overall strategy for economic and population growth and to achieve improved environmental protection.

Policy **WS POL 2** states that it is the policy of Meath Co Co:

*“To develop, protect, improve and extend water, wastewater, surface water and flood alleviation services throughout the county and to prioritise the provision of water services infrastructure to complement the overall strategy for economic and population growth and to achieve improved environmental protection”.*



As demonstrated at the Water Environment Chapter (6), the development has not resulted in any unacceptable impacts upon the ground or surface water environments with the management systems in place to control drainage and flood risk at the site.

**Policy POL1** relates to air and noise quality. The aim of the policy to maintain air and noise quality in the county. Regular dust and noise monitoring have been undertaken at the site during the course of operations. As detailed in the Noise and Air Quality Sections of this report, the development resulted in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future by virtue of dust or noise.

Given the above, the development is considered to accord with the Water, Drainage and Environmental Services policies of the MCDP.

#### **4.2.6 Cultural and Natural Assets**

The MCDP seeks to protect, conserve and enhance the heritage of Meath. Policies CH POL 1-20 seek to protect the setting of designated monuments and protected structures and discourage development which would lead to a loss of, or cause damage to, the character, the principal components of or the setting of heritage assets.

As detailed in the Landscape and Visual Section of this Report, the development has been assessed from sensitive receptors within the local vicinity. The section demonstrates that the development has not resulted in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future in terms of the landscape setting of views from surrounding sensitive receptors.

The Cultural Heritage section of this report also demonstrates that the development has not given rise to any unacceptable impacts upon any designated heritage

assets. The section details how the archaeological potential of the site has been assessed previously as part of various EIA's.

**Policies NH POL 1- 26** relate to natural heritage. The aim of the policies is to protect, conserve and enhance the county's biodiversity. As detailed in the Ecology section of this report, the site has been the subject of an ecological impact assessment, prepared by Woodrow Sustainable Solutions. The Ecology section of the report demonstrates that the development has not resulted in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future in terms of the impacts upon protected species or habitats. As detailed at in the Ecology Section, the development is not considered to have had, is having or is likely to have any unacceptable impact upon any local, national or international designation.

**Policies LC POL 1-3** relate to landscape character. The aim of the policies is to support the National Landscape Strategy and protect the landscape character, quality and local distinctiveness of County Meath. As detailed in the Landscape and Visual impact section of this report, the development has been assessed in terms of its impacts upon the local landscape. The assessment concludes that the development would not result in a significant effect in terms of landscape or visual amenity. As detailed above, the development allows for the restoration of the site, allowing it to assimilate back into the local landscape.

Given the above, the development is considered to accord with the cultural and natural heritage policies of the MCDP.

#### **4.2.7 Rural Development**

Chapter 10 of the MCDP seeks to encourage the continued sustainable development of rural communities without compromising the physical,

environmental, natural and heritage resources of the County. Many of the policies in the chapter relate to rural housing and agriculture and are therefore of no relevance to the development. The chapter also includes the extractive industry policies as discussed earlier in this section, and therefore are not repeated here.

**Policies RD POL 36-43** relate to rural roads. The policies seek to ensure that all accesses on to rural roads are safe and that the carrying capacity and function of rural roads are not prejudiced by development. As detailed in the Traffic section of this report, the development has not resulted in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future by virtue of impacts upon the highway network or to driver safety.

**Policies RD44 -53** relate to the water environment in rural areas. The aim of the policies is to ensure that development meets the highest standards of environmental protection; that wastewater can be adequately treated; and that suitable treatment and management systems are in place to prevent pollution. As detailed in the Water Environment section of this report, the development has not resulted in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future upon the water environment either within the site or the surrounding catchment area.

Given the above, the development is considered to accord with the rural development policies of the MCDP.

#### **4.2.8 Development Management Guidelines and Standards**

The MCDP at Chapter 11.14 recognises:

*“the importance of the extractive industry in the economic life of the County, and importance as a valuable source of employment in parts of the County”.*

The plan states that transportation of minerals on public roads must be done in such a manner as not to cause nuisance to other road users. The plan goes on to state that a contribution towards the improvement of public roads serving a proposed and/or existing extractive development which are considered to be inadequate in width, alignment or structure to carry the size and weight of loads proposed as are necessary to safely accommodate such traffic, will be required by the Council as a condition of any permission granted.

As detailed in the traffic section of this report, the surrounding highway network has been assessed on a number of occasions in the determination of previous planning applications and EIA's. As a result, no contribution is considered necessary in this instance.

The plan states that extractive industry proposals should pay particular attention to the potential for likely significant effects on Natura 2000 sites due to groundwater drawdown or contamination of surface water. As detailed in the Ecology section of this report, the development is not considered to have given rise to any likely significant effects on such sites.

Chapter 11.14 of the plan lists a number of topics, all of which, it states, should be sufficiently assessed in an authoritative manner. As demonstrated throughout this report, all of the topics listed have been sufficiently assessed, with the overall conclusion that the development has not resulted in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future.

As summarised throughout this section, the development has been demonstrated to accord with the provisions of the MCDP 2013-2019.

### **4.3 The National Spatial Strategy, 2002-2020**

The National Spatial Strategy (NSS) 2002-2020 sets out the long-term planning and development framework context for the future growth and development of the state up until the year 2020. Among its key aims is to

*“achieve a better balance of social, economic, physical development and population growth between regions”*

The site is located within the Dublin and Mid East Region (Greater Dublin Area).

Section 4.3 of the NSS states:

*“Enhancing the competitiveness of the Greater Dublin Area (GDA), so that it continues to perform at the international level as a driver of national development, means physically consolidating the growth of the metropolitan area i.e. Dublin City and suburbs. At the same time, development in the hinterland of the metropolitan area is to be concentrated in strategically placed, strong and dynamic urban centres i.e. the ‘Primary Development Centres’ identified in the Strategic Planning Guidelines. These development centres have a unique role in Irish terms, given the scale of the Dublin City region and the need for internal balance between the city and its surrounding counties”.*

The NSS goes on to state that there are a number of large towns (population over 5,000 people) within the GDA. The Strategy identifies a number of these towns as ‘Primary Development Centres’ and states that these centres need to aim at a population level that supports self-sustaining growth, but which does not undermine the promotion of critical mass in other regions

The existing site at Tromman is located some 7km from Trim and some 20km from the towns of Navan and Maynooth. Significant economic importance is placed upon

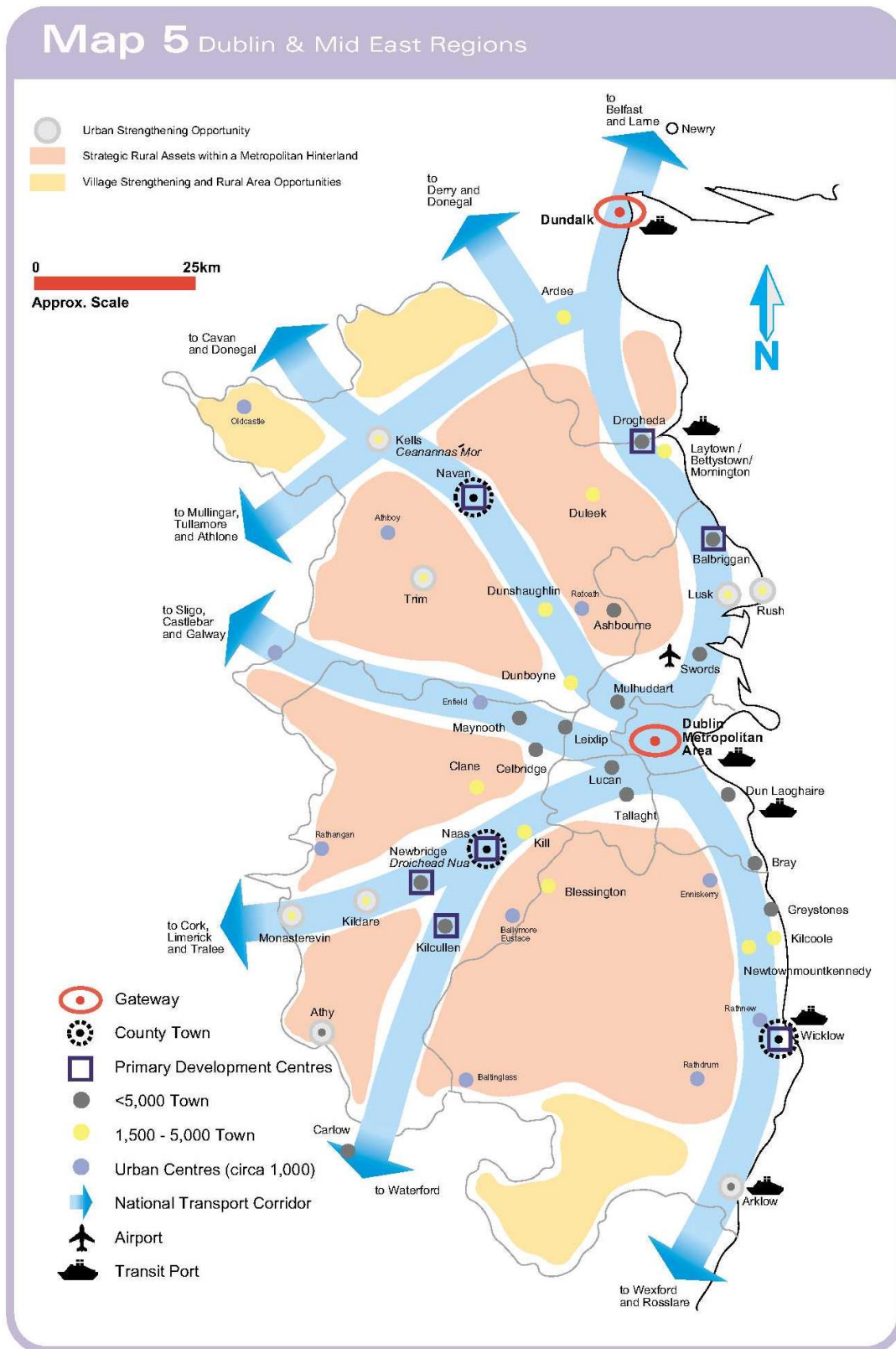
all three of the identified towns. Map 5 of the NSS (see overleaf) identifies Trim as a town with an urban strengthening opportunity. Maynooth is identified as a town with a population greater than 5,000 people and Navan is identified as a County Town and Primary Development Centre.

Direct access to all of the towns is available via regional roads. Given the Quarry's geographical location and resource quality, the site can be viewed as significant regional influence both in terms of sustaining the role of Dublin as the main metropolitan area within the region, but also sustaining the role and function of the identified towns, supporting self-sustaining growth as envisaged with the NSS.

Development at the site has been complementary to the urban strengthening opportunity designation of Trim Town through its role as an important generator of affordable and sustainable building materials. The site has experienced significant employment growth over the previous years, sustaining employment in the local area, with knock-on impacts in terms of local expenditure in the town. For the same reasons, given its proximity, the site has also reinforced development in the town of Maynooth and the Primary Development Centre and County Town of Navan.

The NSS recommends that planning policies should be proactive in catering for future needs including the advance provision of relevant services and infrastructure. The development at Tromman has assisted in sustaining the roles of the identified towns as envisaged by the NSS, thus allowing for sustainable patterns of growth and development patterns within the region.

**Figure 4.1: NSS Extract Map 5- Dublin and Mid East Regions**



#### 4.4 **Sustainable Development- A Strategy for Ireland (1997)**

The principle of sustainable development is now a fundamental tenet of land use planning policy in Ireland. The document 'Sustainable Development – A Strategy for Ireland', published by the Department of the Environment in 1997 contains a framework for applying the principles of sustainable development to different sectors of the economy.

The general principle of sustainable development has also been enshrined in the Planning and Development Act 2000 (as amended) and in County Development Plans prepared in recent years, including the MCDP.

In this context, the development has been influenced by these policies and has sought to provide an appropriate methodology to maximise the exploitation of local resources.

There are several sections and policy recommendations outlined in the Sustainable Development Plan which are reviewed in the context of the proposal, as set out below.

The 'Strategic Framework' section outlined in the plan attempts to put in context perceived incongruities whereby on the one hand, there is a fundamental requirement to meet the present day needs in a sustainable way while on the other hand equally ensuring equity in access to, and use of resources, as well as equitable opportunities to participate in decision-making processes all with an overriding goal to achieve economic and social progress.

Within the priorities for action identified within the Strategic Framework are:

- a balance between the conservation and utilisation of resources;
- concrete action on the basis of practical programmes and clear targets and;



- an ability to measure and monitor sustainable development performance.

Accordingly, the Government's priorities within the framework of the Strategy are to:

- undertake a high level of environmental protection so that renewable resources are conserved and not depleted beyond their renewable rates;
- ensure that non-renewable resources are used prudently and efficiently with a strong emphasis on the use of substitute resources, where practicable
- and the concentration of critical natural capital on the needs of the future;

The Environment and Economic Development Chapter of the strategy quotes:

*"Ireland should replace the traditional adversarial approach that presents industrial development and environmental protection as opposites. The new approach should simultaneously maintain high environmental quality and promote a competitive enterprise sector"* - Forfas, Shaping our Future.

The Extractive Industries section accepts that quarrying for stone, gravel, sand, crushed rock, etc is based on an ultimately finite resource, stating that products are used mainly in the construction industry, both as crushed rock and for the production of cement. The strategy also notes that ground limestone is also used in agriculture.

The strategy goes on to state that whilst in principle raw materials for the quarrying industry are not in short supply, the environmental impacts, require greater consideration. In certain cases, demand for aggregates for use by the construction industry could be met in some degree by recycling and reuse of construction/demolition waste.

It should be noted that due to irregular supply patterns and inconsistencies in material quality, recycled aggregate materials are often not suitable for a range of uses. As detailed earlier in this report, the mineral extracted at the quarry at

Tromman is a high purity limestone, therefore replacing the mineral with recycled aggregate would not achieve the same high-grade product which is required to produce the products manufactured at the site.

Given the above, the development is considered to accord with the provisions of the Sustainable Development Strategy for Ireland.

#### **4.5 National Planning Framework, 2018**

The National Planning Framework (NPF) is the Government's high-level strategic plan for shaping the future growth and development of the country to the year 2040.

The NPF describes how extractive industries are important for the supply of aggregates and construction materials and minerals to a variety of sectors, for both domestic requirements and for export. The planning process will play a key role in realising the potential of the extractive industries sector by identifying and protecting important reserves of aggregates and minerals from development that might prejudice their utilisation.

The NPF goes on to state that aggregates and minerals extraction will continue to be enabled where this is compatible with the protection of the environment in terms of air and water quality, natural and cultural heritage, the quality of life of residents in the vicinity, and provides for appropriate site rehabilitation.

National Policy Objective 23 seeks to:

*“Facilitate the development of the rural economy through supporting a sustainable and economically efficient agricultural and food sector, together with forestry, fishing and aquaculture, energy and extractive industries, the bio-economy and diversification into alternative on-farm and off-farm activities, while at the same time*

*noting the importance of maintaining and protecting the natural landscape and built heritage which are vital to rural tourism”.*

In terms of rural development, the NPF describes how the spatial, social and economic disparities between rural areas are a reflection of the fact that stronger rural areas tend to be located in a geographically advantageous place, and also have the human and social capital to address their needs and respond effectively to emerging opportunities and strategies.

The application site is considered to be strategically well placed in order to serve a variety of markets across Ireland, including the local market and that of the Greater Dublin Area. The site also benefits from a good human and social capital, as demonstrated by the current operations at the Quarry.

National Policy Objective 15 is to:

*“Support the sustainable development of rural areas by encouraging growth and arresting decline in areas that have experienced low population growth or decline in recent decades and by managing the growth of areas that are under strong urban influence to avoid over-development, while sustaining vibrant rural communities”.*

The development has contributed towards achieving sustainable growth in a rural location and sustaining vibrant local communities within Meath.

Given the above, the development is considered to accord with the provisions of the Sustainable Development Strategy for Ireland.

#### **4.6 Regional Planning Guidelines for the Greater Dublin Area 2010-2022**

The Greater Dublin Area (GDA) includes the geographical area of Dublin City, Dun Laoghaire- Rathdown, Fingal, South Dublin, Kildare, Meath, and Wicklow and incorporates the regions of both the Dublin Regional Authority and the Mid-East Regional Authority. The guidelines aim to direct the future growth of the Greater Dublin Area over the medium to long term and works to implement the strategic planning framework set out in the NSS.

In respect of the winning and working of minerals, Section 5.4.3 of the Guidelines state:

*“Extractive industries are essential to the economy in terms of supply of aggregate materials for the construction sector, delivering transport infrastructure projects, and for the export market. There is, however, potential for conflict in the operation of these industries with wider environmental considerations. The role of the planning system is therefore to regulate, promote or control the exploitation of natural resources taking into account these other issues”.*

As demonstrated throughout this paper, the development has allowed for the best use of a finite resource to be made whilst ensuring that the development has not resulted in significant effects upon the environment.

The guidelines reference calls for the re-use or recycling of 85% Construction and Demolition (C and D) waste by 2013. As detailed earlier in this section, given the high quality of the resource at the Tromman site, the use of recycled aggregates is not considered appropriate for the operations at the site.

The guidelines go on to state that:

*“In assessing applications for extractive industries, considerations and impacts as they relate to the objectives of the Water Framework Directive (and therefore River Basin Management Plans) and other EU Directives (such as those regarding wildlife and habitats) should be central to the decision-making process. Secondary impacts such as increased HGV traffic on adjoining communities and screening are key issues, and the use of levies to compensate the surrounding areas through investment in local social and other infrastructure is supported”.*

All of the impacts as described within the guidelines have been assessed in full within this report and the supporting appendices. The conclusions of the assessments are that the development has not resulted in any significant effects which have occurred, are occurring or can reasonably be expected to occur in the future.

Given the above, the development is considered to accord with the provisions of the Regional Planning Guidelines for the Greater Dublin Area.

#### **4.7 Summary and Conclusions**

The subject site is within the Meath County administrative area. The Meath County Development Plan (2013-2019) is the current statutory Development Plan for the area. As demonstrated, the development is considered to accord with the policies of the County Development Plan.

The development has allowed for the significant economic and social benefits generated by the site in terms of employment, investment and prosperity to be sustained without posing an unacceptable impact upon the environment, as detailed within this report. The development has complemented the role of local towns, supporting Trim as an urban strengthening opportunity.

The products manufactured at the site and aggregates produced have supported economic growth across the Dublin and mid-east region.

The development has been demonstrated to accord with the relevant local and national planning policy provisions. The development has maximised the potential of the finite natural resource found at the site without posing an unacceptable impact upon the environment and as such, the development is considered to accord with the three dimensions of sustainable development and therefore is in accordance with the proper planning and sustainable development of the area.

## **PART III - ENVIRONMENTAL IMPACT ASSESSMENT**

### **5.0 GEOLOGICAL ASSESSMENT**

This geological review section and the production of the quarry designed has been prepared by Mike Williams BSc, MSc, FGS, MIQ, C. Geol, EurGeol.

As a Senior Engineering Geologist with QuarryDesign Mike has an Integrated Masters in Geology from the University of Leicester and a Master of Science in Mining Engineering from Camborne School of Mines (University of Exeter). He is a Chartered Geologist and Fellow of The Geological Society of London. He was previously employed by Aggregate Industries where he was responsible for quarrying processes from drilling and blasting through to crushing and screening. He has also spent three years as an Exploration Geologist working in the Afar Desert in Ethiopia.

#### **5.1 Site visit**

The site was visited on the 29<sup>th</sup> October 2018 and an inspection of the site was undertaken to gain an appreciation of the geological and geotechnical aspects of the quarry. Visually, there was little of concern with the geotechnics.

#### **5.2 Soils and Subsoils**

Best practice guidance promotes that the impact upon soils and subsoils should be considered as part of the geological section of the environmental impact assess report. In this instance there has been no impact on either soil or subsoil during the prescribed periods of 2013-2018 in the precast manufacturing facility towards the northern extent of the site. Nor has there been any soil material movements in the wider quarry since the 5<sup>th</sup> August 2018 and therefore this element will be considered no further as it is not applicable in this instance.

### 5.3 **Geology**

The area around Keegan's Tromman Quarry has been mapped by the Geological Survey of Ireland at a scale of 1:100,000 (Figure 5.). The mapping indicates that the site is split across two formations the Lucan and Waulsortian Limestone formations with the quarry activities having operated almost exclusively within the more recent Lucan Formation, which were deposited during the Carboniferous period.

However, previous work undertaken by Minerex Environmental Limited in support of application TA900976 and the associated EIS stated that although the "bedrock mapping compiled by the GSI (Ref. 7.5), the active quarry area is underlain by Waulsortian Limestones in the northwest and the Lucan Formation in the southeast.

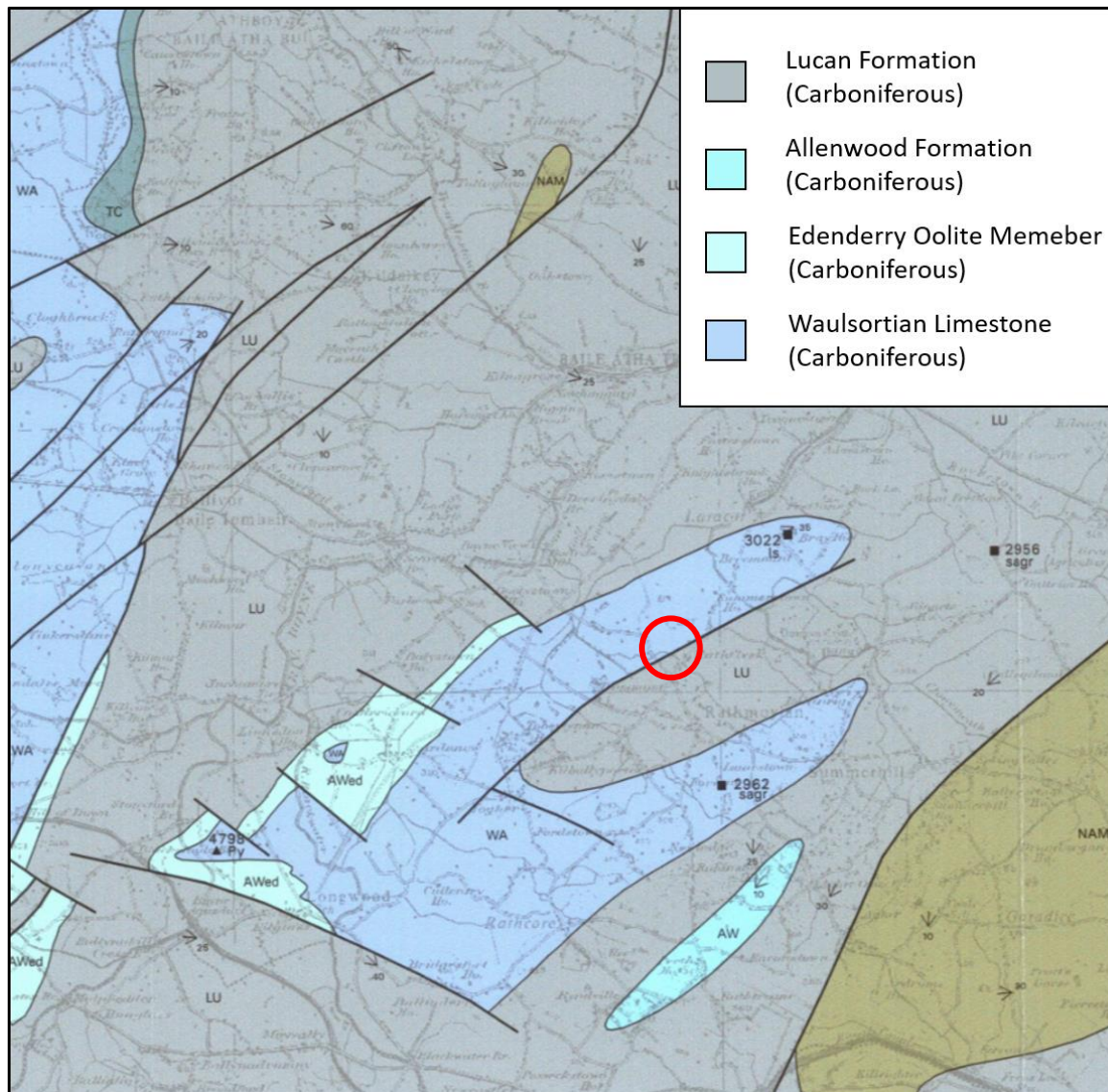
The Waulsortian Limestones are generally pale grey, poorly bedded pure limestone with distinctive cavity structures. The Lucan Formation comprises dark grey, well bedded, cherty limestones and calcareous shales.

Based on field observations, the active quarry, including the proposed extension area, is considered to be underlain by the Waulsortian Limestones and not the Lucan Formation as published. The Waulsortian Limestones in the active quarry area were observed to contain cavities and weathering features synonymous with karstification, particularly in the current lower bench."

This assessment reflected the author's assessment of the resources on site and it is considered that the site operates within the Waulsortian Limestone formation. Waulsortian limestone typically comprises pale-grey and very fine-grained carbonates, which display mudstone to wackestone depositional textures. The pale colouration reflects the relative purity of the carbonate matrix, which contains very little to no argillite and is essentially composed of lime mud. The strata at site generally dips at a low angle to the west, although can be locally steep.



The geological mapping of the area indicates that the Waulsortian Limestone around Tromman Quarry is an outlier where the surrounding Lucan Formation was deposited more recently.



**Figure 5.1: Geology of Meath (Sheet 13) 1:100,000 scale (not to scale). Solid Geology of area around Tromman Quarry, published by the Geological Survey of Ireland.**

## **5.4 Geological Impacts**

### **5.4.1 Concrete Manufacturing Impacts**

Precast manufacturing structure and ancillary developments have been installed in the northern margin of the site. The addition of these structures is not considered to have a negative impact on the geology of the area as any geological structure is now effectively covered and therefore would be protected.

### **5.4.2 Quarrying Impacts**

Quarrying of aggregate material, by definition, requires the excavation and removal of the rock deposit, thereby producing a permanent impact on the local bedrock environment within the quarry footprint. Analysis of these impacts, with reference to the baseline outlined in Section 2 and 3 of this report with respect to the production of a Remedial Environmental Impact Assessment Report are as follows:

#### **Impacts that have occurred**

Comprises the removal of surface soils, overburden and the target mineral. This has been undertaken under a variety of development consents, assessed against the appropriate European Legislation concluding on the 4<sup>th</sup> August 2018.

#### **Impacts occurring**

References the ongoing operations from the site survey which was undertaken on the 5<sup>th</sup> August 2018. Since this survey was completed, it is anticipated that the lowest sinking of the quarry has progressed in a southerly direction. Apart from the local extraction of limestone, it is unlikely that this has affected the surrounding geology of the area.

### **Impacts that can reasonably be expected to occur**

Under the two potential scenarios considered within the REIAR as being reasonable to expect to occur, the first considers the cessation of extraction operations and the restoration of the site in accordance with the two recently lapsed extraction consents. This will see no impact upon the geological resource.

The ultimate development, to be considered under s.37L, will result in the permanent removal of 9,817,000T of the target mineral. During future extraction, the Geological Survey of Ireland will be notified of any significant rock exposure that will enhance the geological understanding of the area.

## **5.5 Conclusion**

At Tromman Quarry, the impact of previous quarrying, quarrying that is occurring and the potential future activities that can reasonably be expected are considered to have had and could have, an insignificant impact on the geological environment of the Waulsortian Limestone Formation as a whole.

The quarry excavations post the 5<sup>th</sup> of August have been limited in extent and are considered to be geotechnically competent and will not give rise to the potential for failure and impacts beyond the Company's landholding.

## **6.0 WATER ENVIRONMENT**

### **6.1 Water Assessment**

An assessment was undertaken to establish the potential impacts upon the water environment, both hydrogeological and hydrological, of the development, with a baseline start date of post 2013.

In completing this report, it is considered essential to take into account the environmental information that (i) has been considered previously by the Planning Authority and the Board and (ii) has been considered to be representative and acceptable information to provide an accurate environmental baseline for the site.

This is an appropriate approach to avoid unnecessary duplication of information and is recommended by regulation 222A of the Planning and Development Regulations 2001 (as amended).

The assessment was undertaken by BCL Hydrogeologists Limited and managed by Henry Lister who holds a Bachelor of Science Honours Degree [Geology] conferred by Plymouth University, 1992; and a Master of Science Degree [Groundwater Engineering] conferred by the University of Newcastle upon Tyne, 1994.

BCL has provided specialist services and advice to the extractive industry since 2000.

BCL's work has included:

- Water environment impact assessments: typically to examine lowering of groundwater levels, potential impact upon surface water features, risk of derogation of water supplies & water quality;

- Data collation and interpretation (meteorological, geological, hydrological and hydrogeological);
- Conceptualisation of hydrogeological systems;
- Impact prediction and modelling;
- Formulation of mitigation measures (appropriate, practical and cost-effective);
- Management and undertaking of operational impact monitoring and impact assessment;
- Review and auditing of contingency mitigation schemes;
- Liaison with project team, planning authorities, regulatory agencies and general public;
- Design of Water management schemes: Rainfall runoff and storm event calculations; Sizing of settlement lagoons and storm attenuation ponds;
- Applications for Abstraction Licences and Discharge Consents;
- Prognosis, design, installation and test pumping of abstraction boreholes;
- Involvement with research project, completed in association with Capita Symonds, on behalf of the Minerals Industry Research Organisation and Environment Agency: Optimising the Use of Artificial Recharge Features to Mitigate the Impacts of Quarry Dewatering; Including a programme of dewatering & pump tests to trial various configurations of recharge trench, soakaway and compensation pond; and
- Reporting in connection with proposed developments within varying hydrogeological terrains at over 225-no. quarries throughout Ireland and the UK.

### **6.1.1 Concrete Manufacturing Impacts**

The potential for impacts from the unauthorised structures has been considered from a baseline date of 2013 onwards, as directed by the Board.

The aerial images dated April 2009 and July 2013 (Section 3.1) have been annotated to clearly mark up the introduction of a ready mixed concrete batching

plant in the south east corner of the manufacturing area and the upgrading of the ESB substation on the western boundary at the beginning of the baseline period.

Inspecting the first image, it is evident that the entirety of the northern extent of the site had already been fully paved (100% impermeable) prior to April 2009. Surface type and gradient is unchanged by the introduction of the concrete batching plant and ESB substation. Therefore, these new structures do not impact upon the principal factors influencing rainfall runoff; and the drainage characteristics of the yard in July 2013 are consistent with what would “have occurred” previously.

The aerial image from July 2016 (Section 3.1) confirms that, at this time, the concrete manufacturing yard included the concrete batching plant, blockyard and pre-cast manufacturing structure and provided for a paved surface throughout the entirety of the northern extent of the site, with the storage of concrete blocks occurring on the open yard, immediately to the east of the dominant building.

However, only some 8 months later, the aerial image from March 2017 (Section 3.1) shows that the present layout is in place with the erection of the portal frame extension to the pre-cast manufacturing unit on the eastern element of the concrete yard.

Thus, as outlined previously, the concrete manufacturing area of the site was fully paved (100% impermeable) prior to constructing the new shed.

The erection of the portal frame extension has made negligible difference to the rainfall runoff characteristics of the yard. The catchment area of the yard has not expanded; the slope of the yard is unchanged; and the surface material remains 100% impermeable (previously paved area, now rooftop).

In fact, a brief qualitative assessment would highlight the following improvements:

- The rate of runoff from the rooftop is throttled by the gutters and downpipes, thus improving the overall attenuation capacity of the water management system; and
- Runoff from the rooftop is less likely to mobilise suspended solids compared with drainage from the floor of the yard.

There has been no change in the layout and sizing of the approved drainage infrastructure (three-stage settlement tanks) in the north east corner of the Site.

Each tank is 8.5 m in length by 7 m in width; and 3 m in depth. The water is discharged from these tanks into a concrete culvert (0.77 m in width by 1.0 m in depth).

The culvert channel incorporates a V-Notch weir, now fitted with data logger. Going forward, this will provide an accurate record of discharge rate.

The channel leads to the consented discharge point, as covered by Trade Effluent Discharge Licence Ref. 04/2.

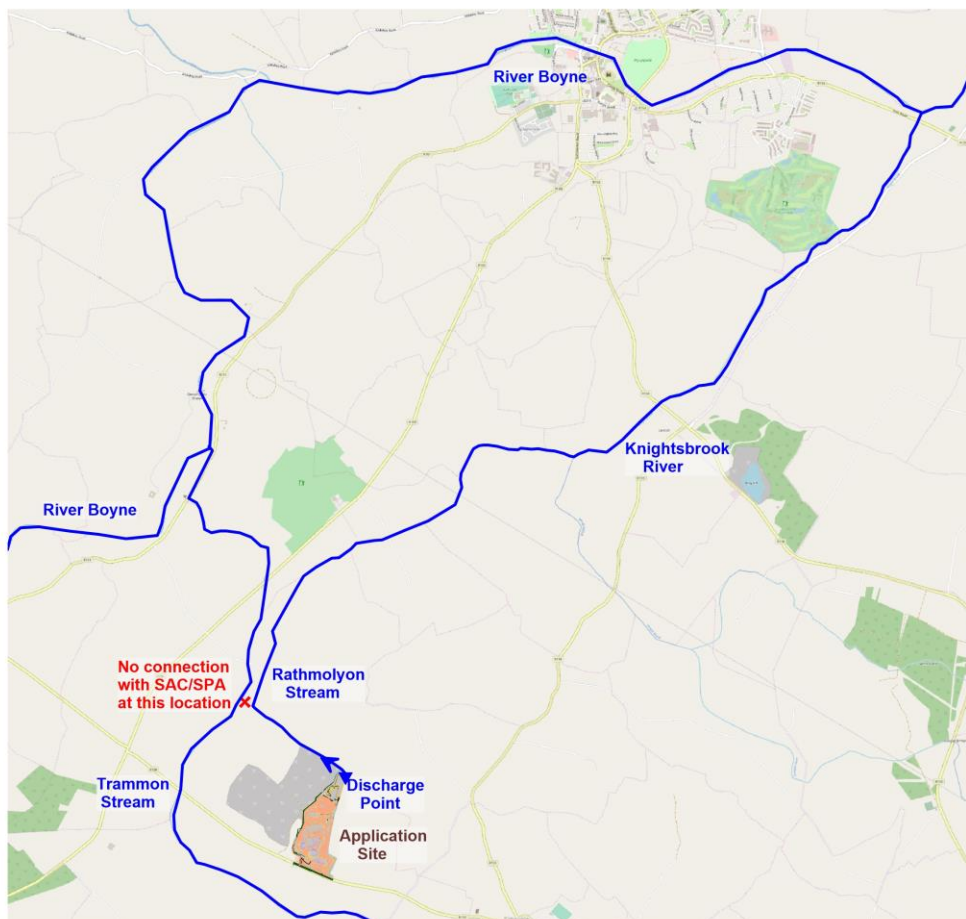
There is no natural baseflow in this drainage channel. It was excavated for the sole purpose of conveying water from the settlement tanks to the discharge point. The flow rate was and continues to be entirely dependent upon the discharge rate at the settlement tanks. The flow regime is not affected by the erection of the portal frame extension to the pre-cast manufacturing unit.

Water samples have been collected from the discharge point on a regular basis and submitted for laboratory analysis in order to demonstrate compliance with the limits specified in the consent.

The laboratory certificates are presented in Appendix 6.1.

In this way, all ingress waters (groundwater and rainfall runoff) at the Applicant's landholding are discharged into a ditch upon the northern margin of the concrete products yard. This ditch gently descends to the northwest to its confluence with the Rathmolyon Stream, which is 200 m downstream from the quarry discharge point.

The Rathmolyon Stream flows from east to northwest, passing 150 m standoff to the north of the Site and then running alongside the northern boundary of Kilsaran's quarry. Some 550 m downstream from the northwest limit of Kilsaran's quarry, the stream turns to the north and follows this direction to its confluence with the Knightsbrook River (5-6 km downstream from the Site) and onwards to the River Boyne:





At the opposite/southern end of the Site, the land drops away gently towards a second watercourse, Tromman Stream.

Tromman Stream passes 400 m to the south of the Application Area, at closest approach. The watercourse makes a very gentle descent westwards then northwards, maintaining 400-450 m standoff from the quarries. As it passes to the northwest of Kilsaran's quarry, it enters the uppermost section of the River Boyne & River Blackwater SAC-SPA.

The protected section of the Tromman Stream is some 950 m standoff to the northwest of the Applicant's quarry. At this point, the two streams (Tromman and Rathmolyon) run parallel to each other, separated by a strip of farmland (less than 100 m in width). This stretch of the Rathmolyon Stream was inspected during BCL's water features survey; there was no evidence of any connection between the two watercourses.

Likewise, SLR Consulting Ireland inspected the same two streams in 2017 and reported that "there is no surface water connection between the two". Please refer to the following documents: Planning application seeking permission for continued use of the previously permitted development at Castletown Quarry (Kilsaran Concrete), TA-170519, May 2017, EIS including "Surface Water and Groundwater" (Chapter 6) completed by SLR Consulting Ireland. First Party Appeal of Conditions 2 & 36, SLR. Dated April 2018.

Furthermore, please refer to An Bord Pleanála (ABP) report, reference number 17.QV.0182:

- (j) the apparent error made by the planning authority's advisors with respect to the existence of a proximate hydrological link between the receiving waters of the surface and ground waters discharged from the site and the nearby River Boyne and River Blackwater Special Area of Conservation, site code 002299, (no such link exists),
- (k) the actual hydrological distance to the River Boyne and River Blackwater Special Area of Conservation, site code 002299, which is in excess of nine kilometres from the site,

The Office for Public Works (OPW) flood mapping provides further confirmation that there is no surface water link between the Rathmolyon Stream and the Tromman Stream (<http://www.floodinfo.ie/map/floodmaps/>).

On this basis, the evidence presented above is in conflict with Point 7.3.2 in the Inspector's Report ABP-303334-19, dated 14<sup>th</sup> March 2019. It is argued that Point 7.3.2 should be withdrawn from the ABP report, as it is a misrepresentation.

### 6.1.2 Quarrying Impacts

The time period considered for quarrying impacts, as directed by the Board covers the period from the 5<sup>th</sup> of August 2018 until the point of submission, as up until this time the extraction on site was authorised development.

The site geology is subdivided into two distinct formations, with the active extraction area almost exclusively being underlain by the Lucan formation and the north western extent of the site being underlain by the Waulsortian limestone formation.

The conceptual hydrogeological model for these limestone formations is well-documented, providing snapshots of the status of the groundwater and surface water regimes as per the timing of the Planning Applications referenced below:

- Continuance and extension of quarrying of limestone at Tramman Quarry (Keegan Quarries Limited), TA-30344, September 2003, accompanied by Environmental Impact Statement (EIS) prepared by Declan Brassil & Co (DBC); “Soil and Water” (Chapter 6) completed by O’Neill Ground Water Engineering Ltd (OGE). Conditional permission granted March 2004, with Inspector’s Report PL17.206702 (dated 13<sup>th</sup> July 2004) received from An Bord Pleanála (ABP).
- Extension of quarrying of limestone at Tramman Quarry (Keegan Quarries Limited), extending on to land on southern side of the R156 Road; and establishment of a concrete block plant, TA-60629, January 2007, EIS prepared by DBC; “Hydrology & Hydrogeology” (Chapter 8) completed by OGE. Inspector’s Report PL17.226884 (dated November 2008) received from ABP.
- Extension to the existing permitted extraction area at Tramman Quarry (Keegan Quarries Limited), TA-900976, June 2009, EIS prepared by DBC; “Groundwater and Surface Water” (Chapter 8) completed by Minerex Environmental Limited (MEL). Response to request for Further Information, DBC. Dated November 2009. Response to submissions / objections to proposed quarry extension, prepared by MEL, dated March 2010. Conditional permission granted January 2010, with Inspector’s Report PL17.235960 (dated April 2010) received from ABP.
- Planning application seeking permission for extension of Rathmolyon Castletown Quarry (Readymix Ltd), TA-30258, July 2003, EIS prepared by Tom Phillips and Associates; “Water and Hydrogeology” (Chapter 6) completed by MEL.
- Castletown Quarry, TA-70175, April 2007, EIS completed by Golders Associates Ireland.
- Planning application seeking permission for continued use of the previously permitted development at Castletown Quarry (Kilsaran Concrete), TA-170519, May 2017, EIS including “Surface Water and Groundwater” (Chapter

6) completed by SLR Consulting Ireland. First Party Appeal of Conditions 2 & 36, SLR. Dated April 2018.

As outlined previously, it is considered essential to take into account the environmental information that (i) has been considered previously by the Planning Authority and the Board and (ii) has been considered to be representative and acceptable information to provide an accurate environmental baseline for the site.

Reference should be made to these earlier reports (rather than reproducing the findings herein). This is to avoid unnecessary duplication of information and is recommended by regulation 222A of the Planning and Development Regulations 2001 (as amended).

The aerial imagery presented in Section 3.1 illustrates that extraction activities are continuing to source materials from the floor of the quarry and the faces are developing in a generally southerly direction.

The hydrometric data presented in the SLR report for Castletown Quarry for Cemex now Kilsaran (Planning Application TA-170519, May 2017) gives the most recent, prior to the production indication of likely groundwater levels in the period immediately prior to 5<sup>th</sup> August 2018.

Piezometer GW2 is situated at 170 m standoff from the closest face at the southwest corner of Tromman Quarry.

The groundwater level data at GW2 for the period October 2016 to April 2017 ranges from 52.58 to 59.49 mAOD, averaging 55 maOD.

The above data has been compared with the current readings collected at the nearby Regan borehole, which is part of the groundwater level monitoring programme conducted by the Applicant (expanded to include the Regan borehole from March 2019 onwards).

Piezometer GW2 and the Regan borehole are both at the same standoff from the same section of the quarry void.

The groundwater level at the Regan borehole equated to 59.19 mAOD in March 2019; and dropped down to 54.34 mAOD in April.

Thus, the 2016/7 data at Piezometer GW2 falls within the same range as that being recorded at the Regan borehole in the current programme, such that there has been no demonstrable change in groundwater level in this section of aquifer during the REIAR time period.

This is consistent with the conclusions that can be drawn from a qualitative assessment of site dewatering operations. There has been no change in the pumping regime since 5<sup>th</sup> August 2018. This means that there will have been no increase in dewatering drawdown in the quarry void since that date. The risk of dewatering-related impact at local water supplies and hydrological features will be unchanged.

During the same time period, there has been no change in discharge rate (pump capacity) and sizing / layout of the approved discharge infrastructure (3-stage settlement tanks with culvert to consented discharge point). It is therefore concluded that the receiving watercourse will not have been impacted by dewatering discharge operations during the REIAR time period.

As outlined previously, water samples have been collected from the discharge point on a regular basis and submitted for laboratory analysis in order to demonstrate compliance with the limits specified in the consent (Trade Effluent Discharge Licence Ref. 04/2).

The laboratory certificates are presented in Appendix 6.1.

### **6.1.3 Decommissioning – Remediation - Restoration – Potential Continuation of Operations**

Section 3.5 gives consideration to the full range of alternatives that could reasonably be expected to occur as a result of the extension of the concrete products manufacturing area from 2013 onwards and the continued quarrying operations from the 5<sup>th</sup> August 2018.

In the first instance, dealing with the concrete product manufacturing area, the structures, plant and machinery can be dismantled, and the remediation completed by the removal of the concrete yard. It is maintained that this remediation would be sufficient to comply with the requirements of the consents (“all plant etc. shall be removed off site and the area shall be made good”).

It is understood that the quarry consents allow for continued activity in order to provide for bench and margin treatment and planting, with placement of some overburden resources around the quarry void. Upon cessation of pumped dewatering, the quarry void would be allowed to flood with anticipated water rebound levels of the order of 65 mAOD (+/-2m).

The removal of additional structures and continued operations for 1 year that had already been assessed, will have no additional impact over that previously deemed acceptable. The potential for hydrological and hydrogeological impacts will not be increased for this outcome.

However, in addition to the above approach, it is proposed that whilst not part of the substitute consent application it is also reasonable to consider the potential for continuation of use of the site in line with the environmental parameters previously assessed to be acceptable. It is considered that this is an outcome that could also be “reasonably expected to occur” in line with legislation. It is not intended to re-run

the subsequent s.37L however outline consideration is provided to cover all reasonable expectations.

In terms of protecting the water environment, this would be underpinned by a comprehensive programme of hydrometric monitoring, incorporating all elements highlighted by the Inspector's Report (An Bord Pleanála) in response to the various planning submissions cited above.

The hydrometric monitoring programme would include measurement of groundwater levels on a monthly basis at the locations tabulated below. The data collected in the last quarter is presented in the same table:

Monitoring point	Easting	Northing	Ground Level	Dip mbGL 19/03/2019	Dip mbGL 10/04/2019	Dip mbGL 01/05/2019
Keegan 1	677471.7	749926.2	79.489	40.56	42.47	43.51
Keegan 2	677755	750520	68.76	4.9	5.52	5.8
BH4	677473.4	749922.1	79.31	32.74	32.97	32.94
GW1	677706.4	749704.9	74.919	23.67	26.78	27.43
GW2	677269.8	749607.2	64.508	1.2	3.45	3.96
GW3	677634.9	749432.7	65.499	4.36	6.65	7.61
Regan	677375.4	749846.6	72.427	13.24	18.09	No Access
Cummins	678283	749628.4	83.368	9.2	10.3	10.29
Brogan	677914.6	749810	86.947	0.65	0.48	0.35
Gunning	677756.2	749676.5	75.587	20.5	23.86	25.15

Groundwater quality samples would be taken on an annual basis at the above locations, with the exception of BH4 (which is adjacent to Keegan 1) and Gunning (which is in close proximity to GW1). The first round of samples was collected on 10<sup>th</sup> April 2019; the laboratory results are presented in Appendix 6.2.

The monitoring requirements at the consented discharge point are covered by Trade Effluent Discharge Licence Ref. 04/2.

Water samples have been collected from the discharge point on a regular basis and submitted for laboratory analysis in order to demonstrate compliance with the limits specified in the consent.

The laboratory certificates are presented in Appendix 6.1.

The channel leading to the Discharge Point incorporates a V-Notch weir, now fitted with data logger. Going forward, this would provide an automated record of discharge rate.



**Figure 6.1 Location Plan for Hydrometric Monitoring**



## **7.0 AIR QUALITY & CLIMATE**

### **7.1 Introduction**

This remedial Air Quality & Climate Impact Assessment has been prepared to accompany an application for Substitute Consent (the Application) at Keegan Quarries Ltd., Tromman, Rathmolyon, Co. Meath and forms part of the Remedial Environmental Impact Assessment Report.

The Air Quality & Climate Impact Assessment has considered the totality of the operational site to include the existing quarrying operations previously permitted under and extended to the 5<sup>th</sup> August 2018.

This Air Quality & Climate Impact Assessment report has been prepared by Mervyn Keegan. Mervyn Keegan is a Director of the environmental consultancy, AONA Environmental Consulting Ltd. Mervyn Keegan's areas of professional expertise are in Noise Control & Acoustics and Air Quality & Odour consultancy, including Air Quality & Climate impact assessment and mitigation design. Mervyn Keegan has over 20 years of environmental consultancy experience. Mervyn is a full member of the Institute of Acoustics, with a Bachelor of Science Degree (Applied Sciences), a Master of Science Degree (Environmental Science) and a Diploma in Acoustics in Noise Control. AONA Environmental Consulting Ltd. is an independent consultancy specialising in Environmental Impact Assessment and Licensing. Mervyn Keegan has prepared in excess of ten Noise & Vibration and Air Quality & Climate impact assessments per annum for quarry developments in the Republic of Ireland, Northern Ireland and the UK in the last 15 years and is an expert in the awareness and understanding of the relevant legislation and guidance that pertains to best practise in such assessments. Mervyn Keegan has appeared as an Expert Witness at oral hearings, public inquiries and legal hearings. Mervyn Keegan has produced Noise, Air Quality & Odour Impact Assessment reports to assess the impacts of a

range of development types including roads, residential developments, industrial developments, quarries and mines and wind energy developments among others.

The Air Quality & Climate Impact Assessment has addressed the associated structures that Meath County Council consider to be unauthorised and the existing extraction operations that post-date the extended appropriate period for the quarrying operations. The unauthorised structures considered include an electrical substation, Limestone Powder Plant comprising feed hopper, crushing and screening plant, dispatch points, drying plant and storage sheds a batching plant and the unauthorised construction of a precast concrete manufacturing industrial unit for the period from 2013 -August 2018, and the cumulative assessments consider all structures and operational activity from the 5<sup>th</sup> of August 2018 onwards.

Cumulatively, the Air Quality & Climate Impact Assessment has included the remainder of the structures and operational activities. Each item is covered by an individual planning consent that run contemporaneously with the mineral extraction consents, other than the concrete silo that has consent that runs until September 2020.

The site is located in the Townland of Tromman some 2.2 kilometres northwest of Rathmolyon Village and some 6.4km south of the town of Trim. The site is bounded to the west by Kilsaran's Tromman Quarry, to the south by the regional road R156 and to the north and east by agricultural fields. The precise location of the site's application area can be seen from Figure 1.1.

## **7.2 Methodology**

### **7.2.1 Relevant Guidelines & Standards**

The Quarries and Ancillary Activities, Guidelines for Planning Authorities states that following with regard to the control of dust;

*“There are currently no Irish statutory standards or EPA guidelines relating specifically to dust deposition thresholds for inert mineral/aggregate dust. (See, however, the Air Quality Standards Regulations 2002 for measurement standards). There are a number of methods to measure dust deposition (such as the Frisbee method) but only the German TA Luft Air Quality Standard relates a specific method (i.e. Bergerhoff) of measuring dust deposition with dust nuisance. On this basis it is recommended that the following TA Luft dust deposition limit value be adopted at site boundaries near quarry developments:*

*Total dust deposition (soluble and insoluble): 350 milligram per square metre per day (when averaged over a 30-day period).*

*Best practice dust control measures should be proposed by the applicant”.*

On the basis of the above, the following limits apply to the operation of the quarry and associated manufacturing activities;

***Total dust deposition (soluble and insoluble): 350 mg/m<sup>2</sup>/day (when averaged over a 30-day period).***

Planning Condition 15 of the Planning Permission Ref. TA/900976 requires the operator to monitor and record dust deposition levels. No dust deposition limits are specified.

## **7.2.2 Dust Deposition Impact Assessment**

In quarries, dust typically becomes airborne due to the action of wind on material stockpiles and other dusty surfaces, or when thrown up by mechanical action, for example the movement of tyres on a dusty road or activities such as blasting, drilling, screening, etc. There are many types of particulate matter (PM) that are included in the definition of dust, including variations in terms of size and chemical composition.

A basic classification of particles may be made into those that are easily deposited and those that remain suspended in the air for long periods. This division is useful as deposited dust is usually the coarse fraction of particulates that causes dust annoyance, whereas suspended particulate matter is implicated more in exposure impacts.

Airborne particles have a large range of diameters, from nanoparticles and ultrafine particles (diameters less than 0.1µm) to the very large particles with diameters up towards 100µm. There is no clear dividing line between the sizes of suspended particulates and deposited particulates, although particles with diameters >50 µm tend to be deposited quickly and particles of diameter <10 µm have an extremely low deposition rate in comparison. Therefore, the size of suspended and deposited dust particles affects their distribution and as such requires two very different approaches to sampling these fractions.

Large particles (100µm diameter) are likely to settle within 5-10m of their source under a typical mean wind speed of 4-5 m/s, and particles between 30-100 µm diameter are likely to settle within 100m of the source. Smaller particles, particularly those <10 µm in diameter, have a greater potential to have their settling rate impeded by atmospheric turbulence and to be transported further from their source. Dust emissions are exacerbated by dry weather and high wind speeds. Therefore, the dust deposition impact depends on the wind direction and the relative location of the dust source and receptor.

PM<sub>10</sub> is the fraction of airborne (suspended) PM which contains particles of diameter less than 10µm. PM<sub>10</sub> includes all particles, of different sizes and types, which are relevant for potential health effects. PM<sub>10</sub> can penetrate deep into the respiratory system increasing the risk of respiratory and cardiovascular disorders.

Dust emissions can arise as a result of operational activities, and /or wind erosion of exposed surfaces. The amount of dust that is raised is highly dependent upon a number of interrelated factors, which include:

- The nature of the material;
- The prevailing meteorological conditions;
- The activities being undertaken;
- The influence of any on site mitigation measures.

The British Research Establishment (BRE) has previously published guidelines for ambient background dust deposition rates in different types of districts as follows;

**Table 7.1: British Research Establishment guidelines for ambient background dust deposition rates in different types of districts.**

Type of District	Dust Deposition Rate (mg/m <sup>2</sup> /day)
Major city centre, heavy industrial area	1,040
Highly developed large urban area	520
Urban area of limited size with parkland or largely rural surroundings	260
Partially developed area	180
Rural area with little development	130

The immediate area around the Tromman Quarry site can be categorised as a “rural area with little development”/ “partially developed area”. Therefore, it is considered that it is reasonable to assume that the background dust deposition rates for such areas range are up to approximately 130 mg/m<sup>2</sup>/day.

The prevailing meteorological conditions are the most significant issue which will affect the rate of dust deposition outside of the boundary of a quarry and its associated activities. Therefore, it can be assumed that during the drier months of the year, there is the potential for dust deposition rates to be higher than the annual average dust deposition rate. In order to establish an accurate existing baseline dust deposition level in the area, a 12-month dust deposition survey typically needs

to be carried out. Also, as the existing quarry has been in operation in the area for in excess of 20 years, the existing baseline dust deposition level may be elevated above the normal rural levels. Tromman Quarry has been undertaking continuous dust deposition monitoring in accordance with the requirements of previous planning consents.

### **7.2.3 Dust Deposition Monitoring Methodology**

The dust deposition monitoring locations in proximity to the Tromman Quarry have been determined after consideration of the requirements of German Standard Method VDI 2119 – *‘Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Institute’*. Gauges were installed in consideration of requirements relating to location of the gauges relative to buildings and other obstructions, height above ground and sample collection and analysis procedures. Dust deposition monitoring is continuously undertaken using Bergerhoff glass deposition gauges at four monitoring locations at the entrance. Figure 7.1 illustrates the dust deposition monitoring locations.

**Figure 7.1: Dust deposition monitoring locations (DDML).**



The dust deposition monitoring surveys have been undertaken by Byrne Environmental since 2013 in accordance with the procedure in Standard Method VDI 2119 – *'Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Institute'*. The dust deposition monitoring surveys comprise of positioning of four Bergerhoff Dust Deposit Gauges at the locations described for a period of 30 (+- 2) days. After the exposure period is complete, the gauges are removed from the site and transported to an accredited laboratory under a strict chain of custody for analysis. The samples are evaporated down and the dry residue, and the total dust content determined gravimetrically, and the result reported in mg/sample. Results are expressed as a dust deposition rate in  $\text{mg}/\text{m}^2/\text{day}$  in accordance with the relevant standard.



### 7.3 Air Quality & Dust Impacts that have occurred

#### 7.3.1 Baseline Air Quality Data

The background air quality in the area of the development is recognised to be of very good quality and the site is located in the 'Zone D' area, as denoted by the EPA. The EPA has divided the country into zones for the assessment and management of air quality. The zones adopted in Ireland are Zone A, the Dublin conurbation; Zone B, the Cork conurbation; Zone C, comprising 21 large towns in Ireland with a population >15,000; and Zone D, the remaining area of Ireland. Concentrations of air quality pollutants in Zone D are very low and well below the relevant air quality limit values.

There are no other significant air pollutant sources in the area other than the Keegan Quarries Ltd. Tromman Quarry and the Kilsaran Quarries, also referred to as Tromman Quarry directly adjacent to the target site. Background air quality is most likely to be typical rural areas influenced by existing local traffic and agricultural activities, etc.

The Environmental Protection Agency's Air Quality Index for Health (AQIH) provides a scaled number from one to ten that identifies the current air quality currently in a region and whether or not this might affect human health. A reading of ten means the air quality is very poor and a reading of one to three inclusive means that the air quality is good. The AQIH indicates that the area surrounding the Tromman Quarry site is in an area of good air quality.

Rural East	Towns with population less than 5,000, villages and rural areas in Counties Carlow, Cavan, Dublin, Kildare, Kilkenny, Laois, Longford, Louth, Meath, Monaghan, Offaly, Tipperary, Waterford, Westmeath, Wexford and Wicklow.	Corresponds to part of Zone D
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Based on the Environmental Protection Agency's Air Quality in Ireland Report 2016, the following background concentrations are likely in the area;

- Nitrogen dioxide (NO<sub>2</sub>) – Zone D Average ~ 10 µg/m<sup>3</sup> – Limit Value 40 µg/m<sup>3</sup>
- Sulphur dioxide (SO<sub>2</sub>) – Zone D Average <5 µg/m<sup>3</sup> – Limit Value 20 µg/m<sup>3</sup> (for the protection of vegetation)
- Particulate Matter (PM<sub>10</sub>) – Zone D Average ~ 15 µg/m<sup>3</sup> – Limit Value 40 µg/m<sup>3</sup>
- Particulate Matter (PM<sub>2.5</sub>) – Zone D Average ~ 8 µg/m<sup>3</sup> – Limit Value 25 µg/m<sup>3</sup>

### 7.3.2 Dust Deposition Monitoring Results

As a substitute consent application and a Remedial Environmental Impact Assessment Report (REIAR) is required to inspect the impacts of the unauthorised development and cumulative impacts to include the quarry until the date of submission (Summer 2019), it is suggested that a split baseline commencing in 2013 for the unauthorised structure is an appropriate 'baseline year', whereas there is a secondary baseline to consider, that reflects the extraction activities post the 5<sup>th</sup> of August 2018. The red line for the substitute consent covers the whole site and therefore, captures any unauthorised development in terms of structures, face position and also it ensures that all extraction activity from the 5<sup>th</sup> August 2018 until the date of submission.

The surrounding lands can be characterised as rural in nature with land uses in the area identified as agricultural, extractive and single house residential. The extractive industry is an established land use in the surrounding area dominated by the subject site and the adjoining Kilsaran Quarry which borders the Tromman Quarry site to the west. As outlined in Table 7.2, since 1<sup>st</sup> Quarter 2013, there has been no exceedance of the 350 mg/m<sup>3</sup>/day limit value recorded during the dust deposition surveys. The average dust deposition rate is well below the assessment limit for ambient dust impact of 350 mg/m<sup>2</sup>/day. This dust deposition monitoring data includes the cumulative impact of the dust from the adjoining Kilsaran Quarry.

Period	Date	D1 (South)	D2 (East)	D3 (West)	D4 (North)
Qtr 1 2013	07/01/2013-07/02/2013	89	125	98	<45
Qtr 2 2013	03/06/2013-03/07/2013	88	64	172	49
Qtr 3 2013	02/09/2013-03/10/2019	<88	98	98	98
Qtr 4 2013	05/11/2013-03/12/2013	89	110	116	179
Qtr 1 2014	03/02/2014-03/03/2014	<53	<53	<53	<53
Qtr 2 2014	21/04/2014-21/05/2014	49	74	108	54
Qtr 3 2014	02/09/2014-02/10/2014	<49	<49	<49	<49
Qtr 4 2014	05/11/2014-04/12/2014	63	95	<51	52
Qtr 1 2015	17/01/2015-17/02/2015	<53	<53	<53	<53
Qtr 2 2015	18/05/2015-18/06/2015	<49	59	<49	137
Qtr 3 2015	01/09/2015-30/09/2015	<49	93	79	54
Qtr 4 2015	30/09/2015-30/10/2015	<49	<49	<49	<49
Qtr 1 2016	01/03/2016-01/04/2016	<48	<48	<48	<48
Qtr 2 2016	01/06/2016-30/06/2016	123	79	<49	<49
Qtr 3 2016	30/06/2016-26/07/2016	<57	<57	<57	<57
Qtr 4 2016	03/10/2016-03/11/2016	<48	<48	<48	<48
Qtr 1 2017	01/03/2017-30/03/2017	<51	<51	<51	<51
Qtr 2 2017	02/05/2017-03/06/2017	<46	<46	<46	<46
Qtr 3 2017	02/08/2017-1/09/2017	<49	<49	<49	<49
Qtr 4 2017	01/10/2017-01/11/2017	<48	<48	<48	<48
Qtr 1 2018	04/01/2018-04/02/2018	<48	<48	152	124
Qtr 2 2018	04/05/2018-05/06/2018	<46	<46	<46	<46
Qtr 3 2018	02/07/2018-02/08/2018	48	62	214	76
<b>Limit Value</b>		<b>350 mg/m<sup>2</sup>/day</b>			

**Table 7.2: Quarterly Dust Deposition results since 1<sup>st</sup> Quarter 2013 until the 3<sup>rd</sup> Quarter of 2018, Keegan Quarries, Tromman Quarry**

#### **7.4 Air Quality & Dust Impacts that are occurring**

This assessment of the air quality & dust impact that has occurred has been undertaken as follows:

- Reference to historical quarterly dust deposition surveys at four boundary locations, to establish the current dust deposition rates in the area (See above).
- A comparison of the measured quarterly dust deposition rates at four boundary locations against relevant guidelines.

#### **7.4.1 Concrete Manufacturing Impacts that are occurring**

The results of the quarterly dust deposition surveys incorporate dust deposition impacts from the associated manufacturing installations to include the unauthorised structures an electrical substation, Limestone Powder Plant comprising feed hopper, crushing and screening plant, dispatch points, drying plant and storage sheds a batching plant and the unauthorised construction of a precast concrete manufacturing industrial unit.

The results of the quarterly dust deposition surveys, primarily at DDML 4 assess the dust deposition impact from the northern area of the Tromman Quarry site, including the cumulative impact from the adjoining Kilsaran Quarry. This allows for the assessment of the present site layout with the erection of the pre-cast manufacturing unit on the eastern side of the concrete yard and the internal arrangement of the concrete block making yard and storage, reverting to its existing central location. No dust deposition results in excess of 350 mg/m<sup>2</sup>/day were recorded in or adjacent to this location in the last 5 years.

#### **7.4.2 Quarrying Impacts that are occurring**

The results of the quarterly dust deposition surveys address the existing extraction operations that post-date the extended appropriate period for the quarrying operations that Meath County Council consider to be unauthorised. The results of the quarterly dust deposition surveys, primarily at DDML 1, 2 and 3, including the cumulative impact from the adjoining Kilsaran Quarry, assess the dust deposition impact from the quarry area of the Tromman Quarry site. No dust deposition results in excess of 350 mg/m<sup>2</sup>/day were recorded at these locations in the last 5 years.

#### **7.4.3 Cumulative Impacts that are occurring**

The results of the quarterly dust deposition surveys at DDML 1, 2, 3 and 4, including the cumulative impact from the adjoining Kilsaran Quarry, address the quarry extraction operations that post-date the extended appropriate period for the quarrying operations that Meath County Council consider to be unauthorised and the associated industrial structures and operations in the northern area of the site. No dust deposition results in excess of 350 mg/m<sup>2</sup>/day were recorded at these locations in the last 5 years.

#### **7.5 Air Quality & Dust Impacts that can reasonably be expected to occur**

The final stage of the assessment is to consider the significant effects, or impacts, that can reasonably be expected to occur as a result of the development for which substitute consent is required in providing restoration of and post restoration of the site, considering both the prospect of immediate remediation, or the alternative of continued operations under separate consent under s.37L of the Act, following consideration by the Competent Authority. It is understood that continued operational development whilst not part of the substitute consent application, is an outcome that could also be “reasonably expected to occur” and warrants

consideration in line with legislative direction. It is envisaged that the potential for continuation of use of the site, in line with the environmental parameters previously assessed, would continue to be environmentally acceptable. It is not intended to duplicate the s.37L application and it is associated EIAR in this document, but outline consideration will be provided on this basis to cover all reasonable expectations.

It is reasonable to suggest that there would be no change anticipated from the continuation of the associated manufacturing operations on the site, i.e. existing dust deposition rates will remain the same. Any proposed extraction development is likely to result in similar dust deposition rates in proximity to the quarry site and if anything, future dust deposition rates should be lower as development descends to lower depths allowing for increased attenuation by quarry walls. Specific assessment will be provided in any future s.37L application for extraction at the quarry site to assess future dust deposition rates.

The cumulative dust deposition impacts from the associated structures in the northern area of the Tromman Quarry site and the existing extraction operations that post-date the extended appropriate period for the quarrying operations that Meath County Council consider to be unauthorised have been assessed. The dust deposition impacts do not result in an exceedance of the 350 mg/m<sup>2</sup>/day limit at the Tromman Quarry boundary locations.

Dust deposition impacts from de-commissioning of the industrial structures in the northern area of the Tromman Quarry site and / or the regrading of the benches in the existing extraction area and subsequent infill with groundwater may result in short-term dust deposition impacts. Such activities will include movement of overburden, internal bund construction, restorative planting works, de-commissioning of plant and equipment, etc. Typically, such works will be carried out during an 8-week window per annum to allow for increased noise limits to apply. It is considered that these short-term works can be implemented now in accordance with

the plan Drawing MDA.09.112.102 in Planning Application TA-900976, which remains the extant restoration concept for the site despite the unauthorised works.

## **7.6 On-going Dust Mitigation Measures**

The following dust mitigation measures are employed to minimise operational impacts. The aim of these mitigation measures is to minimise the release of dust to the environment. Outlined in detail below are the dust suppression measures employed at the Tromman Quarry site.

### **7.6.1 Operating and Dust Mitigation Measures:**

The site manager has overall responsibility for ensuring that operations within the Tromman Quarry site comply with the requirements of any planning authorisation. The site has at its disposal a suitable water bowser and associated water supply to allow for dampening down of the site when windblown dust from its surface arises. This is in very regular use on site. The occurrence of potential wind-blown dust is weather dependent but suitable facilities are available to minimise windblown dust from the site surfaces.

### **7.6.2 Access Roads, Site Roads and Vehicles Loading Activities & Movements:**

The objective of these procedures is to minimise the creation and release of dust generated by transportation activities carried out during both access to and movements within the site. This includes minimising dust from transport vehicles entering and leaving the facility.

- Regular attention is paid to cleaning dust material from all roadways, hard surfaced areas and working areas of the facility. Dust from clean-up is re-incorporated into the stockpile. This is done during every lull in operations and at the end of each working period.

- Roadways and other areas where vehicles are regularly moving are kept clean, by sweeping or by wetting;
- When loading vehicles, the following procedures are adhered to:
  - No overloading of vehicles or containers resulting in either peaks of cargo or overspill onto the working areas or roadways.
  - Keep fall heights of the material into the transport vehicles to a minimum.
- Strictly applied, suitable on-site speed limits are set, displayed and observed for the movement of all vehicles (10 mph)
- A suitable underbody and wheel wash are provided. This is surrounded by a smooth hard surface extending to the site exit. All vehicles pass through and spend sufficient time for effective cleaning in the washing facility before leaving the site. Supervision is provided to ensure that this is carried out effectively.

### **7.6.3 Stockpiling Operations**

The aims of these procedures are to ensure that materials are stockpiled only within the designated process working areas and any release of dust to atmosphere is minimised.

- Stockpiling and offloading operations to the processing plant and equipment is co-ordinated in such a way as to minimise the potential for double handling of material.
- Unloading of materials within the facility is carefully planned to ensure minimum exposure to winds, thereby reducing dust emission to air.
- The aims of the stockpiling procedure are to ensure that management of the stockpile is conducted in such a way that releases of dust to atmosphere are minimised.
- Stockpile areas are clearly and physically delineated to deter vehicles from running over mineral extract at the stock edge.



- Stockpiles are managed to ensure that the profile of material will minimise wind whipping.
- During any stockpiling, stockpiles are profiled and compacted by flattening out peaks and ridges and when partially worked, are re-contoured to prevent ridges or overhanging falls.
- Whenever possible, settled stockpiles are not be broken into when the wind is likely to lift newly exposed dry dust. When this is unavoidable, effective dust control methods are implemented.
- Prior to carrying out any stock handling operations, the dust suppression equipment is checked to ensure that it is working properly.

#### **7.6.4 Monitoring & Reporting**

- A high standard of housekeeping is maintained on site.
- Systems for monitoring processes, responding to and reporting pollution incidents have been devised. This information is kept in a logbook, together with information regarding equipment failure, periods of significant dust emissions off-site and the inspection of roadways, together with any remedial action taken.
- Any complaints received from neighbouring properties are logged and appropriate actions taken to reduce the potential for further complaint.

#### **7.7 Monitoring**

Dust monitoring will continue to be carried out on a quarterly basis by Byrne Environmental at the existing monitoring locations, previously agreed with the Planning Authority. If the level of dust is found to exceed the dust deposition limits as outlined above as 350 mg/m<sup>2</sup>/day, at the perimeter of the site, immediate action will be taken, and additional mitigation measures will be incorporated to control any dust emission.

## 7.8 Conclusion

The potential for any dust arising from the Tromman Quarry site has been assessed and it is considered that the potential for nuisance impact has been and is limited to the immediate vicinity of the activities, even without dust suppression measures in operation, because of the quarried materials predominantly coarse nature. The potential for nuisance dust impacts is considered to be negligible at the nearest sensitive receptors and dust deposition monitoring results of the existing exposed quarried surfaces and associated industrial activities to the north of the site indicate very low dust deposition levels at the site entrance and along the site boundary.

The impacts that have occurred, are occurring and can reasonably expected to occur have been assessed and do not give rise to any significant environmental impact, given that ongoing monitoring has confirmed operations consistently have cumulatively operated below the guideline figure provided for in the DOEHLG 2 004 recommended levels.

Any residual dust deposition impacts resulting from the future de-commissioning and restoration of the quarry will be short lived and all potential dust impacts from the Tromman Quarry site are considered to be reversible i.e. the risk of impact will cease on completion of quarrying and restoration of the site. This outcome has been previously assessed and remains valid within the extant restoration concept.

## **8.0 NOISE AND VIBRATION**

### **8.1 Introduction**

This remedial Noise & Vibration Impact Assessment has been prepared to accompany an application for Substitute Consent (the Application) at Keegan Quarries Ltd., Tromman, Rathmolyon, Co. Meath and forms part of the Remedial Environmental Impact Assessment Report. The Figures 8.2 to 8.4 as referenced throughout this chapter are held as Appendix 8.1.

The Noise & Vibration Impact Assessment has considered the totality of the operational site to include both permitted and unauthorised structures and the existing quarrying operations previously permitted and extended to the 5<sup>th</sup> August 2018.

This Noise Impact Assessment report has been prepared by Mervyn Keegan. Mervyn Keegan is a Director of the environmental consultancy, AONA Environmental Consulting Ltd. Mervyn Keegan's areas of professional expertise are in Noise Control & Acoustics and Air Quality & Odour consultancy, including impact assessment and mitigation design. Mervyn Keegan has over 20 years of environmental consultancy experience. Mervyn is a full member of the Institute of Acoustics, with a Bachelor of Science Degree (Applied Sciences), a Master of Science Degree (Environmental Science) and a Diploma in Acoustics in Noise Control. AONA Environmental Consulting Ltd. is an independent consultancy specialising in Environmental Impact Assessment and Licensing. Mervyn Keegan has prepared in excess of ten Noise & Vibration and Air Quality & Climate impact assessments per annum for quarry developments in the Republic of Ireland, Northern Ireland and the UK in the last 15 years and is an expert in the awareness and understanding of the relevant legislation and guidance that pertains to best practise in such assessments. Mervyn Keegan has appeared as an Expert Witness at oral hearings, public inquiries and legal hearings. Mervyn Keegan has produced

Noise, Air Quality & Odour Impact Assessment reports to assess the impacts of a range of development types including roads, residential developments, industrial developments, quarries and mines and wind energy developments among others.

The Noise & Vibration Impact Assessment has addressed the associated structures that Meath County Council consider to be unauthorised and the existing extraction operations that post-date the extended appropriate period for the quarrying operations. The structures considered include an electrical substation, Limestone Powder Plant comprising feed hopper, crushing and screening plant, dispatch points, drying plant and storage sheds a batching plant and the unauthorised construction of a precast concrete manufacturing industrial unit.

Cumulatively, the Noise & Vibration Impact Assessment has included the remainder of the structures situated in the concrete products area towards the northern end of the site and the impacts of the adjacent Kilsaran operation. Each item is covered by an individual planning consent that run contemporaneously with the mineral extraction consents, other than the concrete silo that has consent that runs until September 2020.

The site is located in the Townland of Tromman some 2.2 kilometres northwest of Rathmolyon Village and some 6.4km south of the town of Trim. The site is bounded to the west by Kilsaran's Tromman Quarry, to the south by the regional road R156 and to the north and east by agricultural fields. The precise location of the site's application area can be seen from Figure 1.1.

## **8.2 Methodology**

### **8.2.1 Relevant Guidelines & Standards**

The noise and vibration impact assessment has been undertaken with regard to the following established standards and guidelines to determine the impact of the existing

Tromman Quarry site activities on the surrounding noise environment and assess for the potential for noise disturbance at existing noise sensitive receivers in the locality:

- Quarries and Ancillary Activities, Guidelines for Planning Authorities, April 2004, Department of the Environment, Heritage and Local Government. (DoEHLG Guidance)
- Environmental Management Guidelines Environmental Management in the Extractive Industry (Non-Scheduled Minerals), Environmental Protection Agency (2006)

The Quarries and Ancillary Activities, Guidelines for Planning Authorities states that following with regard to the control of noise and blasting;

*Control of noise: Noise-sensitive uses in the vicinity of a quarry, such as dwellings, schools, hospitals, places of worship or areas of high amenity, require that the amount of noise be minimised. The sensitivity to noise is usually greater at night-time (20.00 to 08.00) than during the day, by about 10 dB(A). Many quarries are situated in areas of low background noise and it is appropriate to consider this when setting noise limits. In general, it can be expected that complaints will result where the noise from quarrying and associated activities are between 5 to 10 dB above the background noise levels. In areas of higher background noise levels, the EPA recommends that ideally, if the total noise level from all sources is taken into account, the noise level at sensitive locations should not exceed a  $L_{Aeq}$  (1 hour) of 55 dB(A) by daytime and a  $L_{Aeq}$  (15 minutes) of 45 dB(A) by night-time. Audible tonal or impulsive components in noise emissions (e.g. the reversing siren on a lorry, required for safety reasons) can be particularly intrusive, and such components should be minimised at any noise-sensitive location.*

*It may be necessary to raise the noise limits to allow temporary but exceptionally noisy phases in the extraction process, or for short-term construction activity which cannot meet the limits set for routine operations, e.g. the construction of baffle mounds, which bring long-term environmental benefits.*

*The developer may be required to carry out noise surveys to measure noise levels at the site boundary near sensitive locations, as agreed in advance with the planning*

*authority. Surveys should be carried out in accordance with the EPA's "Environmental Noise Survey – Guidance Document" (2003). Noise monitoring should be carried out on a quarterly basis (or as otherwise agreed) and commenced prior to the commencement of development. The results should be reported to the planning authority within 3 weeks (or as agreed). 95% of all noise measured shall comply with the specified limit values. No individual noise measurement should exceed the limit values by more than 2 dB(A).*

*Control of blasting: Nearby residents (e.g. within 500 meters) need to be given advance notice when blasting operations are due to take place, which should only be carried out between 09.00 and 18.00 hours, Monday to Friday (except in emergencies or for health and safety reasons beyond the control of the developer). Similarly, such residents should be given the "all clear" signal by means of sirens or other agreed measures when blasting has been completed.*

*The EPA recommends that to avoid any risk of damage to properties in the vicinity of a quarry, the vibration levels from blasting should not exceed a peak particle velocity of 12 millimetres per second as measured at a receiving location when blasting occurs at a frequency of once per week or less. In the rare event of more frequent blasting, the peak particle velocity should not exceed 8 millimetres per second. The nature of the underlying rock can influence the way blast vibrations are transmitted through the ground to locations outside the site, so it is important that such information (including predicted vibration levels in adjacent noise-sensitive receptors) be submitted with the planning application where relevant.*

*Blast noise is characterised by containing a large proportion of its energy within a frequency that is below the normal hearing range and is therefore termed "air overpressure." The EPA recommends that blasting should not give rise to air overpressure values at the nearest occupied dwelling in excess of 125 dB (Lin)<sub>max.</sub>  
<sub>peak</sub> with a 95% confidence limit.*

*The developer should carry out blast monitoring (ground borne vibration and air overpressure) for each blast. The monitoring locations should be as agreed within the planning authority and shall be established prior to the commencement of blasting. The results should be reported to the planning authority on a regular agreed basis. Ground borne vibration levels measured at the nearest occupied dwelling should not exceed the specified limit values. 95% of all air overpressure levels measured at the nearest occupied dwelling shall conform to the specified limit value. No individual air overpressure value should exceed the limit value by more than 5 dB (Lin)'.*

As outlined in the Environmental Management Guidelines Environmental Management in the Extractive Industry (Non-Scheduled Minerals), Environmental Protection Agency (2006), the Environmental Protection Agency (EPA) has produced a Guidance Note for Noise in Relation to Scheduled Activities (EPA, 1996). It deals in general terms with the approach to be taken in the measurement and control of noise and provides advice in relation to the setting of noise Emission Limit Values (ELV) and compliance monitoring. In relation to quarry developments and ancillary activities, it is recommended that noise from the activities on site shall not exceed the following noise ELVs at the nearest noise-sensitive receptor:

- Daytime: 08:00–20:00 h  $L_{Aeq(1h)} = 55$  dB(A)
- Night-time: 20:00–08:00 h  $L_{Aeq(1h)} = 45$  dB(A)

Note:

- 95% of all noise levels shall comply with the specified limit value(s). No noise level shall exceed the limit value by more than 2 dB(A).
- On-site activities should be permitted during night-time hours where they comply with the noise ELVs (e.g. heating up of asphalt plants, loading of materials).
- Where existing background noise levels are very low, lower noise ELVs may be appropriate.

- Audible tones or impulsive noise should be avoided at night.
- It is also appropriate to permit higher noise ELVs for short-term temporary activities such as construction of screening bunds, etc., where these activities will result in a considerable environmental benefit.
- In relation to blasting activities within quarry development, it is recommended that the following vibration and air overpressure ELVs are adopted and applied at the nearest vibration and air overpressure sensitive location (e.g. a residential property):  
Ground-borne vibration: Peak particle velocity = 12 mm/s, measured in any of the three mutually orthogonal directions at the receiving location (for vibration with a frequency of less than 40 Hz)  
Air overpressure: 125 dB (linear maximum peak value), with a 95% confidence limit.
- Normal hours of blasting should be defined (e.g. 09:00–18:00 h Monday to Friday), and provision should be included to permit blasting outside these hours for emergency or safety reasons beyond the control of the quarry operator.
- It is recommended that quarry operators provide advance notification of blasting to nearby residents through use of written notes, signage at site entrance, telephone, or warning sirens (or a combination of these methods).

On the basis of the above, the following noise limits are suggested for the continued operation of the quarry and associated activities post 5<sup>th</sup> August 2018;

***The equivalent sound levels attributable to all on-site operations associated with the development shall not exceed 55 dB(A)  $L_{eq}$  over a continuous one hour period between 0700 hours and 1900 hours on Monday to Friday inclusive, and 0700 hours and 1400 hours on Saturday, when measured at any noise sensitive receptor. Sound levels shall not exceed 45 dB(A) at any other time.***



## 8.2.2 CadnaA Noise Prediction Modelling Methodology

CadnaA has been developed to allow detailed noise predictions to be undertaken in accordance with:

- ISO 9613-2:1996 Acoustics – Attenuation of sound during propagation outdoors – Part 2 General methods of calculation.
- BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Noise

The CadnaA noise prediction model allows for noise from all sources entered into the model to be undertaken simultaneously. The noise model can take topographical effects, ground absorption, screening effects, reflections and focusing effects, among others, into consideration. The modelling software calculates noise levels based on the emission parameters and spatial settings that are entered. The model calculates the propagation of the sound from each noise source and produces a noise level contour map and graphics in proximity to a facility with colour coded noise level contours. Model parameters, sources, and settings have been incorporated into the model as detailed in Table 8.1. The noise model has been produced to verify the noise readings taken on the existing Tromman Quarry site and confirms that the model is representative of the current on-site operations and provides an accurate verifiable prediction at all noise sensitive receptors in the vicinity of the existing Tromman Quarry site. Thus, the noise prediction model provides an appropriate level of confidence when assessing specific noise impact from the Tromman Quarry site.

On 7<sup>th</sup> February 2019, a site noise survey was undertaken with source specific noise level readings taken in close proximity to the main noise sources on the existing Tromman Quarry site. This allowed for the generation of accurate sound power levels for all main existing noise sources on the site. For the purposes of noise impact assessment, the Sound Power level ( $L_w$ ) was determined by measuring the Sound Pressure Level ( $L_p$ ) at a specific distance from the noise source and

assuming a Directivity Index (Q) of 2, i.e. hemispherical propagation, using the following equation;

$$L_w = L_p + 10 \cdot \log \left( \frac{Q}{4\pi \cdot r^2} \right)$$

**Table 8.1: Modelling Parameters, Sources and Assumptions**

Parameter	Source	Details
Horizontal distances – Quarry and surrounding area	Quarryplan	Scaled drawings in AutoCAD format.
Quarry Dimensions	Quarryplan	Scaled drawings in AutoCAD format.
Receiver Locations	Envest	In outdoor amenity areas adjacent to nearest residential properties @ 1.5m height.
Plant types, location & Sound Power Level	Quarryplan / site operator.	Source noise measurements were undertaken in close proximity to plant and equipment and within buildings on site. This allowed for an accurate Sound Power Level $L_w$ to be assigned to active plant.
Ground Absorption	Envest	A Ground Absorption Rate – $G = 0.5$ has been used in the model, which is appropriate for the surrounding land type.

### **8.3 Noise & Vibration Impacts that have occurred**

#### **8.3.1 Noise Compliance Monitoring**

As a substitute consent application and a Remedial Environmental Impact Assessment Report (REIAR) is required to inspect the impacts of the unauthorised development and cumulative impacts to include the quarry until the date of submission (Summer 2019), it is suggested that 2013 is an appropriate 'baseline year'. The red line for the substitute consent covers the whole site and therefore, captures any unauthorised development in terms of final face position of which there are some and also it ensures that all extraction activity from the 5<sup>th</sup> August 2018 until the date of submission.

Table 8.2 summarises the noise monitoring surveys that have been undertaken from 2013 until 2019 by Byrne Environmental at Tromman Quarry. The noise monitoring surveys were carried out to record and assess the noise impacts that the quarry site activities have on the local receiving noise environment and to assess compliance with site relevant Planning Conditions (*Planning Permission Ref. TA/900976 Condition 12*). The noise monitoring surveys have been conducted in accordance with ISO 1996-2, 2017 *Acoustics – Description, Measurement and Assessment of Environmental Noise* and with reference to the 2016 EPA publication, "*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)*".

The Tromman Quarry site is located in the townland of Tromman approximately 2.2 km west of Rathmolyon village set back from the R156 Regional Road. The surrounding lands can be characterised as rural in nature with land uses in the area identified as agricultural, extractive and single dwelling houses (residential). The extractive industry is an established land use in the surrounding area dominated by

the subject site and the adjoining Kilsaran Quarry which borders the Tromman Quarry site to the West.

Condition 12 of Planning Permission Ref. TA/900976 states that “*site noise shall not exceed 55dB(A)  $L_{Aeq,T}$  during 08:00hrs – 18:00 hrs Monday to Saturday and 45 dB(A)  $L_{Aeq,T}$  at any other time when measured at any noise sensitive premises in the locality*”. This is an absolute limit that is applied to all extractive sites and is taken from the *Guidelines Quarries and Ancillary Works etc*

The recorded  $L_{Aeq,T}$  values at N1 and N2 at the boundary of the Tromman Quarry site from 2013 until 2019 consistently comply with the specified limit value and are consistent with previous noise survey results. Typically, at N1 and N2, the subjective commentary states either ‘*Quarry noise faintly audible*’ or ‘*Quarry noise not audible*’ at N1 and N2. Therefore, it is confirmed that the existing quarrying and concrete manufacturing operations at the Tromman Quarry, to include the operations of the unauthorised structures and continuation of extraction in the quarry are not having a significant noise impact at the nearest residential properties to the site. The noise monitoring at this location will be inclusive of the cumulative noise impacts from the Tromman Quarry site and Kilsaran Quarry directly adjacent to the Tromman Quarry site and conversely the data that Kilsaran have provided reflects the Keegan operations, as presented below.

**Table 8.2:** Noise monitoring survey results from 2013 until 2019 at Keegan Quarries Ltd., Tromman, Rathmolyon, Co. Meath.

Period	Location	Date	Time	$L_{Aeq, 60min}$	$L_{A90, 60min}$	$L_{A10, 60min}$	Notes
Qtr 1 2013	N1	07/02/2013	14:30	48	44	52	Quarry noise faintly audible
	N2	07/02/2013	15:45	57	50	59	Quarry noise not audible
Qtr 2 2013	N1	27/06/2013	10:35	49	44	55	Quarry noise faintly audible
	N2	27/06/2013	11:45	55	52	63	Quarry noise not audible
Qtr 3 2013	N1	03/09/2013	15:15	49	40	51	Quarry noise faintly audible
	N2	03/09/2013	14:00	56	48	60	Quarry noise not audible, Road traffic dominant
Qtr 4 2013	N1	02/12/2013	14:35	47	39	51	Quarry noise faintly audible
	N2	02/12/2013	16:00	54	48	62	Quarry noise not audible,

							Road traffic dominant
Qtr 1 2014	N1	03/02/2014	12:00	53	43	59	Quarry noise faintly audible
	N2	03/02/2014	10:10	50	45	57	Quarry noise not audible
Qtr 2 2014	N1	10/06/2014	15:30	55	47	64	Quarry noise faintly audible
	N2	10/06/2014	13:45	53	48	61	Quarry noise audible
Qtr 3 2014	N1	02/09/2014	10:10	53	43	63	Quarry noise faintly audible
	N2	02/09/2014	11:25	55	49	68	Quarry noise audible
Qtr 4 2014	N1	24/11/2014	14:15	54	50	62	Quarry noise faintly audible
	N2	24/11/2014	15:30	56	51	65	Quarry noise audible
Qtr 1 2015	N1	17/02/2015	09:10	50	41	60	Quarry noise faintly audible
	N2	17/02/2015	10:35	53	46	63	Quarry noise audible
Qtr 2 2015	N1	18/06/2015	14:00	59	38	62	Quarry noise not audible
	N2	18/06/2015	14:10	53	39	60	Quarry noise faintly audible
Qtr 3 2015	N1	30/09/2015	16:45	60	45	65	Quarry noise not audible
	N2	30/09/2015	15:10	54	44	61	Quarry noise faintly audible
Qtr 4 2015	N1	30/10/2015	11:05	58	48	63	Quarry noise not audible
	N2	30/10/2015	09:50	52	46	60	Quarry noise faintly audible
Qtr 1 2016	N1	01/03/2016	08:30	58	49	63	Quarry noise not audible
	N2	01/03/2016	11:05	52	46	55	Quarry noise faintly audible
Qtr 2 2016	N1	03/06/2016	09:45	60	52	66	Quarry noise not audible
	N2	03/06/2016	11:15	55	50	62	Quarry noise faintly audible
Qtr 3 2016	N1	05/09/2016	08:15	58	50	71	Quarry noise not audible
	N2	05/09/2016	11:00	53	48	65	Quarry noise faintly audible
Qtr 4 2016	N1	03/11/2016	11:05	50	46	53	Quarry noise faintly audible
	N2	03/11/2016	10:00	60	52	68	Quarry noise not audible
Qtr 1 2017	N1	30/03/2017	08:35	53	49	60	Quarry noise faintly audible
	N2	30/03/2017	09:55	57	50	63	Quarry noise not audible
Qtr 2 2017	N1	02/05/2017	11:05	51	46	55	Quarry noise faintly audible
	N2	02/05/2017	09:00	56	49	58	Quarry noise not audible
Qtr 3 2017	N1	15/08/2017	08:10	53	42	59	Quarry noise faintly audible
	N2	15/08/2017	09:20	57	49	62	Quarry noise not audible
Qtr 4 2017	N1	10/11/2017	08:25	55	50	66	Quarry noise faintly audible
	N2	10/11/2017	10:30	58	50	68	Quarry noise not audible
Qtr 1 2018	N1	04/02/2018	11:45	53	48	55	Quarry noise faintly audible
	N2	04/02/2018	13:50	60	53	65	Quarry noise not audible
Qtr 2 2018	N1	05/05/2018	14:15	52	46	59	Quarry noise faintly audible
	N2	05/05/2018	15:35	57	52	72	Quarry noise not audible
Qtr 3 2018	N1	02/08/2018	10:30	51	55	48	Quarry noise faintly audible
	N2	02/08/2018	08:45	53	55	50	Quarry noise not audible
Qtr 1 2019	N1	04/02/2019	10:35	51	45	58	Quarry noise faintly audible
	N2	04/02/2019	11:45	52	47	68	Quarry noise not audible

Table 8.3 summarises the available periodic noise monitoring surveys that have been undertaken since November 2014 at Kilsaran Quarry directly adjacent to the Tromman Quarry site. The noise monitoring survey results indicate the cumulative noise from the operation of the two adjacent quarries is not having a significant noise impact at the nearest residential properties to the sites.

**Table 8.3:** Periodic Noise monitoring survey results since November 2014 until November 2017 at Kilsaran Quarries directly adjacent to Keegan Quarries Ltd., Tromman, Rathmolyon, Co. Meath.

Period	Location	Date	L <sub>Aeq, 60min</sub>	L <sub>A90, 60min</sub>	L <sub>A10, 60min</sub>
Qtr 4 2014	N1	20/11/2014	47.6	48.9	45.4
	N2	20/11/2014	51.1	52.8	42.8
Qtr 2 2015	N1	16/07/2015	50.8	52.5	47.1
	N2	16/07/2015	53.6	54.1	44.9
Qtr 4 2015	N1	04/12/2015	52.8	44	41.1
	N2	04/12/2015	55	45.5	40.2
Qtr 1 2016	N1	19/02/2016	59.7	61.9	54.2
	N2	19/02/2016	56	56.7	50.5
Qtr 4 2016	N1	04/11/2016	49.9	52.9	44.1
	N2	04/11/2016	47.7	50	41.5
Qtr 1 2017	N1	04/11/2017	49.2	51.9	42.8
	N2	04/11/2017	45.9	46.8	43.3

The Council approved noise monitoring survey locations are adjacent to each of the quarry site's operational boundary and in proximity to the nearest residential properties to each of the Tromman Quarry sites both Kilsaran and Keegan operated as presented in Figure 8.1.

**Figure 8.1:** Noise monitoring locations and Noise Sensitive Receiver (NSR) locations in proximity to the nearest residential properties to the Keegan Quarries Ltd. site in Tromman, Rathmolyon, Co. Meath and at the Kilsaran Quarry directly adjacent to the Keegan Quarries Ltd. site.



### 8.3.2 Vibration Compliance Monitoring

In accordance with best practice, vibration monitoring with the use of a vibrograph has been undertaken for every blast since 2013 at the nearest residential properties to the Tromman Quarry site. The vibration monitoring locations and results are

provided in Table 8.4. The blast monitoring locations relate to the most proximate residential properties to the extraction operations.

The DoEHLG Guidance provides a limit for ground-borne vibration: Peak particle velocity = 12 mm/s, measured in any of the three mutually orthogonal directions at the receiving location (for vibration with a frequency of less than 40 Hz). The DoEHLG Guidance provides a limit for Air overpressure: 125 dB (linear maximum peak value), with a 95% confidence limit. These limits are not exceeded by current blast practices.



**Table 8.4:** Vibration monitoring results for every blast since 2013 at the nearest residential properties to the Tromman Quarry site.

Date	No of Holes	Total Charge (kgs)	No of Delays	MIC (kgs)	Peak Particle Velocity (mm/sec)			Plan distance to blast (m)	Air-Overpressure (dB)	Bearing of Ins to Blast	Location
					H (mm/sec)	T (mm/sec)	V (mm/sec)				
29/01/2013	60	7390	60	125	2.00	2.50	2.10	310	125	43°	Regan
21/03/2013	34	8102	59	160	8.90	9.50	3.60	200	113	340	Damian Montague
05/06/2013	43	10750	43	285	7.49	8.34	5.21	220	123.9	E	Keegans House
28/08/2013	75	4830	75	95	5.08	4.95	2.92	226	116.7	E	Keegans House
30/09/2013	32	7434	64	135	2.54	1.52	1.21	240	125.5	83°	Regan's Gateway
09/12/2013	59	9485	59	170	2.16	1.97	1.40	310	119.9	33°	Gateway to Regan's
28/02/2014	49	6061	49	125	2.70	2.10	2.20	290	115	39°	Regan
09/04/2014	66	6115	66	140	2.26	1.52	2.28	300	113.1	55°	Regan
16/05/2014	15	4767	30	200	6.22	3.49	3.49	250	123.9	178°	Regan
26/06/2014	125	5068	125	45	2.29	1.14	1.78	270	114.2	100°	Gateway to Regan's
16/07/2014	19	5776	36	195	7.62	4.57	2.47	250	121.2	68	Regan
17/09/2014	23	7835	46	180	6.70	3.90	3.60	230	125	98°	Mr. Regan
28/10/2014	20	6113	40	150	7.37	3.30	3.94	240	122.9	100°	Gateway to Regan's
08/12/2014	72	7335	72	150	4.06	3.23	3.30	405	113	170	Regan Residence
26/01/2015	50	6155	49	145	4.06	2.98	3.74	300	118.9	56°	Regan's
18/03/2015	31	8400	54	180	3.60	2.30	2.10	290	132	275°	Mr. Collins
08/06/2015	78	7930	82	200	2.10	1.70	1.70	290	130	275°	Keegan Residence
24/07/2015	44 (43)	7037	43	175	4.51	3.49	3.49	290°	115.2	219°	Keegans Residence
23/09/2015	47	9492	68	170	1.77	2.03	1.58	270	124.3	110°	Regan
13/11/2015	29	8855	55	180	4.63	2.79	2.34	270	120	99°	Regan
14/01/2016	39	5749	39	160	3.11	1.56	2.85	260	119	56°	Regan Residence
27/01/2016	27	6319	54	180	2.54	1.71	2.73	395	124.3	95°	Regan
22/02/2016	31	9282	62	180	3.30	2.03	2.28	310	117.9	99°	Regan's Residence
15/04/2016	20	6546	39	175	1.77	1.52	1.77	330	125.9	89°	Regan Residence
18/05/2016	26	7392	2	165	2.22	1.01	1.46	330	123.7	98°	Regan
23/06/2016	36	9010	72	150	5.20	5.20	4.00	230	123.4	39°	Regan Residence
15/07/2016	29	8374	53	170	9.33	7.23	5.71	260	115.2	103°	Regan
25/08/2016	43	6015	43	165				290		679°	Did not trigger
23/09/2016	27	8985	29	345	3.30	2.00	2.20	300	23.7	99°	Regan Residence
25/10/2016	52	8500	52	170	2.79	3.55	2.85	310	123.8	062°	Regan Residence
22/11/2016	40	6950	40	187.5	2.30	1.20	1.30	300	115.7	65°	Regan's
06/12/2016	52	8844	52	175	3.30	2.90	2.50	290	114.6	66°	Regan Residence
18/01/2017	26	8007	52	165	3.10	1.50	1.80	300	117.9	99°	Regan Residence
16/02/2017	31	8227	62	150	2.09	1.84	1.52	310	95.9	102°	Regan Residence
29/03/2017	31	8230	61	155	2.28	1.65	1.65	280	112.8	91°	Regan Residence

10/05/2017	32	9860	64	180	2.80	1.60	2.30	270	106.5	142°	Regan Residence
16/06/2017	52	6752	52	140	1.95	2.60	2.92	350	94	184°	Regan's Residence
10/07/2017	45	13277	90	145	10.47	6.79	6.03	260	104.9	87°	Regan Residence
04/09/2017	40	7019	40	185	5.65	4.76	3.55	300	95.9	65°	Regan Residence
02/10/2017	19	5910	38	170	8.95	5.77	6.28	200	103.5	102°	Regan Residence
03/11/2017	47+42	7910	99	175	2.64	3.36	3.93	320	94.3	119°	Regan Residence
08/11/2017	29	6355	29	275	9.84	5.58	9.90	180	91	84°	Regan Residence
04/01/2018	59+11	7,749	62	180	4.88	2.28	1.77	270	117.9	119°	Regan Residence
29/01/2018	23+61	9,765	84	170	3.45	3.17	3.61	270	124	57°	Regan Residence
26/02/2018	62+31	11,025	93	180	2.22	1.65	2.22	350	115.9	091°	Regan Residence
05/04/2018	65	7,966	65	165	3.42	3.93	4.12	220	91.5	84°	Regan
03/05/2018	44	7,420	44	180	4.00	2.70	2.50	327	119.2	50°	Regan's
28/05/2018	78	9,805	76	165	2.28	2.34	2.09	200	97.5	35°	Regan Residence
27/06/2018	51	7,690	51	155	2.79	3.42	2.73	280	120	47°	Regan Residence
23/07/2018	62	9,236	62	180	1.95	1.39	2.03	290	126.1	84°	Regan Residence
27/07/2018	44	6,425	44	177.5	0.82	1.20	0.63	340	97.5	91°	Regan's Residence
23/08/2018	61+2	10,242	63	175	4.31	4.00	5.77	260	116.9	50°	Regan Residence
13/09/2018	64	11,500	64	210	3.17	2.60	2.41	300	117.2	84°	Regan's Residence
15/10/2018	53	9,105	53	175	3.55	2.79	3.49	280	119.7	71°	Regan Residence
07/11/2018	24+50	6,348	74	210	1.39	1.58	1.58	260	115.8	81°	Regan Residence
19/11/2018	38	7,475	30	265	1.77	1.39	1.71	300	120.9	44°	Regan Residence
14/12/2018	56	8,459	56	170	4.57	2.54	2.34	260	120.1	75°	Regan Residence
23/01/2019	10,330	73	290	2.00	1.84	1.84	4085	290	122.3	43°	Regan
12/02/2019	8,170	49	183	3.66	2.98	5.58	4088	270	116.6	67°	Regan Residence
13/03/2019	10,088	41	300	2.20	1.71	1.71	4084	290	118.5	84°	Regan's

## **8.4 Noise & Vibration Impacts that are occurring**

This assessment of the noise and vibration impacts that are occurring has been undertaken as follows:

- Reference to historical noise and vibration surveys at the nearest noise sensitive locations, to establish the current ambient noise levels in the area (See above).
- Noise monitoring data has been recorded in close proximity to the existing concrete manufacturing and quarrying activities on-going in the existing Tromman Quarry site.
- A prediction of the specific noise levels at the surrounding residential properties from the existing concrete manufacturing and quarrying activities that are occurring at the Tromman Quarry site using CadnaA noise prediction software.
- A comparison of the measured existing noise levels at N1 and N2 and the extrapolated / predicted noise levels at the surrounding residential properties (Noise Sensitive Receptors [NSR's]) against relevant guidelines.

### **8.4.1 Concrete Manufacturing Noise Impacts that are occurring**

The results of the noise prediction model addresses the associated industrial structures include an electrical substation, Limestone Powder Plant comprising feed hopper, crushing and screening plant, dispatch points, drying plant and storage sheds a batching plant and the unauthorised construction of a precast concrete manufacturing industrial unit, are outlined in Table 8.5.

This noise prediction model primarily assesses the source specific noise impact from the northern area of the Tromman Quarry site, which allows for the assessment of the present site layout with the erection of the pre-cast manufacturing unit on the

eastern side of the concrete yard and the internal arrangement of the concrete block making yard and storage, reverting to its existing central location.

The sound power level ( $L_w$ ) of the noise sources included in this noise prediction model are as follows:

**Point Sources:**

Name	$L_w$ dB(A)
7 Unloading Site #1	104.0
19 Concrete Plant	110.0
6 Drying Plant	95.0

**Line Sources:**

Name	$L_w$ dB(A)
Conveyor - Screening Plant	105.2
Conveyor - Batching Plant	104.8

**Area Sources:**

Name	$L_w$ dB(A)
PP TA 20408 - Precast Plant #1	86.3
17 Precast Plant #2	87.6

**Vertical Area Sources:**

Name	$L_w$ dB(A)
Shed 5	99.0
9 Screening Plant	105.7
10 Crushing Plant	102.1
11 Hopper Feed	98.4
17 Precast Plant #2	86.8
PP TA 20408	109.2
PP TA 20408	85.2

**Table 8.5: Predicted noise levels from the associated industrial structures include an electrical substation, Limestone Powder Plant comprising feed hopper, crushing and screening plant, dispatch points, drying plant and storage sheds a batching plant and the unauthorised construction of a precast concrete manufacturing industrial unit in the northern area of the Tromman Quarry site (See Figure 8.2)**

Name	Predicted Noise Level	Receiver Height (m)	Coordinates		
			X (m)	Y (m)	Z (m)
NSR 1	29.0 dB(A)	1.50	277437	249809	74.43
NSR 2	30.1 dB(A)	1.50	277800	249667	77.64
NSR 3	39.6 dB(A)	1.50	277971	249789	83.53
NSR 4	40.5 dB(A)	1.50	278562	250851	74.41
NSR 5	40.5 dB(A)	1.50	278168	251207	71.50
NSR 6	41.1 dB(A)	1.50	277922	251182	71.50
NSR 7	33.7 dB(A)	1.50	277086	250061	74.99
<b>Limit</b>	<b>55 dB(A)</b>				

NSR 1 corresponds to Noise Monitoring Location N2 (i.e. the house southwest of site adjacent site entrance gate). The predicted noise level of 29 dB(A) at NSR 1 indicates that the associated industrial structures in the northern area of the site are not having a significant noise impact at properties to the south of the Tromman Quarry site. Relative to the measured noise level at this location these activities are having no impact. The predicted noise level of 41 dB(A) at NSR 6 to the north of the site is not a significant daytime noise level relative to the quarry noise limits during daytime.

#### **8.4.2 Quarrying Noise Impacts that are occurring**

The results of the noise prediction model to address the existing extraction operations that post-date the extended appropriate period for the quarrying operations that Meath County Council consider to be unauthorised are presented in

Table 8.6. The sound power level ( $L_w$ ) of the noise sources included in this noise prediction model are as follows:

**Point Sources:**

Name	$L_w$ dB(A)
Screening Plant	120.0
Drill Rig	115.0

**Moving Line Sources:**

Name	$L_w$ dB(A)		Moving Pt. Src		Speed (km/h)
	Type	Value	Number per hour		
Komatsu Loaders	PWL-Pt	105	60.0		10.0
HGV Deliveries	PWL-Pt	105	12.0		10.0

**Table 8.6: Predicted noise levels from the existing extraction operations that post-date the extended appropriate period for the quarrying operations that Meath County Council consider to be unauthorised in the Tromman Quarry site. (See Figure 8.3)**

Name	Predicted Noise Level	Receiver Height (m)	Coordinates		
			X (m)	Y (m)	Z (m)
NSR 1	43.5 dB(A)	1.50	277437	249809	74.43
NSR 2	44.2 dB(A)	1.50	277800	249667	77.64
NSR 3	40.7 dB(A)	1.50	277971	249789	83.53
NSR 4	34.7 dB(A)	1.50	278562	250851	74.41
NSR 5	32.9 dB(A)	1.50	278168	251207	71.50
NSR 6	31.6 dB(A)	1.50	277922	251182	71.50
NSR 7	35.1 dB(A)	1.50	277086	250061	74.99
<b>Limit</b>	<b>55 dB(A)</b>				

NSR 1 corresponds to Noise Monitoring Location N2 (i.e. the house southwest of site adjacent site entrance gate). The predicted daytime noise level of 43.5 dB(A) at NSR 1 indicates that the quarrying noise sources are not having a significant noise

impact at properties to the south of the Tromman Quarry site relative to the quarry noise limits during daytime.

### 8.4.3 Cumulative Noise Impacts that are occurring

The cumulative noise impacts that are occurring have been calculated in accordance with the approach outlined above and the results of the cumulative noise prediction model to assess the in combination effects of the manufacturing structures in the northern area of the Tromman Quarry site and the quarrying operations that post-date the extended appropriate period for the quarrying operations are presented in Table 8.7. The sound power level ( $L_w$ ) of the noise sources included in this noise prediction model are as outlined above.

**Table 8.7: Predicted noise levels from the manufacturing structures in the northern area of the Tromman Quarry site and the existing extraction operations that post-date the extended appropriate period for the quarrying operations that Meath County Council consider to be unauthorised in the Tromman Quarry site. (See Figure 8.4)**

Name	Predicted Noise Level	Receiver Height (m)	Coordinates		
			X (m)	Y (m)	Z (m)
NSR 1	43.7 dB(A)	1.50	277437	249809	74.43
NSR 2	44.3 dB(A)	1.50	277800	249667	77.64
NSR 3	43.2 dB(A)	1.50	277971	249789	83.53
NSR 4	41.5 dB(A)	1.50	278562	250851	74.41
NSR 5	41.2 dB(A)	1.50	278168	251207	71.50
NSR 6	41.6 dB(A)	1.50	277922	251182	71.50
NSR 7	37.5 dB(A)	1.50	277086	250061	74.99
<b>Limit</b>	<b>55 dB(A)</b>				

The predicted cumulative daytime noise level of 43.7 dB(A) at NSR 1 indicates that the cumulative noise from quarrying and the associated industrial structures in the

northern area of the site are not having a significant noise impact at properties to the south of the Tromman Quarry site relative to the quarry noise limits during daytime.

The cumulative noise from the associated structures in the northern area of the Tromman Quarry site and the existing extraction operations that post-date the extended appropriate period for the quarrying operations have been assessed. The sound level from these noise sources do not result in an exceedance of the planning condition noise limits at the nearest residential receiver locations, as set out in Condition 12 of TA/900976 and is in accordance with the relevant Guidelines outlined in Section 8.2.1 above. This analysis is confirmed by the monitoring results provided to the Meth County Council by Keegan Quarries Limited and Kilsaran independently, under their ongoing periodic monitoring.

#### **8.4.4 Vibration Impacts that are occurring**

The drill rig operations and blasting for the quarrying process take place a maximum of twice per month. The drilling using an air drill and compressor operates for approximately two days every month. During the noise survey on 7<sup>th</sup> February 2019, the drill rig was in operation on the quarry floor, with a noise level of approximately 97 dB(A) at 1m from source.

All neighbours are notified in advance of upcoming blasting dates and times. Blasting of the rock results in an instantaneous noise impact. However, this is a very short – term noise impact and results in an instantaneous increase in noise levels during daytime hours with immediate reversion back to preceding noise levels. A typical sound level from blasting, measured at 15 m from the source is 94 dB(A) (Hoover 1996). Table 8.8 outlines the predicted noise levels in the vicinity of an active blasting site. The accepted reduction in noise levels with distance from a blast is based on the assumption that the sound level drop-off rate equates to 6 dB per doubling of distance.



Blasting parameters including PPV and Air Overpressure have been set by the EPA for all quarrying proposed operations in Ireland.

**Table 8.8:** Estimated Blasting Noise in the vicinity of the quarry.

<b>Distance to receiver (m)</b>	<b>Sound Level at Receiver Location dB(A)</b>
15	~ 94
30	~ 88
60	~ 82
120	~ 76
240	~ 70
480	~ 64
960	~ 58

As indicated in Table 8.8, sensitive receivers within approximately 500m of the blasting site could be exposed to instantaneous noise levels of approximately 65 - 70 dB(A). However, these blasts result in very short – term instantaneous noise impact at all residential receivers in the vicinity of the quarry and do not constitute a significant noise impact.

It is considered that as the continued activities will replicate those that have already taken place the levels of vibration likely to be experienced at the receptor properties will not to be significant in environmental terms. Blast monitoring information has been provided for a 5-year period, to include the appropriate baseline date upon which extraction activities became unauthorised of 5<sup>th</sup> August 2018. Accordingly, it is considered reasonable to assume that as the levels are within acceptable parameters throughout this period, then it is likely that this will continue to be achieved.

The blast monitoring results indicate levels that fall below the limits prescribed by the DoEHLG in their relevant guidance. The results indicate that during the last 5 years presented compliance has been absolute with the measured peak particle velocities

and air-overpressure less than the limits prescribed. Therefore, it is considered that there any potential vibration impact in relation to the on-going blasting is negligible.

The operational site as outlined in previously considered Environmental Impact Statements employs the following general blast design control measures to ensure compliance with recommended standards.

- The optimum blast ratio is maintained, and the maximum instantaneous charge is optimised.
- Explosive charges are properly and adequately confined by a sufficient amount and quality, of stemming.
- Accurate face surveys (profiling) are undertaken to assist with blast design and specification.
- No blasting is carried out outside 10:00 – 18.00 hours on working days (Monday to Friday). There is no blasting carried out on Saturdays, Sundays or public holidays.
- All nearby dwellings are given advance notice of blasting.

## **8.5 Noise & Vibration Impacts that can reasonably be expected to occur**

The final stage of the assessment is to consider the significant effects, or impacts, that can **reasonably be expected to occur** as a result of the development for which substitute consent is required in providing restoration of and post restoration of the site, considering both the prospect of immediate remediation, or the alternative of continued operations under separate consent under s.37L of the Act, following consideration by the Competent Authority. It is understood that continued operational development whilst not part of the substitute consent application, is an outcome that could also be “reasonably expected to occur” and warrants consideration in line with legislative direction. It is envisaged that the potential for continuation of use of the site, in line with the environmental parameters previously assessed, would continue to be environmentally acceptable. It is not intended to

duplicate the s.37L application and its associated EIAR in this document, but outline consideration will be provided on this basis to cover all reasonable expectations.

It is reasonable to suggest that there would be no change anticipated from the continuation of the associated manufacturing operations on the site, i.e. existing noise emissions will remain the same. Any proposed extraction development is likely to be in accordance with predictions previously assessed for extraction at the quarry site and if anything, future noise levels should be lower as development descends to lower depths allowing for increased attenuation by quarry walls. Specific noise modelling will be provided in any future s.37L application for extraction at the quarry site to assess specific future noise impacts.

Should existing quarrying and associated manufacturing operations on the site cease in line with substitute consent requirements, noise levels from de-commissioning of the industrial structures in the northern area of the Tromman Quarry site and / or the regrading of the benches in the existing extraction area and subsequent infill with groundwater will be short-term noise impacts. Such activities could be subject to a higher noise limit of 70 dB(A) as distinct from normal site operations. Such activities include overburden removal, bund construction, restoration works, de-commissioning of plant and equipment, etc. typically, such works will be carried out during an 8-week window per annum. It is considered that these short-term works can be implemented now in accordance with the plan Drawing MDA.09.112.102 in Planning Application TA-900976, which remains the extant restoration concept for the site despite the unauthorised works.

## **8.6 Monitoring**

Quarterly noise monitoring surveys such as have been undertaken since January 2010 by Byrne Environmental at the Tromman Quarry site will continue. The noise monitoring surveys will continue to be carried out to evaluate and assess the noise impacts that the quarry site activities have on the local receiving noise environment and to assess compliance with standards contained within the former Planning

Conditions (*Planning Permission Ref. TA/900976 Condition 12*). The noise monitoring survey will continue to be conducted according to *ISO 1996-2, 2017 Acoustics – Description, Measurement and Assessment of Environmental Noise* and with reference to the 2016 EPA publication, “*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)*).

## **8.7 Conclusions**

The quarterly noise monitoring surveys that have been undertaken since 2013 until 2019 by Byrne Environmental at the Tromman Quarry site typically report that ‘*Quarry noise faintly audible*’ or ‘*Quarry noise not audible*’. The periodic noise monitoring surveys that have been undertaken since November 2014 at Kilsaran Quarry directly adjacent to the Tromman Quarry site indicate the cumulative noise from the operation of the two adjacent quarries is not having a significant noise impact at the nearest residential properties to the sites. Therefore, the existing operations at the Tromman Quarry site, as predicted in Noise Impact Assessments accompanying previously submitted Environmental Impact Statements, is not having a significant noise impact at the nearest residential properties to the site. The addition of the unauthorised structures in the period post 2013 have not noticeably altered the monitored noise levels at the surrounding noise monitoring locations and predicted noise levels due to the cumulative noise from the operation of the quarry void and the associated manufacturing operations in the northern area of the Tromman Quarry site indicate that the current operations have not and are not having a significant noise impact at the nearest residential properties.

The impacts that have occurred, are occurring and can reasonably expected to occur have been assessed and do not give rise to any significant environmental impact, given that ongoing monitoring has confirmed operations consistently have cumulatively operated below the guideline figure provided for in the DOEHLG 2 004 recommended levels.

With reference to the existing vibration target levels as provided for in the DoEHLG Guidance, the site has operated in full compliance for the past 5 years, and in all likelihood will continue to do so. If the site is required to be restored and the structures removed there is no opportunity for significant impact as a result of blasting. This outcome has been previously assessed and remains valid within the extant restoration concept.

However, if the reasonable alternative is that the site is permitted at least to remove the previously assessed resources then the previous predictions and the subsequent blast vibration monitoring undertaken, has illustrated that the quarrying activities have operated within these target levels and therefore it can be expected to continue to do so, if permitted.

## 9.0 LANDSCAPE

This Remedial Landscape and Visual Impact Assessment has been prepared by Mullin Design Associates, Chartered Landscape Architects, for inclusion within a Remedial Environmental Impact Statement to accompany an application for Substitute Consent (the Application). This would address potential landscape and visual impacts arising since 2013 from unauthorised elements associated with the existing quarry and ancillary production operations at Tromman, Co. Meath.

All the Figures referenced in the Landscape and Visual Assessment are included as Appendix 9.1 of this Remedial Environmental Impact Report.

This study has been drafted and overseen by Pete Mullin, BA (Hons) CMLI, Chartered Landscape Architect and principal of Mullin Design Associates. Pete Mullin has studied, practiced and taught Landscape Architecture for over 25 years, is a Chartered Landscape Architect, Policy Consultant and Member of The Landscape Institute.

Prior to establishing Mullin Design Associates in 1999 he gained experience as an employee and consultant with several respected practices in the UK and Ireland, including: Ian White Associates (Stirling); RPS Group (Edinburgh and Belfast) Ferguson McIlveen (Belfast and Dublin) – (now Aecom) Derek Lovejoy Partnership (Edinburgh) – (now Aecom)

He has a professional certificate in University Postgraduate teaching and has taught Landscape Architecture at a number of third level academic institutes including: Heriot Watt University, Edinburgh; Edinburgh College of Art, Edinburgh; The Architecture Academy, Amsterdam; Queens University, Belfast; University of Ulster, Belfast

To date he has been involved with preparation of several 100 Landscape and Visual Impact Assessments, for a wide variety of Annex 1 and Annex 2 projects. He has been an expert witness at numerous public inquiries and oral hearings, and has been involved in assessment of:

- Renewables - Wind Farms Biogas and Bio-Diesel facilities
- Highways and Telecommunications (ESB lines and Mobile Phone Masts.)
- Extractive Minerals Industries, (Opencast Coal, Limestone, Basalt, Shale, Granite, Chalk, Sandstone, Sand and Gravel), Incinerators,
- Landfill Sites, Wastewater Treatment Plants,
- Concrete and Asphalt Processing plants
- Logistics and Business Parks
- Large scale Residential Developments.

## **9.1 Background and setting**

The subject site is located at Grid Reference OS. N 776 497, approx. 6km South of Trim and 2km West from the village of Rathmolyon. It is on the north side of the R156 Dunboyne – Ballivor road and falls within the tributary catchment system of the River Boyne. (Figure 1.0)

The site is on the Western boundary of landscape character area ‘Rathmolyon Lowlands’ as described in the Co. Meath Development Plan 2013- 2019. Details of this character area are discussed in Section 1.43

The context of the site is predominately rural / agriculture in character, with a number of small-scale commercial woodlands, interspersed with individual dwellings and farmsteads. In addition, there are several sites of mineral extraction with associated plant for ancillary production.

Topographically the assessment area is considered rolling lowland with large tracts of the surrounding landscape at approximately 80m AOD (average).

Existing land use types within a 5km catchment of the site include:

<b>Residential</b>	Rathmolyon village; detached dwellings; farmhouses
<b>Transport</b>	R156, R160, R159, R161, Third Class Roads, Lanes and Access tracks
<b>Commercial</b>	Quarries & Ancillary Development, Telecom masts, Power Lines,
<b>Culture/Tourism</b>	Mounds; Moated site; Churches, Graveyards

Within the study area the report will define key locations (visual receptors) that may be potentially impacted by the development and which represent the worst-case scenario views of the site; these are identified as:

- Individual Residential Properties; Commercial Properties; Public Buildings
- Roads, Tourist Routes and Viewpoints
- Junctions and Crossroads
- Sites of Cultural/Historic/Visitor significance

This study has been structured and laid out in the following subsections:

- **Method of Assessment** – explanation of how the assessment has been undertaken, with reference to methodology, terminology, assessment criteria, and planning policy.
- **Landscape and Visual Context** – baseline description, classification and evaluation of the existing landscape character containing the application site and an assessment of visual amenity, with identification of visual receptors.
- **Project Description**– description of the development.
- **Impacts** – an outline of landscape and visual impacts which:-



- A Have occurred (2016 to Present);
- B- Are occurring (Present)
- C- May potentially occur. (Going forward)
- **Summary and Conclusions** – summary of assessment results.

### 9.1.1 Method of Assessment & Guidelines

The assessment of the landscape and visual impacts for this development are based on the most up to date guidelines provided by The Landscape Institute, in the 'Guidelines for Landscape and Visual Impact Assessment', (3rd Edition) 2013, and The Countryside Agency and Scottish Natural Heritage – Landscape Character Assessment Guidance for England and Scotland 2002 have been used as important reference documents.

As recommended the landscape and visual assessment incorporates both desk and field studies and has been compiled and interpreted by an experience landscape professional.

Reference has been made to Meath County Council Development Plan 2013 – 2019 and specifically the Meath Landscape Character Assessment, Section (Section 8 LCA parts 7-13) which provide a baseline landscape description.

### 9.1.2 Assessment Criteria

The aim of the landscape and visual impact assessment is to identify, evaluate key effects arising from the unauthorised aspects of the development. The assessment combines **sensitivity** with predicted **magnitude of change** to establish the **significance of residual landscape & visual effects**. These are based on pre-defined criteria as set out in Tables 9.1 – 9.5 below.

Table 9.1 Landscape Sensitivity Criteria

<b>Class</b>	<b>Criteria</b>
High	Landscape characteristics or features with little or no capacity to absorb change without fundamentally altering their present character  Landscape designated for its international or national landscape value  Outstanding example in the area of well cared for landscape or set of features
High-Medium	Landscape characteristics or features with a low capacity to absorb change without fundamentally altering their present character  Landscape designated for regional or county-wide landscape value where the characteristics or qualities that provided the basis for their designation are apparent. Good example in the area of reasonably well cared for landscape or set of features
Medium	Landscape characteristics or features with moderate capacity to absorb change without fundamentally altering their present character  Landscape designated for its local landscape value or a regional designated landscape where the characteristics and qualities that led to the designation of the area are less apparent or are partially eroded or an undesignated landscape which may be valued locally – for example an important open space  An example of a landscape or a set of features which is neutral or mixed character
Medium-Low	Landscape characteristics or features which are reasonably tolerant of change without detriment to their present character  No designation present or of little local value .An example of an un-stimulating landscape or set of features
Low	Landscape characteristics or features which are tolerant of change without detriment to their present character  No designation present or of low local value. An example of monotonous unattractive visually conflicting or degraded landscape or set of features

**Table 9.2 Visual Sensitivity Criteria**

<b>Class</b>	<b>Criteria</b>
High	Users of outdoor recreational facilities, on recognised national cycling or walking routes or in national designated landscapes  Dwellings with views orientated towards the proposed development
High-Medium	Users of outdoor recreational facilities, in locally designated landscapes or on local recreational routes that are well publicised in guidebooks  Road and rail users in nationally designated landscapes or on recognised scenic routes, likely to be travelling to enjoy the view
Medium	Users of primary transport road network, orientated towards the Development, likely to be travelling for other purposes than just the view.  Dwellings with oblique views of the proposed development.
Medium-Low	People engaged in active outdoor sports or recreation and less likely to focus on the view.

	Primary transport road network and rail users likely to be travelling to work with oblique views of the Development or users of minor road network.
Low	People engaged in work activities indoors, with limited opportunity for views of the Development. Road users on minor access roads travelling for other purposes than just the view.

**Table 9.3 Landscape Magnitude Criteria**

Class	Criteria
Very High	Very extensive, highly noticeable change, affecting most key characteristics and dominating the experience of the landscape; and Introduction of highly incongruous development
High	Extensive, noticeable change, affecting many key characteristics and the experience of the landscape; and Introduction of many incongruous elements.
Medium	Noticeable change to a significant proportion of the landscape, affecting some key characteristics and the experience of the landscape; and Introduction of some uncharacteristic elements.
Low	Minor change, affecting some characteristics and the experience of the landscape to an extent; and Introduction of elements that are not uncharacteristic.
Very Low	Little perceptible change.

**Table 9.4 Visual Magnitude Criteria**

Class	Criteria
Very High	The development would dominate the existing view
High	The development would cause a considerable change to the existing view over a wide area or an intensive change over a limited area.
Medium	The development would cause moderate changes to the existing view over a wide area or noticeable change over a limited area.
Low	The development would cause minor changes to the existing view over a wide area or moderate changes over a limited area.
Very Low	No real change to perception of the view. Weak, not legible, hardly discernible

**Table 9.5 Categories of Landscape and Visual Significance of Effect**

Degree of significance	Description of Landscape Effect	Description of Visual Effect
Major	Substantial alteration to elements/features of the baseline (pre-development) conditions. Notably affect an area of recognised national landscape quality. Substantial alteration to the character, scale or pattern of the landscape.	Major/substantial alteration to elements/features of the baseline (pre-development) conditions. Where the proposed development would cause a very noticeable alteration in the existing view. This would typically occur where the proposed development closes an existing view of a landscape of regional or national importance and the proposed development would dominate the future view.
Major-Moderate	This category is a combination of descriptions of Major listed above and Moderate below. These combinations are discussed within the assessment of each landscape or visual receptor when they occur.	

Moderate	Alteration to elements/features of the baseline conditions. Affects an area of recognised regional landscape quality. Alteration to the character, scale or pattern of the local landscape.	Alteration to one or more elements/features of the baseline conditions such that post development character/attributes of the baseline will be materially changed.  This would typically occur where the proposed development closes an existing view of a local landscape and the proposed development would be prominent in the future view.
Moderate-Minor	This category is a combination of descriptions of Moderate listed above and Minor below. These combinations are discussed within the assessment of each landscape or visual receptor when they occur.	
Minor	A minor shift away from baseline conditions. The Development partially changes the character of the site without compromising the overall existing landscape character area.	A minor shift away from baseline conditions. Occur where change arising from the alteration would be discernible, but the underlying character / composition / attributes of the baseline condition will be similar to the pre-development.  It would also occur where the proposed development newly appears in the view but not as a point of principal focus or where the proposed development is closely located to the viewpoint but seen at an acute angle and at the extremity of the overall view.
Negligible	No or very little change from baseline conditions. Change not material, barely distinguishable or indistinguishable.	Where there is no discernible improvement or deterioration in the existing view.
No Effect	The Development would not affect the landscape receptor	The Development would not affect the view

Example Matrix (Professional judgement applied at every stage of assessment and matrix only used to check consistency.)		Sensitivity				
		High	High - Medium	Medium	Medium - Low	Low
Magnitude	Very High	Major	↔	Major	↔	Mod-major
	High	Major	↔	Mod-major	↔	Moderate
	Medium	Mod-major	↔	Moderate	↔	Minor
	Low	Moderate	↔	Minor	↔	Negligible
	Very Low	Minor	↔	Negligible	↔	Negligible
<p>Intermediate sensitivity ratings (as per the criteria) would lead to a series of effects that lie between those stated above if a matrix was applied to the assessment. Professional judgement should be used to determine the degree of effect. e.g. high-medium sensitivity combined with medium magnitude would equate to a Moderate+ effect and a decision needs to be made to determine if this effect is Moderate or Mod-Major. Intermediate magnitude ratings could also be arrived at during the assessment and a similar method should be applied here too.</p> <p>Effects of above Moderate are considered Significant (Dark Grey)</p> <p>Where intermediate effects are arrived at, particular care should be taken at the edges of the significance threshold i.e. between Mod and Mod-Maj (lighter grey) and these effects may require additional explanation as to why the decision was made to judge the effect as either significant or not significant.</p>						

The example matrix table above is used to summarise the findings from the criteria tables. By combining sensitivity (along the top) with predicted magnitude of change (along the side), a predicted impact / effect is reached. This format is applicable to both landscape impacts and visual impacts.

In addition, to the impacts which sensitivity combined with the magnitude of change generate, there are a number of other factors which should be taken into account when preparing the landscape and visual assessment.

Development is often viewed as permanent and/or perceived to have a negative impact, it is therefore important to emphasise that change created by development can result in beneficial outcomes, and may also be temporary, short-term or indeed reversible.

This assessment also considers both the 'Type' and 'Duration' of the potential impacts. The following terminology has been used where appropriate:

#### Type of Visual Impacts

- Beneficial A positive impact will improve or enhance the landscape character or viewpoint.
- Neutral A neutral impact will neither enhance nor detract from the landscape character or viewpoint.
- Adverse A negative impact will have an adverse effect on the existing landscape character or viewpoint.

#### Duration of Impacts

- Temporary Impacts lasting one year or less
- Short-term Impacts lasting one to seven years
- Medium-term Impacts lasting seven to twenty years
- Long-term Impacts lasting twenty to fifty years
- Permanent Impacts lasting over fifty years.

### 9.1.3 Methodology

This Landscape & Visual Assessment was undertaken in the following stages:

- Desk Study (Stage 1)
  - 1 Analysis of Baseline data, Map/Plans
  - 2 Consultation of Policy Documentation
  - 3 Zone of Visual Influence (Theoretical)
  - 4 Identification of Potential Visual Receptors
  
- Field Study
  - 5 Confirmation of Visual Receptors
  - 6 Photo Survey from Visual Receptors
  - 7 Zone of Visual Influence (Actual/Field)
  - 8 Confirmation of Landscape Character
  - 9 Establish Landscape Sensitivity
  
- Desk Study (Stage2)
  - 10 Analysis of Field Survey data
  - 11 Viewpoint Analysis
  - 12 Consider Mitigation & Restoration
  
- 13 Desk Study (Stage3) 13 Report Preparation

## 9.2 Assessment of Baseline Conditions

This section establishes the landscape and visual context (or baseline) of the subject development. Typically for a proposed development this process involves consideration of the existing 'pre-development' condition of the receiving environment. However, for a substitute consent scenario, the baseline will be a date which predates the introduction of any unauthorised development.

In relation to unauthorised development s177(F) legislation requires consideration of impacts have occurred; impacts which are occurring; an impact reasonably expected to occur.

### **9.2.1 ‘Impacts that have Occurred’**

In relation to establishing a baseline for impacts ‘having occurred’, firstly it is important to emphasise that the majority of development currently visible at this site was authorised under a number of historic planning permissions, some of which date back to 1998. However, the primary focus in landscape and visual terms for this substitute consent is the erection of the structures associated with precast concrete manufacturing ( c.2016).

The baseline for impacts having occurred is therefore focused on those arises between 2013 and 4th August 2018.

### **9.2.2 ‘Impacts Occurring’**

This related to impacts arising from unauthorised development between 5th August 2018 to the present.

### **9.2.3 ‘Impacts Reasonably Expected to Occur’**

The final stage of the assessment is to consider the significant effects, or impacts, that can reasonably be expected to occur as a result of the development for which substitute consent is required in providing restoration of and post restoration of the site, considering both the prospect of immediate remediation, or the alternative of continued operations under separate consent under s.37L of the Act, following consideration by the Competent Authority.

Establishment of the baseline conditions involves a combination of both ‘Desk and Field Study’

#### 9.2.4 Desk Study

Desk studies generally involve analysis and interpretation of available print material relating to a site's context and the subject development within that context. It is a way of focusing the study prior to detailed site investigation.

Although general in nature the desk study stage of the project assists in the clarification of the following:

- **The general topography, vegetative cover, visible groundwater, and sites of potential historic or cultural interest.**

Study of the available map information indicated that the site is located on a localised elevation in a gently undulating area.

OS 1:50000 indicate that within 5km radius of the site there is a significant cover of coniferous forestry (approx. 2.5km to the West of the site) and several other blocks of deciduous woodland interspersed throughout the area.

Several historic/archaeological sites of note including Churches and Mounds have been highlighted within 5km around the application area. Specific impacts on these elements should be separately assessed. However, their presence is noted within the landscape and visual section due to potential for them to be visitor attractions and therefore become key visual receptors.

- **Identification of primary investigation area or Zone of Theoretical Visual Influence (ZTVI);**

Given the sites topography, it was expected that there would be open views to the site from positions to the North and South. However, the openness and significance



of these potential views cannot be confirmed in a desk study, detailed site investigation is required to establish actual ZVI .

Although the ZTVI are calculated and generated using topographical data, it is generally accepted that such models do not necessarily reflect the actual visual catchment on the ground, it is therefore crucial that the topographically generated ZTVI is refined through detailed site survey and analysis - a series of ZTVI have been undertaken for this application which illustrate the potential extend of visibility ( visual envelope) of the key development features including previously permitted and unauthorized for comparison. .

- **The potential relationship between the development and any residential settlements, dwellings and the surrounding transportation network;**

Although not all dwellings are individually identifiable on the OS 1:50000 map, it is sufficiently detailed for the desk study to reveal that the site is located in an area which has a relatively low population concentration.

Population is concentrated in the village of Rathmolyon and elsewhere as sporadic ribbon settlements primarily located along the surrounding minor roads.

- **Designations, protected areas and significant viewpoints;**

The site does not lie within a landscape designation. The Co. Meath Development Plan 2013-2019 undertook a landscape character assessment survey and divided the county into 'Landscape Character Areas' (LCA); the site is located on the boundary of the 'Central Lowlands' running to the South West and on the Western boundary of Rathmolyon Lowlands' (Co. Meath Development Plan 2013 – 2019; Landscape Character Assessment Section; Section 8, LCA Parts 7-13)

The site is located approximately 3km to the South West of the Boyne River Valley (LCA)

### **9.2.5 Field Study**

Desk studies are important to establish the basic approach to landscape and visual assessment and for setting out principle issues/ areas to be investigated. However, it is only through field work that an accurate understanding of potential influence of a development can be fully determined.

Most importantly field study helps to clarify the eye level visual envelope of the development. This exercise refines the computer generated ZTVI models to more accurately reflect the actual visual envelope of the development.

The area was visited and surveyed during Winter/Spring with foliage cover at its lightest. It should be noted that as foliage cover increases through Spring into Summer the subject site would potentially be less visible. The influence of foliage cover has been broadly factored into the findings, with a worst-case scenario considered – i.e. vegetation cover at its lightest.

In addition to the information revealed during the desktop analysis, the field study work investigated and considered a number of critical issues, which have been factored into the assessment conclusions:

- Confirmation of the landscape character and sense of place, quality and value of the surrounding;
- Localised topography variation and woodland / hedgerow cover.
- Effects of localised planting, stone wall, earthworks and boundaries associated with residential properties;
- Relationship of other operations throughout in the area
- Consideration of operations in low light conditions

- Potential eye level perceptions (Local residents – Frequent, Passive Tourism - Occasional ;
- General landscape dynamic (assessing the potential pressures and evolution of surrounding landscape)

### 9.2.6 Landscape Character Baseline

As outlined above a broad landscape characterisation study of County Meath has been prepared and is contained within the County Meath Development Plan 2013 – 2019. The site sits on the border of two landscape characterisation areas within that study; the Central Lowlands, and the Rathmolyon Lowlands.

The relevant information has been studied and extracted from this document and is included below.

#### Central Lowlands



## **LCA 6 Central Lowlands**

Large lowland landscape with rolling drumlins interspersed with numerous large estates and associated parkland. Thick wooded hedgerows and some conifer plantations. Deep roadside ditches and banked hedgerows are a common feature. In more remote areas farmland is less well-managed with rough pasture, overgrown hedgerows and less woodland. Farmland is in a variety of scales and squares divided by hedgerows which are usually clipped to eye-level, but less well-managed away from roads. The North East of the area deep and shallow well-drained soils have been developed for agriculture, with estate landscapes more prevalent.

### **Land Uses**

Mix of small-medium rough pasture fields

Beech stands

Sand and gravel quarries

Boundary Determinants

Deep roadside ditches

Banked hedgerows

Eye-level clipped hedges

Landscape Value :	Exceptional	Very High	<b><u>High</u></b>	Moderate	Low
Landscape Sensitivity:	High	<b><u>Medium</u></b>	Low		
Landscape Importance:	Regional				

### **9.2.7 Visual baseline**

When establishing the extent of the developments visibility there are a number of recognised stages including generation of Zone of Theoretical Visibility (ZTVI) models, field work and site intervisibility studies.

However, these become less relevant when considering extent of visibility relating to unauthorized development which has already occurred, simply because the actual extent of visibility can be witnessed and considered directly.

As a basic visual principle, all development typologies in the landscape become less perceptible with distance. This simply equates to a reduction of the significance of potential visual impacts as one moves further away.

### **Viewpoint Distance 0-2km**

Although it is difficult to quantify, it is acceptable to state that a site located approx. 2km or less from a viewer is considered close enough to allow identification of significant detail. Any positions within this range with open uninterrupted views of a development would generally receive the greatest visual impacts.

### **Viewpoint Distance 2-5km**

At this distance, visibility of a development site becomes more general, with viewers in open uninterrupted positions able to identify general form, colour/tone and textural contrast, but losing the more focused detail achievable from closer positions. Effects at this distance are generally less than those found between 0-2km.

### **Viewpoint Distance 5-15km+**

Beyond 5km visual prominence quickly diminishes. In certain circumstances/light conditions etc have potential to allow certain types of development and material finishes to be perceived. The development increasingly becomes part of the general background/distance views. Upwards of 15km distance and developments quickly become minor features within the landscape and considered imperceptible to the average human eye. The development in effect becomes part of the general background/distance views.

Figure 9.2 illustrates the identified ZTVI (Zone of Theoretical Visual Influence) created by the unauthorised elements of the operation. This can be contrasted with the ZTVIs for the large overburden stockpile, concrete silo and shed, all of which have had planning approval.

Figures 9.4 to 9.11 illustrate the key visual receptors identified for the study.

The visibility assessment in this case has concentrated on publicly accessible areas primarily within the first distance category (0-2km).

The undulating topography, frequency and density of hedgerows combined with clusters of woodland vegetation greatly reduce the potential extent of visibility, however, there remain several stretches of minor public road from which portions of the unauthorised elements can be witnessed.

As illustrated in Figure 9.2 the Zone of Theoretical Visual Influence is relatively compact, focused largely within a 2km radius and primarily to lands and local roads to the North.

Views from local roads L80141 & L80140 present most opportunity to encounter views of the unauthorised elements of the development (i.e. Pre-cast concrete manufacturing structures)

### **9.3 Assessment of Impacts - (Description of Unauthorised Development)**

Whilst the application area for the substitute consent covers the entire operation at Tromman, there are particular unauthorised elements which form the primary focus of this assessment.

The unauthorised elements are almost entirely focused in the Northern portion of the applicant's lands, consisting of physical structures the:-

- 1 Unauthorised construction of an electrical substation;
- 2 Erection of a batching plant;
- 3 Limestone Powder Plants and associated structures & concrete silo;
- 4 Storage bays / industrial unit;
- 5 Localised sub surface lateral extractions.

### **9.3.1 Summary of Landscape Impacts**

Landscape Assessment attempts to measure the sensitivity of specific landscape resources and describe the significance of changes to that landscape occurring as a result of the development. They also more importantly should identify opportunities during the design process focused on minimising potential landscape and visual impacts through positive intervention. This can include exerting influence on the development layout and arrangement or determining the most sympathetic operational approach to a proposal, i.e. suggested phasing, direction and sequence of extraction.

These are referred to a 'primary mitigation measures

However, in relation to development which has already taken place (unauthorised), primary mitigation measures are not possible.

In this scenario mitigation opportunities are limited to 'secondary measures' designed to address residual negative effects of the final development proposals. This can include for example targeted screen planting. (Refer to Section 9.7 below)

Landscape and visual impacts are intrinsically linked; therefore, measures to reduce landscape impacts will generally assist with reduction of visual impacts and vice versa.

It is understood that this development will be decommissioned at the end of its requirement, which is directly linked to the associated quarry operations at the site and returned to agricultural and or biodiversity use.

**Table 9.6 Landscape Sensitivity Summary (within visual envelope)**

<b>Consideration Factor</b> Type Significance	<b>Comment</b>	<b>Significance</b>
Landscape designation	Not within Landscape designated area, or Area of Constraint on Mineral Development.	Whilst this is a pleasant landscape of local value, it is not considered of national or international importance
Landscape scale	Varies from large scale to relatively intimate.	Attractive rural landscape
Landscape quality	There are valuable qualities to this landscape which should be enhanced and replicated at restoration stage.	Rich and interesting but not considered rare or threatened.
Visual Receptors	The majority of views are from a small number of roads adjacent to the site.	Views from the surrounding minor roads are not classed as significant.

The Landscape Character Assessment as outlined broadly describes and classifies the landscape of the county, providing a valuable tool to aid decision making by planners and other interested parties.

However, it is generally accepted that large scale, characterisation of this type presents some limitations. Within each identified character area there can be localised variability of landscape conditions which cannot be identified at a large



scale. For example, it would not be unusual to find pockets of very high or very low landscape value within a landscape character area generally classified as having an overall landscape value of medium.

Further refinement of each LCA is acknowledged within Chapter 8 of the Development Plan which states:

'it is only possible to define actual capacity on a case by case basis because it will vary according to the type and form of development, its location in relation to the landscape area in question and its visibility from it'.

In this instance the landscape character and value of the lands surrounding the subject site have been directly influenced by the presence of quarry operations for several decades. Therefore, whilst the general landscape character of the region is classified as high value, it is considered to be moderate to low value at a more localised / site level.

Weighting up the various complex factors as outlined in the Criteria Tables above, and in particular the application sites location out with any recognised landscape designation area, natural screening created by topography and the very low numbers of impacted population, and potential for additional mitigation it is concluded that the landscape sensitivity of the area should be generally classed as **Medium-Low**

*Medium-Low - Landscape characteristics or features which are reasonably tolerant of change without detriment to their present character*

*No designation present or of little local value.*

*An example of an un-stimulating landscape or set of features*

(Extract from Table 9.1 Landscape Sensitivity Criteria)

Landscape sensitivity is combined with the magnitude of change generated by a development to establish the overall impact / effect. In addition to the Criteria Tables above, magnitude of change will be influenced by the following:

- Potential for mitigation.
- Development typology
- Duration of development
- Existing precedence of quarrying / processing operations in the area.
- Form of buildings and structures – i.e. Do they appear as agricultural structures familiar to the region.
- The population numbers impacted are considered low.
- Full decommissioning and restoration proposed.

With reference to Table 9.3 Landscape Magnitude Criteria it is considered that the unauthorised elements of the development fall within the **Low** category as defined below:-

*Low - Minor change, affecting some characteristics and the experience of the landscape to an extent; and  
Introduction of elements that are not uncharacteristic.*

Due to the short time frame between the baseline dates when impacts are considered to have occurred ( 2013 to 4th Aug 2018) and are occurring ( 5th Aug 2018 to Present), it is considered reasonable that in landscape and visual terms that impacts would not have deviated. Table 9.7 below therefore covers both occurred and occurring landscape impacts.

**Table 9.7 Assessment of landscape impacts Occurred and Occurring**

		Sensitivity				
		High	High - Medium	Medium	Medium - Low	Low
Magnitude	Very High	Major	↔	Major	↔	Mod-major
	High	Major	↔	Mod-major	↔	Moderate
	Medium	Mod-major	↔	Moderate	↔	Minor
	Low	Moderate	↔	Minor	↔	Negligible
	Very Low	Minor	↔	Negligible	↔	Negligible

When combining **Medium / Low** landscape sensitivity with a **Low** magnitude of change, the landscape impact which have occurred between 2013 and 4th Aug 2018 generated by the unauthorised elements of this development are considered **Minor**.

The landscape impacts which are occurring (5th Aug - present) from the unauthorized elements of this development are considered **Minor**

In addition to Landscape impacts which have occurred or are occurring, landscape impacts which can be reasonably expected to occur either through restoration /remediation of the site, or alternatively continuation of operations under separate consent under s.37L of the Act, subject to approval by the Competent Authority have been considered.

Whilst there are many variables - it is considered reasonable to conclude that a scenario of restoration and remediation of the unauthorised development would result in a **Minor (Beneficial)** impact to the landscape character.

A scenario of continuation with mitigation subject to s.37L approval would result in a **Minor (Neutral)** impact to the landscape character.

### 9.3.2 Summary of Visual Impacts

Visual impacts are illustrated by assessment from specific viewpoints. Figures 9.4-9.11 illustrate key identified visual receptors, with potential visual impacts assessed from these positions.

Table 9.8 below provides a summary of Visual Impacts from each of the selected viewpoints.

**Table 9.8 Summary of Visual impacts (Have occurred 2013 - 4th Aug 2018)**

Table 9.8 Summary of Visual Impacts - Have Occurred				
Viewpoint No.	Receptor Type	Visual Sensitivity	Magnitude of Change	Effect /Impact
Viewpoint 1	Public Road - Sequential	Medium-Low	Very low	Negligible
Viewpoint 2	Public Road - Sequential	Medium-Low	Very low	Negligible
Viewpoint 3	Public Road - Sequential	Low	Medium	Minor
Viewpoint 4	Public Road - Sequential	Low	Medium	Minor
Viewpoint 5	Public Road - Sequential	Low	Medium	Minor
Viewpoint 6	Public Road - Sequential	Low	Medium	Minor
Viewpoint 7	Public Road - Sequential	Low	Low	Negligible
Viewpoint 8	Public Road - Sequential	Low	Medium	Minor

**Table 9.9 Summary of Visual impacts (Occurred 5th Aug 2018 - Present)**

Table 9.8 Summary of Visual Impacts - Have Occurred				
Viewpoint No.	Receptor Type	Visual Sensitivity	Magnitude of Change	Effect /Impact
Viewpoint 1	Public Road - Sequential	Medium-Low	Very low	Negligible
Viewpoint 2	Public Road - Sequential	Medium-Low	Very low	Negligible
Viewpoint 3	Public Road - Sequential	Low	Medium	Minor
Viewpoint 4	Public Road - Sequential	Low	Medium	Minor
Viewpoint 5	Public Road - Sequential	Low	Medium	Minor
Viewpoint 6	Public Road - Sequential	Low	Medium	Minor
Viewpoint 7	Public Road - Sequential	Low	Low	Negligible
Viewpoint 8	Public Road - Sequential	Low	Medium	Minor

Visual effects which have occurred from the unauthorized elements of the development at the selected visual receptors range from **Negligible to Minor**

Visual effects which are occurring from the unauthorized elements of the development at the selected visual receptors range from **Negligible to Minor**

As viewers move away from these locations, visual sensitivity and magnitude of change will generally diminish, resulting in occurred and occurring visual impacts being **Negligible** over large portions of the ZTVI

In addition to Visual Impacts which have occurred or are occurring, visual impacts which can be **reasonably expected to occur** either through restoration /remediation of the site, or alternatively continuation of operations under separate consent under s.37L of the Act, subject to approval by the Competent Authority, have been considered and are illustrated in Figure 9.4 - 9.11. These impacts range from **Minor to Negligible (Beneficial)** for the restoration scenario; and **Minor to Negligible (Neutral)** for a scenario whereby continuance is applied with mitigation subject to s.37L approval.

#### **9.4 Mitigating Landscape and Visual Impacts**

In the case of a substitute consent application for unauthorised development there are two future scenarios which could be considered.

- a Restoration / remediation
- b Continuance with mitigation (subject to s37L approval)

Mitigation measures are generally considered under two categories:

- primary measures that intrinsically comprise part of the development design through an iterative process;

- secondary measures designed to specifically address the remaining (residual) negative(adverse) effects of the final development proposals' (Guidelines for Landscape and Visual Impact Assessment)

In the case of a substitute consent application for unauthorised development 'primary measures' the opportunity to mitigate impacts may have passed, therefore with the development already in place, reliance is then placed on opportunities to mitigate residual impacts through 'secondary measures' such as targeted screen planting, lighting design to minimize potential light spillage, colour/ finish of vertical structures etc

The primary focus of this assessment is the unauthorized batching plant structures to the north of the subject site. Although it is considered that these relatively large structures sit well into the landscape, assisted by the selection of dark green cladding, there is potential to consider further mitigation measures including:

- Augmenting existing boundary planting with additional planting.
- Reduction and eventual removal of adjacent large existing overburden tip which breaks the skyline and draws additional attention and focus to the operation.
- Consideration of stratified coloration of the taller structured such as the concrete silo. For example Dark greens / blues / browns in the lower portion of structures with gradation to the existing lighter colours in the upper portions.
- Review of all lighting within the plant to minimise external light spill.
- Restoration to commence at the earliest opportunity in all areas where extraction or operations associated with extraction are no longer occurring.

## **9.5 Residual Impacts**

Topographically the subject site is largely obscured from many locations. As described in section 9.4.2 Summary of Visual Impacts, the area which is likely to be

exposed to the greatest residual visual impact are from localised stretches on minor roads to the north.

The majority of the remaining potential views occurring along the surrounding road network are generally insignificant and where achievable normally only visible at angles to the vehicles forward field of vision (oblique angles). This factor combined with the speed of moving vehicles, distance, fragmentation of views caused by hedgerows, trees, buildings, and local topographical variation etc. reduces the site's overall visual impact.

Whilst some additional mitigation measures could be explored and introduced as outlined in section 9.7.1 above, the overall impacts are considered minor.

## **9.6 Conclusions**

The following conclusions have been made based on the above investigation:

- Unauthorised development associated with the production of pre-cast concrete and other ancillary elements associated with an existing quarry and processing operation.
- The site lies outwith any identified landscape designation area.
- The site is located in the South East of landscape character 'Central Lowlands' and on the boundary of 'Rathmolyon Lowlands' Co. Meath Draft Development Plan 2013-2019.
- The site is on the northern side of a local hill in the area of Tromman.
- The field boundaries surrounding are generally reasonably mature.
- The visual catchment of the site is considered relatively small. Focussed primarily to the North.
- Population is considered low in the region, with low numbers located within the proposed visual envelope.

- The most open significant views of the site are limited to areas within close proximity of the site. This will impact a very low number of properties and public roads. Distance views are restricted by the presence of mature trees in hedgerows and copses which are common to the area.
- The unauthorised plant and all vertical structures would be decommissioned as they are not permanent, but directly associated with the extraction activity on the site. Under restoration, the lands would be returned to agricultural and biodiversity use.
- Within the Meath Development plan this Character Area is described as having **Medium** Landscape Sensitivity and **High** Landscape Value.
- However on a localised level the Landscape sensitivity is considered to be **Medium- Low**
- Magnitude of change to the landscape from the unauthorised development is considered **Low**.
  
- Overall landscape impact/effect which have occurred (2013 to 4th Aug 2018) are collectively considered **Minor**.
- Overall landscape impact/effect which are occurring (5th Aug 2018 to Present) are collectively considered **Minor**.
- In a scenario of remediation of the unauthorised development a landscape impact of **Minor (Beneficial)** would result.
- In a scenario of continuation with mitigation subject to s.37L approval a landscape impact of **Minor (Neutral)** would result.
  
- Visual sensitivity ranges from is considered **Medium-Low to Low**
- Magnitude of change incorporating mitigation from specific key visual receptors are illustrated in Figures 9.4 to 9.11 are collectively considered **Medium to Very Low**
- Overall the visual impacts/significance which have occurred (2013 to 4th Aug 2018) are collectively considered **Negligible to Minor**.



- Overall the visual impacts/significance which are occurring (5th Aug 2018 to Present) are collectively considered **Negligible to Minor**.
- In a scenario of remediation of the unauthorised development visual impacts would range from **Minor to Negligible (Beneficial)**
- In a scenario of continuation with mitigation subject to s.37L approval visual impacts would range from **Minor to Negligible (Neutral)**.

## **10.0 WASTE MANAGEMENT**

### **10.1 General**

Given that the substitute consent is considering two distinct operational types and periods it is considered that there are two distinct waste streams, the first covering the waste arising from the manufacturing stream and secondly those relating to the extraction activities that principally revolve around plant and machinery wastes associated with routine maintenance and repairs and potential accidental fuel and oil spillages and the extractive waste that is an inevitable consequence of quarrying that is covered by the Extractive Waste Regulations.

#### **10.1.1 General Site Waste Management**

In the first instance the totality of the activities that are taking place on site are covered by the Site's Environmental Management System that was promoted as part of the application and EIS that covers the Southern half of the site namely TA900976 and the associated Board decision PL17.235960. With regard to waste management and control the company's EMS provides as follows:

*The controls and mitigation measures for minimising the quantities of wastes generated and for minimising the potential impacts of storage and disposal of wastes are summarised as follows:*

- *Waste oil from maintaining vehicles and plant machinery and hazardous wastes are stored in a designated bunded storage area pending disposal by a licensed waste disposal contractor;*
- *Wherever possible materials from site construction activities and from workforce management and administration that are able to be recycled will be separated at source;*

- *Small containers will be strategically located close to offices, canteens and similar areas to separate useful paper, cardboard, wood, glass, plastics and metals;*
- *Operational activities including the delivery of materials will result in the generation of wastes such as wood off-cuts, plastic and cardboard packaging, shipping pallets and metals. Waste and materials separated for recycling will be collected on a monthly basis and transferred to storage containers in a designated Waste Storage Area on the site;*
- *Inspection of storage facilities for wastes and recyclables will be done on a daily basis.*
- *All general waste that is unable to be separated or is otherwise not suitable for recycling will be collected for off-site disposal by licensed waste disposal contractors at regular intervals. Records of quantities of wastes disposed of or sent off-site for recycling and the contractor used will be kept as outlined in procedure EMS-008.*
- *In order to ensure that site staff properly segregate waste materials, it is the responsibility of the Quarry Manager to ensure all staff are trained and made responsible for ensuring site housekeeping and the proper segregation of waste;*
- *The following classes of materials are segregated into individual storage containers;*

*Waste oils / greases / paints*

*Wood*

*Plastics*

*Glass*

*Cardboard / Paper*

*Domestic refuse*

*Metal*

*Contaminated soil (generated by oil spills etc)*

*Waste aggregate materials segregated into different size categories*

*Waste concrete / blocks*

*Batteries*

*Rubber conveyor belts*

- *All segregated wastes will be collected and sent for reuse or recycling by a suitable licensed waste contractor.*
- *Suitable licensed waste contractors will be employed by Keegan Quarries Ltd to ensure that waste materials which cannot be reused or recycled at the site are collected and correctly disposed of at a waste licensed facility.*

### **10.1.2 Extractive Waste**

The activities relating to quarrying are not considered to give rise to any specialist requirements and they can be managed by a series of Good Housekeeping measures as part of an overall waste management strategy outlined above from the Environmental Management System.

The effectiveness of these systems is illustrated by the general appearance of the quarry, the quarry waste products being limited to overburden storage and the quality of the monitored water, discharged from the site as outlined in Chapter 6.

The inert indigenous waste associated with the extraction process is considered and presented within the Extractive Waste Regulations 2009 – Compliance Statement held as Appendix 10.1.

## **10.2 Impacts that have occurred**

With the introduction of an Environmental Management System in 2010 in advance of the timeframe being considered it is not anticipated that there will have been any significant waste management related impacts. This is considered to be borne out by the contemporary water quality results and the general appearance of the site from the aerial photography provided in Chapter 3.

### **10.3 Impacts that are occurring**

As with the previous section that impacts that are occurring have occurred cumulatively since the completion of construction in 2017 and have not altered since the 5<sup>th</sup> August 2018. The waste management systems that are in place continue to provide appropriate management of the associated potential impacts.

### **10.4 Impacts that can reasonably be expected to occur**

Giving consideration to the two alternatives that can reasonably be expected to occur at the site in the future. The first would follow an unsuccessful attempt to regularise the quarry activities and a reversion to the extant planning consents and delivery of the approved restoration concept for the quarry which would result in a water body and associated edged treatment and planting. In addition, the competent authority would need to seek the removal and remediation of the northern element of the site that constitutes the manufacturing element. It is considered with the continued application of the adopted standards within the Company's Environmental Management System that this would not give rise to any potential waste management related impacts.

Likewise, the continuation of activities under any potential s.37L application is considered unlikely to give rise to any potential waste management related, f the existing measures continue to be employed on site.

### **10.5 Conclusions**

The implementation of an Environmental Management System in 2010 containing waste management measure and the compliance with the Extractive Waste Regulations 2009 has ensured that the unauthorised development has not resulted

in a significant impact in any of the three stages of development required to be considered.

## **11.0 ECOLOGY**

### **11.1 Overview**

Woodrow Sustainable Solutions Ltd (Woodrow) was appointed to compile the remedial Ecological Impact Assessment (rEclA) report on behalf of Quarryplan and their client Keegan Quarries Ltd. This report provides the detailed assessment to inform the production of the remedial Environmental Impact Assessment Report (REIAR), which accompanies the substitute consent application by Keegan Quarries Ltd for substitute consent permission to request for the unauthorised construction of structures in the concrete products manufacturing area to the north of the site and the unauthorised quarrying operations post the 5<sup>th</sup> of August 2018 at Tromman Quarry, Tromman, Rathmolyon, Co. Meath.

The full-length version of the remedial Ecological Impact Assessment for this proposal is included as Appendix 11.1 and the Remedial Natura Impact Statement is held as a standalone document *the Remedial Natura Impact Statement for ongoing quarry activities at Tromman Quarry and the associated unconsented expansion of a pre-cast concrete manufacturing facility - Tromman, Rathmolyon, Co. Meath* Below is the Summary prepared by the Authors.

#### **11.1.1 Quality assurance**

The desk-top study, fieldwork and reporting for this assessment report have been led by Mike Trewby BSc, PgD, MCIEEM, a Senior Ecologist with Woodrow. Kristi Leyden BSc, Grad CIEEM, an Ecologist with Woodrow, so-authored the Natura Impact Statement with Mike Trewby. This report has been reviewed by Will Woodrow MSc, MSc (Arch), CEcol, MCIEEM – Company Director, a Chartered Ecologist (CEcol) and full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM).

### **11.1.2 Purpose of ecological impact assessment**

The rEclA can be considered as having three main purposes:

- to provide an objective and transparent assessment of the ecological effects of a development or activity;
- to permit objective and transparent determination of the consequences of the development in terms of national, regional and local policies relevant to nature conservation; and
- to demonstrate that a development or activity will meet the legal requirements relating to habitats and species.

### **11.1.3 Legislative and policy context**

This report has been undertaken with full account of legislation, policy and guidance relating to species and habitat protection, importance and survey protocol. The guiding legislation, policy and guidance includes the following:

- EU Habitats Directive 92/43/EEC, European Communities (Natural Habitats) Regulations 1997, European Communities (Birds and Natural Habitats) Regulations 2011
- Environmental Impact Assessment Directive (2011/92/EU)
- Environmental Impact Assessment Directive (2014/52/EU)
- EU Birds Directive 79/409/EEC
- Meath County Development Plan 2013-2019 adopted 17th December 2012 – see Section 9.7 Natural Heritage
- EPA (2015). Revised Guidelines on the information to be contained in Environmental Impact Statements. Draft report. Environmental Protection Agency, Dublin
- CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal. Chartered Institute of Ecology and Environmental Management (CIEEM)



## **11.2 Impact assessment methodology**

Due to the requirement for a REIAR in this instance, undertaking the Ecological Impact Assessment (EclA) in a remedial format is slightly more complex; however, the following list provides a useful summary of the process for undertaking an EclA, as detailed in CIEEM (2016), which has been adapted for remedial purposes.

### **11.2.1 Identifying ecological features within the zone of influence**

Information acquired during the desk-study and field surveys determines the ecological features potentially affected by the unauthorised development, and as such occur within its 'zone of influence'. The zone of influence depends on the type of development that has taken and is taking place, the presence of ecological connections and pathways, and ecological receptors that may be sensitive to such impacts.

### **11.2.2 Evaluating ecological features within the zone of influence**

Those ecological features within the zone of influence such as nature conservation sites, habitat or species are evaluated in geographic hierarchy of importance. The following categories are used (adapted from NRA 2009).

Importance	Criteria
<b>International Importance</b>	<ul style="list-style-type: none"> <li>• 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation.</li> <li>• Proposed Special Protection Area (pSPA).</li> <li>• Site that fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended).</li> <li>• Features essential to maintaining the coherence of the Natura 2000 Network</li> <li>• Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.</li> <li>• Resident or regularly occurring populations (assessed to be important at the national level) of the following:               <ul style="list-style-type: none"> <li>○ Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or</li> <li>○ Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.</li> </ul> </li> <li>• Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971).</li> <li>• World Heritage Site (Convention for the Protection of World Cultural &amp; Natural Heritage, 1972).</li> <li>• Biosphere Reserve (UNESCO Man &amp; The Biosphere Programme)</li> <li>• Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979).</li> <li>• Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).</li> <li>• Biogenetic Reserve under the Council of Europe.</li> <li>• European Diploma Site under the Council of Europe.</li> <li>• Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).</li> </ul>
<b>National Importance</b>	<ul style="list-style-type: none"> <li>• Site designated or proposed as a Natural Heritage Area (NHA).</li> <li>• Statutory Nature Reserve.</li> <li>• Refuge for Fauna and Flora protected under the Wildlife Acts.</li> <li>• National Park.</li> <li>• Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park.</li> <li>• Resident or regularly occurring populations (assessed to be important at the national level) of the following:               <ul style="list-style-type: none"> <li>- Species protected under the Wildlife Acts; and/or</li> <li>- Species listed on the relevant Red Data list.</li> <li>- Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive.</li> </ul> </li> </ul>
<b>County Importance</b>	<ul style="list-style-type: none"> <li>• Area of Special Amenity.</li> <li>• Area subject to a Tree Preservation Order.</li> <li>• Area of High Amenity, or equivalent, designated under the County Development Plan.</li> <li>• Resident or regularly occurring populations (assessed to be important at the County level) of the following:               <ul style="list-style-type: none"> <li>- Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;</li> <li>- Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;</li> <li>- Species protected under the Wildlife Acts; and/or</li> </ul> </li> </ul>

Importance	Criteria
	<ul style="list-style-type: none"> <li>- Species listed on the relevant Red Data list.</li> <li>- Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.</li> <li>• County important populations of species; or viable areas of semi-natural habitats; or natural heritage features identified in the National or Local BAP; if this has been prepared.</li> <li>• Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.</li> <li>• Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.</li> </ul>
<p><b>Local Importance (Higher Value)</b></p>	<ul style="list-style-type: none"> <li>• Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;</li> <li>• Resident or regularly occurring populations (assessed to be important at the Local level) of the following: <ul style="list-style-type: none"> <li>- Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;</li> <li>- Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;</li> <li>- Species protected under the Wildlife Acts; and/or</li> <li>- Species listed on the relevant Red Data list.</li> </ul> </li> <li>• Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;</li> <li>• Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.</li> </ul>
<p><b>Local Importance (Lower Value)</b></p>	<ul style="list-style-type: none"> <li>• Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;</li> <li>• Sites or features containing non-native species that is of some importance in maintaining habitat links.</li> </ul>

Only Important Ecological Features (i.e. those features evaluated as being of Local Importance (Higher Value) or greater) within the zone of influence are assessed with respect to potential impact.

### 11.2.3 Significant effects on important ecological features

For the purpose of rEclA, ‘significant effect’ is an effect that either supports or undermines biodiversity conservation objectives for those ecological features which have been identified as being an important feature of the site (“Important Ecological Features”). ‘Significant’ effects are qualified with reference to the appropriate geographic scale (CIEEM, 2016).

#### **11.2.4 Assessment of residual impacts and effects**

After characterising the potential impacts of the development and assessing the potential effects of these impact on the 'Important Ecological Features', mitigation measures are proposed to avoid and / or mitigate the identified ecological effects. Assessment of the residual impacts and effects is then undertaken to determine the significance of their effects on the 'Important Ecological Features'.

#### **11.2.5 Assessment of cumulative impacts and effects**

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location (CIEEM, 2016).

### **11.3 Ecological survey methodology**

Surveys of the terrestrial ecology at the site, were undertaken following specific guidelines for the relevant target species. The importance of the habitats and species present is evaluated using the Chartered Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal (CIEEM, 2016).

#### **11.3.1 Desk based review of biological records**

Assessment of the 2013-18 baseline conditions were based on desk-based review of ecological and hydrological sections within the EIS (May 2009) updated in 2019 (BCL Hydrogeologists Ltd) for the quarry extension, along with viewing of sequential ortho-imagery.

For the additional baseline (2018-2019) assessment, a desk-based review of biological records for the area was undertaken utilising information available from the National Biodiversity Data Centre (NBDC).

### **11.3.2 Surveys undertaken**

The quarry was visited twice during 2018 and twice in 2019 on the following dates:

- Visit 1: 28<sup>th</sup> August 2018 Surveyor: Kate Bismilla
- Visit 2: 16<sup>th</sup> October 2018 Surveyor: Mike Trewby
- Visits 3-4: 18-19<sup>th</sup> June 2019 Surveyor: Mike Trewby

Ecological surveys undertaken included habitats, terrestrial mammals, bats (foraging and roosting), breeding birds, amphibian and protected invertebrate suitability, and alien invasive species.

### **11.3.3 Limitations**

The 2019 surveys, undertaken within optimal timing for breeding birds, bats and habitats, complemented the 2018 surveys. Given the location of the development, the habitats present on the site and the long-established nature of the development, it is considered that desk-based and ecological field surveys in 2018 and 2019 are sufficient to assess the retrospective ecological impacts.

## **11.4 Scoping - study areas and assessment periods**

Due to the primarily retrospective nature of the project to be assessed, the scope of the survey area and time periods require adjustment to match with the different phases of the project to be assessed, as laid out below:

Study area - activities to be assessed	Assessment period	Significant effects/ impacts which -
Northern part of site - Pre-cast concrete manufacturing facility	Baseline: 2013 (2013 to Aug 2018)	- have occurred
Whole site - All site activities assessed cumulatively	Additional baseline: 2018 (Aug 2018 to submission of SC)	- are occurring
Whole site - two alternatives: a) immediate remediation b) continued operations under separate consent	Immediate remediation and site restoration and post-restoration and continued consented operations under separate approval.	- are reasonably expected to occur

## 11.5 Designated sites with potential ecological / hydrological connections to the development

### 11.5.1 Natura 2000 sites

The revised EPA Draft Guidelines (EPA August 2017) states in section 3.3.5 that:

*“A biodiversity section of an EIAR, for example, should not repeat the detailed assessment of potential effects on European sites contained in a Natura Impact Statement, but it should refer to the findings of that separate assessment”.*

This approach has been adopted and the conclusions of the rNIS (Woodrow, 2019) are referenced. No part of the application site lies within a designated Special Area of Conservation (SAC) or Special Protection Area (SPA). As a result of hydrological connections two Natura 2000 sites were brought through to Stage 2 Appropriate Assessment. The Natura 2000 sites assessed were:

- River Boyne and River Blackwater SAC.
- River Boyne and River Blackwater SPA.

The concluding statement of the rNIS is as follows:

*A remedial Natura Impact Statement (rNIS) has been compiled. This includes the information required to undertake an appropriate assessment with respect to Article 6 of the Habitats Directive in respect to those impacts which are considered to have occurred and those that are considered likely to occur due to the operations that have been undertaken on the site (and the restoration phase). This takes account of mitigation measures and environmental controls already undertaken at the site. Having taken account of such mitigation, there is considered to be no potential for an adverse impact on integrity of Natura 2000 due to impacts that have either occurred or are likely to occur as a result of operations at Tromman Quarry. This conclusion relates both to the quarry at Tromman on its own and also in combination with any other projects.*

*This has been concluded for the following reasons:*

- *Limited connectivity to any Natura 2000 Site (a linear hydrological connection of 10 km to the River Boyne and Blackwater SAC and River Boyne and Blackwater SPA via a drain that largely only takes dewatering arisings from the quarry);*
- *The contained nature of quarrying and manufacturing operations with the site;*
- *Environmental controls employed, including an on-site Environmental Management System.*

### **11.5.2 Natural Heritage Areas**

No part of the application site lies within an NHA or pNHA. There is one NHA within 15 km of Tromman Quarry and six pNHAs. These sites are located between 2 to 14 km from the quarry and there is considered to be no ecological or hydrological connectivity between these sites and the quarry.

## **11.6 Baseline conditions**

### **11.6.1 Site location**

The site is located in the townland of Tromman, Rathmolyon in Co. Meath. The site extends on the northern side of the R156 Rathmolyon-Ballivor road. It is situated approximately 2.2 km northwest of Rathmolyon Village, 6.4 km south of Trim and 9 km north of Enfield. It lies within a rural setting and rolling hills dominated with pastoral agriculture and patches of arable production are the prominent feature of the landscape. There is another quarry directly adjacent to Tromman Quarry which is operated by Kilsaran.

### **11.6.2 Baseline conditions: 2013 – pre-cast manufacturing facility**

The retrospective 2013 baseline only applies to the area occupied by the pre-cast concrete manufacturing facility. This facility occupies the northern section of the Tromman Quarry site. Sequential OSi aerial imagery (1992, 2000, 2005) shows the area was claimed from a single field of improved agricultural grassland GA1, with conversion starting around 2003. While the positioning and extent of structures within the facility have changed since 2009, the habitats occurring within the area have not, and the area is almost exclusively classed as buildings and artificial surfaces BL3.

The original hedgerows WL1/ treelines WL2 on the periphery of the site and the open drains (small streams) FW4 on the western and northern boundaries of the facility have been retained. By 2013 a large ditch FW4 with associated banks formed part of the eastern site boundary, along with remnant hedgerows WL1 and treelines WL2. Prior to the construction of concrete settlement tanks (2016/17) this ditch formed the settlement lagoons. At the time of the 2013 baseline only the watercourses, hedgerows and treelines on the periphery of the northern part of the site remained devoid of development and represent the only areas of potential value



to wildlife. At this time these linear features are likely to have provided foraging and commuting areas for bats and nesting sites for birds.

### **11.6.3 Additional baseline conditions: 2018 – whole quarry**

Site visits undertaken in October 2018 provide the information for the baseline conditions of the additional baseline, which assesses the quarry and the pre-cast concrete manufacturing facility as a whole.

#### **Terrestrial mammals**

There was evidence of badgers utilising the site during visits in 2018, including a network of well-worn paths indicative of regular use by badgers, a badger latrine, an isolated badger scat and foraging activity. No active badger setts were located within the site or adjacent to the site.

#### **Bats**

Bat surveys were undertaken on the night of 18<sup>th</sup>-19<sup>th</sup> June 2019 by means of a transect, static bat detectors and a roost emergence survey. These surveys revealed the presence of common and soprano pipistrelle, Leisler's bat, brown long-eared bat, and *Myotis* species at the site. As would be expected, activity was generally concentrated around the more suitable habitats on the periphery of the site, with limited activity within the core disturbed or built-up parts of the site. There was no roost recorded on site.

#### **Birds**

Birds recorded during the site visits were mostly common, widespread species including (\* indicates breeding behaviour observed): lesser black-backed gull, raven\*, hooded crow, rook, jackdaw, magpie, wood pigeon, feral pigeon, starling, swallow\*, house martin, sand martin, wren, robin, goldcrest\*, blackcap\*, whitethroat\*, chiffchaff\*, willow warbler\*, great tit\*, coal tit\*, blue tit\*, blackbird\*, song thrush\*, mistle thrush, pied wagtail, meadow pipit\*, chaffinch\*, goldfinch\*, linnet\*, yellowhammer\*. In addition, there is a territorial pair of peregrines at the site, which

are likely to be using the site, or the adjacent quarry for breeding. A raven nest was also located at the site. The only Red listed species of conservation concern (Colhoun & Cummins 2013) recorded during site visits were meadow pipit and yellowhammer. The hedgerows on the periphery of the site, in close proximity to cereal fields have the potential to offer nest sites for yellow and a singing male was recorded at the south-eastern boundary of the site. One possibly two pairs of meadow pipit were nesting on the suitably vegetated lower levels of the large spoil heap in the centre of the site.

### **Reptile and amphibians**

A search of the NBDC database found that the only reptile or amphibian records for the 10-km squares covering Tromman Quarry were for common frog (*Rana temporaria*). It is likely that any standing water within the site will be inhabited by frogs during the breeding season. The settlement tanks on the eastern boundary of the site, were assessed as unsuitable for smooth newt (*Lissotriton vulgaris*) breeding ponds.

### **Flora and habitats**

No rare plants listed under the Flora Protection Order 1999 were located within Tromman Quarry during site walkover and data searches (NBDC).

The following habitat types were recorded as occurring within the site:

- FL8 Other artificial lakes and ponds
- W4 Drainage ditches
- GA2 Amenity grassland
- WD1 (Mixed) broadleaved woodland
- WS1 Scrub
- WS2 Immature woodland
- WS3 Ornamental/ non-native scrub
- L1 Hedgerows
- WL2 Treelines
- ED2 Spoil and bare ground

- ED3 Recolonising bare ground
- ED4 Active quarries and mines
- BL2 Earth banks
- BL3 Buildings and artificial surfaces

The location of these at the site is shown in Figure 11.1

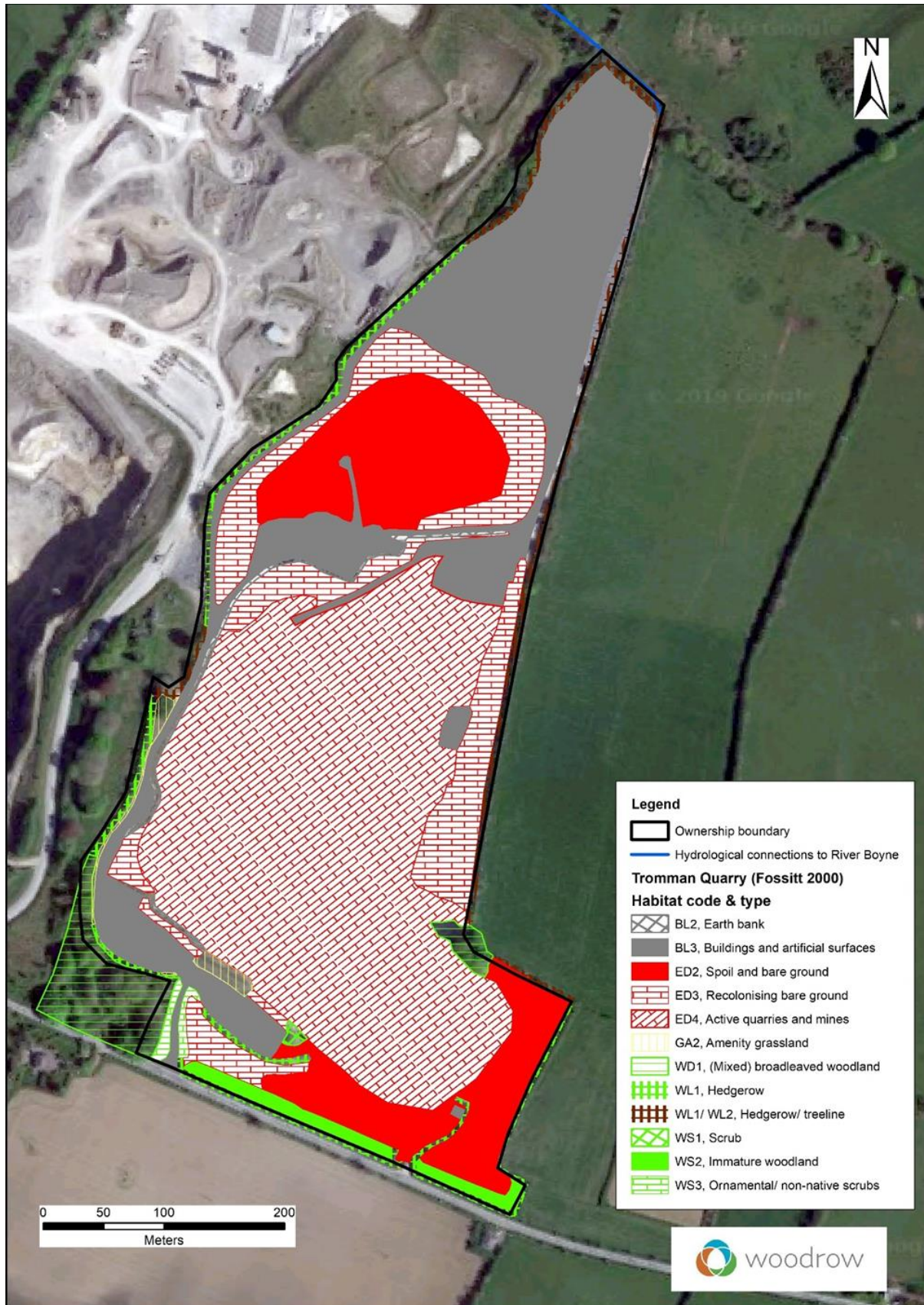


Figure 11.1. Habitat types mapped in Tromman Quarry, as classified in Fossitt (2000)

## Invasive species

No high impact invasive plant species (as listed by NBDC) were recorded during the site visits. Likewise, there were no plant species recorded on Third Schedule applying to non-native species subject to restrictions under Regulations 49 of S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011.

## 11.7 Evaluation of important ecological features within the zone of influence

Table 11.2 below summarises the Important Ecological Features of interest within the zone of influence of the development. Habitats and species which have been assessed to be of Local Importance (Higher Value) or above within the application site, have been listed as Important Ecological Features as shown in Table 11.2 below. This evaluation covers the development as whole, with \* denoting habitat evaluations which apply to the 2013 baseline (pre-cast concrete manufacturing facility).

**Table 11.2.** Important Ecological Features and their Evaluation

Important Ecological Feature	Evaluation
<b>Designated Areas</b>	
River Boyne and River Blackwater SAC River Boyne and River Blackwater SPA	International Importance
<b>Habitat</b>	
WD1 (Mixed) broadleaved woodland	Local Importance (Higher Value)
WS1 Scrub	Local Importance (Higher Value)
WS2 Immature woodland	Local Importance (Higher Value)
WL1 Hedgerows*	Local Importance (Higher Value)
WL2 Treelines*	Local Importance (Higher Value)
BL2 Earth banks	Local Importance (Higher Value)
<b>Species</b>	
General Bird Assemblage*	Local Importance (Higher Value)
Badger	Local Importance (Higher Value)
Bats*	Local Importance (Higher Value)

Invasive Alien Species (IAS) are considered within the impact and mitigation sections below.

## **11.8 Impact assessment of important ecological features within the zone of influence**

The methodology set out in Section 11.2 is applied to Important Ecological Features which have been identified and described in Section 11.6 and evaluated in Section 11.7.

The Planning and Development Act (as amended) instructs under Section 177(F)(1), that the potential impacts on designated areas, habitats and species are considered under the three phases of the development, including:

1. Impacts which have occurred
2. Impacts that are occurring
3. Impacts that can reasonably be expected to occur

## **11.9 Impacts which have occurred**

The following impact sources have been judged as having had the potential to arise over the baseline period (2013-18).

### **11.9.1 Construction stage impact types / sources**

#### **Contamination of surface water / ground water**

Without mitigation, chemicals and materials stored and used on the site during the construction of the shed (such as fuel, oils, cement, sand, aggregate and concrete); as well as material exposed during excavation works, could have resulted in the contamination of surface water run-off and consequently resulted the in the degradation of water quality in the vicinity of the site.

Without mitigation, spillages could have occurred during the pouring of concrete foundations and/or during routine plant maintenance, improper storage and/or accidental spillages of hydrocarbons during the construction works. Contaminants being washed into nearby watercourse could lead to a serious impact on water quality and consequently the habitats and species present. At this site, without appropriate control measures contaminants would enter the stream flowing along the northern boundary of the site, which is hydrologically linked, although distantly (c. 10 km) to the River Boyne and River Blackwater SAC and River Boyne and River Blackwater SPA.

At the time of construction, the concrete manufacturing area was fully paved and considered an impermeable surface (hydrological assessment report - BCL Hydrogeologists Ltd 2019), thus eliminating the risk of contamination to ground water in the vicinity of the works. In addition, there were control measures in place to mitigate against contamination of surface waters including the construction of a surface water and ground water management system in 2009 (see Environmental Management System EMS produced by Byrne Environmental). In relation to protecting surface waters within the Keegan Quarry site as a whole, the EMS states:

*The following general guidelines have been considered in designing an effective surface water management system for the site.*

- *Solid inert waste will be disposed of by licensed removal from the site or by recycling on the site in a designated inert waste recycling location and in a manner that will not impact on surface waters.*
- *Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment in the designated storage location. Drip trays, mobile bunds and permanent bunded areas will be installed to minimize the potential for pollution of surface water bodies.*
- *Fuelling and lubrication of vehicles and mobile plant and equipment will not be carried out close to water courses and will be conducted on concrete surfaced areas.*
- *All refill points for fuels, lubricants, hydraulic fluids or any other hydrocarbon-based liquids will be located in a hardstanding bunded area.*
- *Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and any contaminated soil removed from the site and properly disposed of by an appropriately licensed contractor.*
- *Foul drainage from site offices, canteen and toilets will be discharged to the biocycle system and percolation area.*

- *All concreted surfaces used for refuelling will be drained to a petrol/oil interceptor unit.*
- *Sites for use as storage areas, machinery depots, site offices, internal haul roads or the disposal of spoil will be located as far as is practicable from watercourses.*
- *All surface water collected on-site shall be diverted to the surface water settlement pond prior to discharge via a petrol/oil interceptor to surface water.*
- *No water shall be pumped from the quarry without passing through the settlement pond system*
- *The settlement lagoons shall be inspected weekly by the Site Manager and all settled solids shall be removed by pumping as required to ensure the capacity and efficiency of the lagoons is maintained at all times.*
- *Absorbent materials such as absorbent booms and vermiculite will be held on site and any spillages of organic liquids such as oils, greases etc will be contained and cleaned up immediately. The contaminated absorbent material will be correctly stored in a designated area on-site prior to being collected and disposed of by an approved contractor.*
- *All accidental discharge incidents shall be immediately reported to the environment department of Meath County Council by the Quarry Manager.*

On the basis that the mitigation measures outlined in the EMS were in place, and all surface runoff was collected in the settlement lagoons for discharge via the consented discharge point (as covered by Trade Effluent Discharge Licence Ref. 04/2), the risk of local watercourses and ground waters becoming contaminated as a result of construction activities was low.

### **Disturbance of foraging/breeding sites**

Without mitigation, there was potential for construction activities to result in disturbance to foraging / breeding fauna, birds in particular, utilising the hedgerow/ treeline directly adjacent to the new shed. However, construction commenced after the end of the bird breeding season (September 2016) and was completed prior to the start of the 2017 breeding season (March 2017). Therefore, it can be definitively concluded that construction did not impact on breeding birds. The potential for disturbance emanating from construction activities impact on foraging fauna, if any, was short-term given the construction period of approximately 6 months. During the construction period the potential impact of disturbance to birds and other fauna foraging in the area was assessed as negligible.



### **11.9.2 On-going as a result of the development - operational impact sources**

#### **Contamination of surface water / ground water**

Without mitigation, chemicals and materials stored and used on the site during the manufacturing process (such as fuel, oils, cement, sand, aggregate and concrete) could have resulted in the contamination of surface water run-off and consequently resulted the in the degradation of water quality in the vicinity of the site.

While the production processes appear highly controlled, spillages could occur during the pouring of concrete into pre-cast moulds, washing of equipment/ machinery and/or during routine plant maintenance, improper storage and/or accidental spillages of hydrocarbons. Of particular concern would be escape cement and concrete fragments and these contaminants being washed into nearby watercourse could lead to a serious impact on water quality and consequently the habitats and species present. At this site, without appropriate control measures contaminants would enter the stream flowing along the northern boundary of the site, which is hydrologically linked, although distantly (c. 10 km) to the River Boyne and River Blackwater SAC and SPA.

Although not specifically referenced in the EMS for Keegan Quarry, it is assumed that control measures outlined for mitigation against pollution to surface water and ground water (see quoted texted above) extended to the operation of the pre-cast concrete manufacturing facility. In relation to the plant, the EMS states:

*The operation of the precast concrete products plant has a minimal impact on the receiving environment as all manufacturing activities occur within the purpose built factory unit.*

Assuming the mitigation measures outlined in the EMS were in place and that all surface runoff was collected in the settlement lagoons (latterly newly constructed tanks 2016-17) for discharge via the consented discharge point (as covered by

Trade Effluent Discharge Licence Ref. 04/2), the risk of local watercourses and ground waters becoming contaminated as a result of on-going concrete manufacturing operations was low. It is considered that this is likely given there were no reported incidents during this monitoring period.

### **Shading of habitats by new shed**

The 2016/17 expansion of the pre-cast manufacturing unit (the new shed) has resulted in increased levels of afternoon shading along the eastern boundary of the site. This has the potential for altering species composition in favour of shade tolerant species, however this is not considered a significant impact.

### **Dust deposition on flora**

While the manufacturing process is enclosed within sheds and as such will not generate dust, the associated activities, such as delivery of materials have the potential to generate dust in the absence of mitigation. Fugitive dust is typically deposited within 100 to 200m of the source; the greatest proportion of which, comprising larger particles (>30microns) is deposited within 100m. Large amounts of dust deposited on vegetation over a prolonged period results in adverse effects on plant productivity, which can lead to degradation of sensitive habitats. Prevailing weather conditions have a bearing on how much dust is generated and deposited, with factors such as rainfall suppressing the agitation of dust and may also have cleansing effect, washing deposits of foliage.

Dust deposition starts to affect the more sensitive species at levels above 1000 mg/m<sup>2</sup>/day, which is significantly higher than the upper limit permitted under the planning conditions for the site – set at 350 mg/m<sup>2</sup>/day. To ensure this threshold is not surpassed control measures are employed throughout the site to suppress the generation of dust – see EMS. As outlined in Chapter 7 the ongoing monitoring has confirmed operations consistently have cumulatively operated below the 350 mg/m<sup>2</sup>/day guideline figure provided for in the DOEHLG 2004 recommended levels. As such it can be concluded that dust generation relating to operational activities is adequately controlled and the impact on flora in the vicinity of the quarry will be

minimal. In addition, there are no sensitive territorial habitats adjacent to the development.

### **Light pollution impacting on foraging bats**

It is likely that the extension of the manufacturing facility, through construction of the shed, has increased the Lux levels on the site and has resulted illumination of previously unlit areas. Artificial lighting can attract insects, which in turn can attract some faster flying bat species, like Leisler's bat and pipistrelle species, providing a food source for these species and potentially a competitive advantage over more light sensitive bat species. The slower fly species, like Myotis sp. and brown-long eared bats may be displaced from favoured foraging areas or commuting routes by the introduction of artificial lighting. Artificial lighting can also displace roosting bats.

The likelihood of any suitable roost sites in the vicinity of the new shed is low, based on current habitat availability and it has been judged that this has not altered over the baseline period (2013-18). Therefore, the potential for the new lighting regime impacting on roosting bats can be discounted. In terms of habitat availability for foraging bats in the vicinity of the shed, the hedgerow/ treeline along the eastern boundary has been highlighted as providing potential foraging habitat and it is possible that light sensitive species may be displaced from this area. However, in the context of substantial areas of similar habitat for foraging bats existing outside of the site, the potential loss of foraging habitat is deemed to be insignificant at a local level.

### **11.9.3 Impacts which have occurred on Designated Areas**

River Boyne and Blackwater SAC and River Boyne and Blackwater SPA fall within the potential zone of influence because of the existing hydrological link and the potential for impact on water quality on the sites, and consequent impact on the Qualifying Interests.

The rNIS concluded that the distance of the hydrological link to Natura 2000 sites downstream of the development (c. 10 km) in combination with the control measures within the site, mean that there is no potential for adverse impacts on the integrity of the River Boyne and Blackwater SAC or the River Boyne and Blackwater SPA.

#### **11.9.4 Impacts which have occurred on Habitats**

From examination of aerial imagery there has been no direct impact in terms of habitat loss to hedgerows or treelines. Aerial imagery shows that hedgerows and treelines on the periphery of the site have been retained throughout the operational phase of pre-cast concrete manufacturing, including the 2016/17 expansion of the pre-cast manufacturing unit (the new shed) along the eastern boundary of the site. Increased afternoon shading of the hedgerow/treeline along the eastern boundary has occurred due the construction of the new shed; and while this has the potential for altering species composition in favour of shade tolerant species, this is not considered a significant impact. Likewise, given existing control measures and planning conditions in relation to permissible levels for dust generation the impacts of dust settling on foliage is not considered a significant impact.

#### **11.9.5 Impacts which have occurred on Fauna**

##### **Birds**

The linear features on the periphery of the concrete manufacturing site (hedgerows/ treelines/ drains/ steams) provide nesting and foraging habitat for birds. These features have been retained throughout the operational phase of pre-cast concrete manufacturing, including the increase in plant and structures to include the 2016/17 expansion of the pre-cast manufacturing unit (the new shed) along the eastern boundary of the site. The built environment (concrete hard stand and sheds) that dominated this area is of limited value for birds, with the exception of some species that nest on/in man-made structures. By necessity these species become readily habituated to the human activity, including manufacturing. It is not considered that

expansion of the processing plant (2016/17) and on-going manufacturing posed any significant impacts upon the local bird population.

## **Bats**

The linear features on the periphery of the concrete manufacturing site also provide foraging habitat for bats. These features have been retained throughout the operational phase of pre-cast concrete manufacturing. The built environment (concrete hardstand and sheds) that dominated this area is of limited value for bats. As discussed above, the potential for the new lighting regime to impact on roosting bats was discounted and the potential loss of foraging habitat is deemed to be not significant.

### **11.9.6 Consideration of mitigation and enhancement measures**

This section outlines mitigation and / or enhancement measures which aim to avoid, reduce effects on important ecological features within the zone of influence of the development, in this instance the 2013-18 activities of the pre-cast concrete manufacturing facility.

Without existing mitigation in place, the activities occurring within pre-cast concrete manufacturing facility had the potential to have significant effects on a single ecological receptor within the zone of influence of the development, through impacting water quality. The EMS for the site provides the list of mitigation measures to control against contamination of surface water and ground water, whereby protecting watercourses in the local area.

Ongoing operations did not impact on any habitats which remained in the northern part of the site, such as hedgerows, treeline and watercourses by avoiding these areas, as they are on the periphery of the site.

### **11.9.7 Residual impacts and effects on important ecological features**

Negative residual impacts are not considered to be ecologically significant.

### **11.10 Impacts that are occurring**

This section assesses the potential ecological impacts that are occurring as of the 2018 baseline (5<sup>th</sup> August 2018) within the Tromman Quarry site, including potential ecological impacts arising from pre-casting concrete manufacturing in combination with quarrying activities.

#### **11.10.1 On-going operational (quarrying) impact types / sources**

##### **Contamination of surface water / ground water**

Without mitigation, quarrying operations near water have an associated risk of pollution from fuel spillages, oil leakages and other accidents with potential to lead to serious impacts causing the contamination of surface water run-off and the degradation of water quality in the vicinity of the site and consequently impacting the habitats and species present in any affected waterbody.

Without mitigation, the stripping of vegetation, ground disturbance and storage of stripped soils near watercourse increases the risk of material being washed into watercourses during periods of heavy and prolonged rainfall or flood events, with potential impacts on water quality through increased turbidity levels and sedimentation, as well as the potential mobilisation of a variety of substances that may be contained within the soils. Quarrying operations also have the potential to cause alterations to localised groundwater levels and surface water flows through the extraction of activities, dewatering and discharge of water.

At this site, without appropriate control measures contaminants would enter the stream flowing along the northern boundary of the site, which is hydrologically linked,

although distantly (c. 10 km) to the River Boyne and River Blackwater SAC and SPA.

The Environmental Management System (EMS) for Keegan Quarries Ltd, outlines control measures for mitigation against pollution to surface water and ground water. All quarry surface runoff and groundwater is held and then pumped to the settlement lagoons (latterly newly constructed tanks 2016-17) for discharge via the consented discharge point (as covered by Trade Effluent Discharge Licence Ref. 04/2), the risk of local watercourses and ground waters becoming contaminated as a result of on-going extraction associated operations is low. It is considered that this is likely given there were no reported incidents during this monitoring period.

#### **Habitat loss and fragmentation**

The south-eastern expansion of the quarry resulted in the most recent direct loss of habitat within the site, with an area holding the former quarry-top embankment, hedgerows, treelines, improve agricultural grassland and a house removed during site preparation works. However, these works occurred within the consented (previously assessed for ecological impacts) timeframe for quarrying (2011 to 2017), i.e. pre-August 2018. As such there has been no direct loss of habitat since the August 2018 baseline. In addition, as the preparatory clearance works have already been undertaken there will be no direct habitat loss should extraction of remaining rock reserve recommence.

#### **Dust deposition on flora**

As covered in more detail in relation to pre-cast concrete manufacturing activities, large amounts of dust deposited on vegetation over a prolonged period results in adverse effects on plant productivity, which can lead to degradation of sensitive habitats. Dust deposition starts to affect the more sensitive species at levels above 1000 mg/m<sup>2</sup>/day, which is significantly higher than the upper limit permitted under the planning conditions for the site – set at 350 mg/m<sup>2</sup>/day. To ensure this threshold is not surpassed control measures are employed throughout the site to suppress the generation of dust – see EMS for Keegan Quarries. As outlined in Chapter 7 the

ongoing monitoring has confirmed operations consistently have cumulatively operated below the 350 mg/m<sup>2</sup>/day guideline figure provided for in the DOEHLG 2004 recommended levels. As such it can be concluded that dust generation relating to operational activities is adequately controlled and the impact on flora in the vicinity of the quarry will be minimal. In addition, there are no sensitive terrestrial habitats adjacent to the development.

### **Disturbance to fauna**

Prior to the 2018 baseline being assessed, quarrying activities were already generating ecological disturbance factors including noise, vibration and movement (machinery and human operatives). Since the 5<sup>th</sup> August 2018 the quarry has not laterally expanded beyond its previously permitted limits with extractive operations concentrating on the lower benches toward the centre of the site, with the faces heading in a generally southern direction. Accordingly, no additional significant impacts are predicted to be occurring.

### **11.10.2 Impacts occurring on Designated Areas**

River Boyne and Blackwater SAC and River Boyne and Blackwater SPA fall within the potential zone of influence because of the existing hydrological link and the potential for impact on water quality on the sites, and consequent impact on the Qualifying Interests.

The rNIS concluded that the distance of the hydrological link to Natura 2000 sites downstream of the development (c. 10 km) in combination with the control measures within the site, mean that there is no potential for adverse impacts on the integrity of the River Boyne and Blackwater SAC or the River Boyne and Blackwater SPA.

### **11.10.3 Impacts occurring on Habitats**

As all site preparatory works for ongoing quarrying in the site have already occurred under consent (pre-August 2018 baseline), there will be no further loss of WS2



Scrub.

Losses of WL1 Hedgerows & WL2 Treelines pre-2018 (and under consent) and replacement planting undertaken have been previously assessed and do not form part of this report. Following consented operations, all remaining traditional earth banks (BL2 Earth banks) form the site boundary and these will be retained.

#### **11.10.4 Impacts occurring on Fauna**

##### **Birds**

While peregrine falcon is listed under Annex I of the EU Birds Directive, the species' conservation concern in Ireland is currently listed as Green; as breeding numbers have recovered from historic declines (Coulhoun & Cummins 2013). Cliffs in quarries are increasingly being utilised by breeding peregrines and quarries have facilitated the expanding breeding distribution of this species.

##### **Badgers**

As of August 2018, the consented area for future quarrying comprises stripped ground, which was assessed as not being suitable for badgers to use as a resting place. Given the context of the site, with ample foraging opportunities in the environ, the impact is assessed as minimal.

#### **11.10.5 Consideration of mitigation and enhancement measures**

This section outlines mitigation and/or enhancement measures which aim to avoid, reduce effects on important ecological features within the zone of influence of the development, in this instance the post-August 2018 activities of quarry activities.

Without existing mitigation in place, the quarrying activities and those occurring within pre-cast concrete manufacturing facility have the potential to have significant effects on a single ecological receptor within the zone of influence of the

development, through impacting water quality. The EMS for the site provides the list of mitigation measures to control against contamination of surface water and ground water, whereby protecting watercourses in the local area. Ongoing operations did not impact on any remaining habitats on the periphery of the site, such as hedgerows, treeline and watercourses.

No high impact invasive plant species (as listed by NBDC) were recorded during the site visits at Tromman. Likewise, there were no plant species recorded on Third Schedule applying to non-native species subject to restrictions under Regulations 49 of S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011.

#### **11.10.6 Residual impacts and effects on important ecological features**

Negative residual impacts are limited to negligible to minor long-term impacts. These are not considered to be ecologically significant. As shown in Table 11.3 below residual impacts will not result in any significant effects on Important Ecological Features within the zone of influence.

**Table 11.3.** Summary of potential impacts, potential effects, mitigation undertaken and residual effects.

Important Ecological Features	Evaluation	Potential Impact	Potential Effect	Potential Significance	Mitigation / Compensation Undertaken	Significance of Residual Effect
River Boyne and Blackwater SAC	International	Pollution due to suspended solids and chemical entering watercourses connecting to site	Impact on habitats sensitive to pollution and species either sensitive to pollution or relying on prey that are sensitive to pollution.	Potentially significant (though site is some 10km, by limited hydrological link, from SAC)	Environmental Management System (EMS) applied since 2009.	Not significant
River Boyne and Blackwater SPA	International	Pollution due to suspended solids and chemical entering watercourses connecting to site	Impact on habitats sensitive to pollution and species either sensitive to pollution or relying on prey that are sensitive to pollution.	Potentially significant (though site is some 10km, by limited hydrological link, from SPA)	Environmental Management System (EMS) applied since 2009.	Not significant
(Mixed) broadleaved woodland	Local (higher)	Habitat loss and fragmentation	Reduction in woodland habitats and connectivity with site	Significant	Existing woodland on site not targeted for removal	Not significant
Scrub	Local (higher)	Habitat loss	Loss of cover within the site	Significant	Planting of hedgerows and for screening belts undertaken	Not significant
Immature woodland	Local (higher)	Habitat loss	Loss of cover within the site	Significant	Immature woodland along southern boundary not targeted for removal	Not significant
Hedgerows	Local (higher)	Permanent loss of hedgerow	Loss of, or damage to sections hedgerow leading to reduced connectivity and loss of foraging habitat and cover for breeding fauna	Significant	Hedgerows on site not targeted for removal.	Not significant
Treeline	Local (higher)	Permanent loss of treeline	Loss of, or damage to sections treeline leading to reduced connectivity and loss of foraging habitat and cover for breeding fauna	Significant	Existing treelines on site not targeted for removal	Not significant
Earth banks	Local (higher)	Permanent loss of habitat - cover for birds / small mammals	Loss of cover for fauna	Significant	Existing earth banks on site not targeted for removal	Not significant
Birds	Local (higher)	Habitat loss /	Potential for loss or	Significant	Implementation of minimal blasting	Not significant

disturbance

disturbance of nesting sites

schedule during the early stages of the breeding season (late March to early May) to limited disturbance to peregrines.

Important Ecological Features	Evaluation	Potential Impact	Potential Effect	Potential Significance	Mitigation / Compensation Undertaken	Significance of Residual Effect
Badger	Local (Higher)	Removal of foraging habitat Colonisation of spoil targeted for relocation	Reduction in access to feeding areas. Accidental disturbance of badger setts	Significant	Planted areas within the site may provide foraging habitat For spoil stored on site and where due to be translocated, ensure that scrub cover is discouraged through regular cutting.	Not significant
Bats (foraging only)	Local (Higher)	Removal of potential foraging habitat.	Potential disturbance/displacement to foraging bats.	Significant	Planting on southern boundary of site will provide some opportunities for common species (such as common pipistrelle and soprano pipistrelle).	Not Significant
Invasive Species (IAS)	Alien -	Potential for spread around site and then dispersal through transportation of quarried materials	Spreading of IAS would be to the detriment of native species and habitats. Species recorded are low impact IASs	Not Significant		Not significant

### **11.11 Impacts that can reasonably be expected to occur**

The final stage of the assessment considers the significant effects, or impacts, that can reasonably be expected to occur as a result of the development for which substitute consent is required in providing restoration of and post restoration of the site, considering both the prospect of immediate remediation, or the alternative of continued operations under separate consent under s.37L of the Act, following consideration by the Competent Authority. This section only assesses the potential ecological impacts of immediate site restoration as it is considered that an assessment of continuing operations would be best conducted as part of a separate assessment.

As detailed in Section 3 of the REIAR, immediate remediation would involve decommissioning of the concrete manufacturing facility and restoration of the quarry.

#### **11.11.1 Impacts expected to occur on Designated Areas**

River Boyne and Blackwater SAC and River Boyne and Blackwater SPA fall within the potential zone of influence because of the existing hydrological link and the potential for impact on water quality on the sites, and consequent impact on the Qualifying Interests.

The rNIS concluded that the distance of the hydrological link to Natura 2000 sites downstream of the development (c. 10 km) in combination with the control measures within the site, mean that there is no potential for adverse impacts on the integrity of the River Boyne and Blackwater SAC or the River Boyne and Blackwater SPA. In addition, during restoration of the quarry dewatering activities would cease meaning that discharge and flow into the northern drain would also cease further diminishing any hydrologically link between the site and the SAC / SPA.

### **11.11.2 Impacts expected to occur on Habitats**

The restoration approved for the quarry and the remedial works for the manufacturing facility and the quarry are limited, the overall impact would be positive. The site would be restored for nature conservation through planting and natural regeneration, the range and extent of habitats occurring on the site would increase including, grasslands, transitional scrub, woodland and a lake surround by rocky cliffs, which will provide opportunities for a range species.

### **11.11.3 Impacts expected to occur on Fauna**

Site remediation will result in positive impacts for wildlife in the area. As disturbance factors including light pollution dissipate and vegetation cover regenerates connectivity through the site will be improved and more sensitive species will re-colonise the area. Species of conservation interest, including bats and peregrine, that occupied the site during the operational phase of the development will not be negatively impacted by the site remediation process. Cliffs providing nesting ledges for peregrines, as well as other species of bird like kestrels and ravens will be retained. Foraging and commuting bats in particular will benefit from an increase in vegetation cover within the site. Areas of spoil within the site have the potential to be colonised by badger setts as foraging for the species improves.

## **11.12 Cumulative Impacts**

Cumulative impacts which have occurred have the potential to include wider contribution to habitat fragmentation, cumulative disturbance and cumulative water quality impacts.

As detailed in sections 11.9 and 11.10, there has not been any habitat fragmentation occurred or occurring as a result of the unauthorised works,

beyond that, that was consented, with linear features around the site (such as hedges, treelines and drains for example) being retained. There is therefore not considered to be any potential for cumulative impacts in this regard.

Disturbance on breeding birds, bats and other fauna have been considered in sections 11.9 and 11.10 to be absent or not significant and are not considered to contribute to wider disturbance to a significant extent.

Cumulative water quality impacts relate to both localised impacts on the Knightsbrook stream and downstream impacts on the River Boyne and River Blackwater SAC and SPA. The potential for cumulative impacts on the River Boyne and River Blackwater SAC and SPA in this respect is dealt with in the Natura Impact Statement, which details that the stretch of the Knightsbrook stream that the site flows into (Knightsbrook\_020) is characterised as 'Good Status' under the Water Framework Directive Monitoring (2010-2015), which is better than the downstream waterbodies, or downstream waterbodies inflowing into the Knightsbrook stream, demonstrating that it is not contributing to a cumulative degradation of water quality.

In addition, the *Water Environment* Chapter of the REIAR, states that water samples have been collected from the quarry discharge point on a regular basis and submitted for laboratory analysis in order to demonstrate compliance with the limits specified in the discharge consent (Trade Effluent Discharge Licence Ref. 04/2) and that this has not been breached.

There are no other issues that are considered to be relevant with respect to potential in-combination impacts for this site.

### **11.13 Conclusions**

Based on the collation of the above information, it is considered that the development across the three phases assessed will have a low adverse

ecological impact via permanent habitat removal, which will then be negated by the proposed landscaping as part of site remediation works.

None of the habitats on this site are particularly rare or of significant ecological importance on a national or European scale. The site holds habitats that are likely to be locally important for foraging and commuting species in the wider area such as birds and mammals (including bats).

Given the existing habitats, and the permitted post-operational remedial landscaping and planting works – it is considered that the development shall result in a short to medium term adverse ecological impact during operation, which shall be managed by implementing best practice mitigations measure at the site. Post-operation the site will be managed for wildlife and agriculture.

Overall, the three phases of the development are considered to have a neutral impact on the ecology and biodiversity of the site and have not, are not and will not pose significant adverse impacts upon the ecology of the wider area.



## **12.0 TRAFFIC**

### **12.1 Background**

A full traffic impact assessment has been carried out by Roughan & O'Donovan Consulting Engineers (RDCE) as recently as November 2009 for application TA900976 and the associated Board decision PL17.235960. The consecutive assessments covering a number of applications as cited in Chapter 2 have analysed the prevailing traffic movements in the context of the existing road infrastructure, with junction analysis, vehicle number counts and haul route analysis.

However, in this particular instance it is considered appropriate to consider the impact upon vehicle movements that occurred or are occurring from the introduction of the unauthorised structures to the north of the site and the resulting change in the makeup of product types sold and the cumulative effects of this shift and the continuation of extraction beyond the appropriate date of the extraction consents, albeit within the confines extraction levels previously assessed. The findings of traffic count data confirms that heavy goods vehicles make up approximately 10% of all vehicle movements on the surrounding network and that the existing access at Trammon Quarry has been operating at levels that “well within capacity with no queuing or delay under the anticipated traffic flows”.

### **12.2 Historical Vehicle Movements – Baseline Period**

The figures analysed by RDCE related to the immediately preceding sales years, which are widely acknowledged to have seen the highest operating levels for Irish quarries, with Trammon being no different.

Accordingly, sales figures have been provided by Keegan Quarries Limited in consecutive Environmental Impact Statements from the year 2000 up until the

most recent application in December 2016 and repeatedly the activity levels with an upper limit of 250,000tpa of aggregates have been assessed as a worst-case scenario. It follows that any vehicle movement activity at levels less than those associated with 250,000tpa are causing less of an impact and no form of intensification / additional impact can be forthcoming.

Accordingly, the historic output levels from the baseline date of 2013 until present are presented and analysed in Table 12.1 and 12.2 respectively.

Sales by Product	Unit by Product	2013	2014	2015	2016	2017	2018	2019 YTD
RMC	m3	3282	4330	7421	8903	10554	17656	10514
Blocks	tonnes	4052	15787	20041	22748	25660	26290	15700
Aggregates	tonnes	23291	30351	40601	60054	80207	85151	40567
Agg's Pre-Cast	tonnes	14708	20195	34865	31184	24584	31635	14178
Lime	tonnes	3509	4158	3828	5293	6152	4739	2890
<i>RMC</i>	<i>tonnes (m3x2)</i>	<i>6564</i>	<i>8660</i>	<i>14842</i>	<i>17806</i>	<i>21108</i>	<i>35312</i>	<i>21028</i>
	<b>Total annual Aggregate tonnages</b>	<b>52124</b>	<b>79151</b>	<b>114177</b>	<b>137085</b>	<b>157711</b>	<b>183127</b>	<b>94363</b>

**Table 12.1 Sales analysis of product by type and equivalent aggregate consumption.**

2018	Av.Load Capacity	Annual Loads	Daily Loads
17656	7	2522	10
26290	19	1384	5
85151	25	3406	13
31635	27	1171	4
4739	27	177	1
			<b>33</b>

**Table 12.2 – Analysis of worst-case scenario year (maximum output) over the baseline timeframe to provide daily vehicle movement figures.**

### **12.3 Impacts that have occurred**

Table 12.1 illustrates that extraction output has steadily risen from a historic low in 2013 over the subsequent five-year period to levels of about 70-75% of levels previously assessed and approved under TA/30334 An Bord Pleanála Reference Number: PL 17.206702. The impacts were assessed against daily vehicle movements of 110 (20 tonne payload) vehicle movements per day. What is apparent from the figures above is that there has been a shift in sales makeup with a move to lower volumes but higher value products, which ties in with the development in the Northern precast manufacturing area. This has also coincided with the requirement for greater delivery efficiency with a greater proportion of loads being delivered by articulated vehicle, with a 30-tonne payload.

This has resulted in the number of vehicles being utilised for delivery having dropped to a figure in the region of 30% of the number originally assessed in 2004 whilst the extraction volumes are operating at levels of 70-75%. Whilst it is acknowledged that there are associated deliveries with the manufacturing element this forms a very small percentage of the vehicle movements and therefore the impacts associated with the transfer of aggregate production in to value added products, rather than direct dry aggregate sales, along with a change in the hgv fleet can be said to be have a positive impact.

### **12.4 Impacts that are occurring**

Considering the sales analysis provided in Table 12.1 the 2019 figures Year to Date show a marginal increase on the half yearly figures for the preceding year. Therefore, it can be concluded that the impacts occurring continue the trend of the previous year are delivering positive traffic impacts when compared with the movements originally assessed for the extraction operations.

## **12.5 Impacts that can reasonably be expected to occur**

When reviewing the two alternatives that reasonably can be expected the first would see the site restored in accordance with existing planning consents with respect to the extraction area and one presumes remediated in the northern sector in line with requirements to be imposed by the authorities.

Following restoration, it is considered that impacts relating to traffic movements would reduce to levels that would be considered negligible in the context of the existing daily vehicle movements.

The alternative outcome that would result from a successful s.37L application would see a continuation of the levels currently experienced with no form of vehicular movement intensification being associated with the site.

## **12.6 Conclusions**

Development of the range of products being sold from the quarry, linked directly to the new structures on the manufacturing element of the site has resulted, in combination with the vehicle payload increasing, in the number of delivery vehicles dropping to a figure in the region of 30% of the number originally assessed in 2004, whilst the raw aggregate extraction volumes are operating at levels of 70-75%.

Whilst it is acknowledged that there are associated deliveries with the manufacturing element this forms a very small percentage of the vehicle movements and therefore the impacts associated with the transfer of aggregate production into value added products, rather than direct dry aggregate sales, along with a change in the hgv fleet can be said to have a positive impact.

## **13.0 NATURAL RESOURCES**

### **13.1 Aggregate Material**

A requirement exists in the form of the E.C. Directive, and also prescribed in the Regulations that due regard be addressed to the likely significant direct and indirect consequences that a development proposal would have on the environment which might result from the use of natural resources.

Aggregate, limestone powders and the variety precast and ready mixed concrete products are all derived from naturally occurring, finite resources as discussed in Chapter 6.

The of the type of limestone operated in Trammon quarry is a high purity calcium carbonate limestone permitted the broadest range of end uses as illustrated by the wide range of manufacturing facilities at the site.

It is considered that the proposed project will not to give rise to a significant reduction in the volume of resource in Meath or even specifically as previously outlined with Waulsortian Formation.

The excavated material will be processed on site and used in various other building material processes. Global environmental issues like fossil fuel use and alternative energy sources are matters subject to national/international treaties and agreements.

They are considered outside the scope of this statement, as the cumulative contributions of this particular development to such matters are insignificant in a national context.

The Applicant intends conserving the natural resources by maximising the resource potential by way of ensuring that the end use is maximised, thus

achieving the most prudent and efficient use of this high-quality non-renewable resources.

### **13.2 Soil**

All soils had been removed within the northern manufacturing area and the extraction at the relevant dates in 2013 and 2018 for the two types of development and in combination activity, resulting in there being no opportunity for impact on soil resource. Therefore, the impact upon the soils is considered to be complete and as the land has been permanently removed from agriculture, it is a permanent loss.

### **13.3 Impacts that have occurred.**

No impacts on material assets have occurred during the time frame of 2013 through to 5<sup>th</sup> August 2018.

### **13.4 Impacts that are occurring**

Limestone continues to be extracted at the rates as outlined in Table 12.1 and is a permanent removal. However, as outlined in Chapter 6 this is considered to be an inconsequential volume when consider in the context of the complete formation.

### **13.5 Impacts that can be reasonably expected to occur**

With the potential implementation of the approved restoration schemes for the site, there will be the associated placement of soil making materials around the margins and the subsequent flooding of the quarry to a level of some 65m AOD. There will be no further removal of soils or limestone resource.

The alternative approach that will be the subject of a future s.37L application would see the continued exploitation of the limestone resource, as outlined in Chapter 5. This would also see the removal of the large overburden mound / soil making material that is currently immediately to the south of the manufacturing zone and the use of the same in lake margin treatment. The impact on limestone resource would be negligible in the context of the formation and the impact on soils is consider neutral given that limited volumes of soil would be repositioned to affect ultimate beneficial restoration.

### **13.6 Conclusion**

The impact on the geological resource that has occurred since August 2018 is permanent but minimal in the extent to which the volume affects the Waulsortian Formation.

There is no further soil stripping for the development proposed the impact upon the soils is considered to be complete and as the land has been permanently removed from agriculture, it is a permanent loss.

There is no further impact on Soil resources proposed as part of this development and the main body of the site is proposed to revert to a water body with treatment utilising some soils and overburdens at the margins

## **14.0 SOCIO-ECONOMIC IMPACTS**

### **14.1 Introduction**

This section considers the impact of the proposed development in the context of population/settlement, employment and other socio-economic effects.

#### **14.1.1 Social Importance of the development**

The existing operations (stone, powders and fill; Precast and concrete block manufacture) at Tromman provide direct employment for some 130 staff and a further 30 full-time sub-contractors with a direct wage bill and associated contractors wage bill approaching €8.1M. Keegan Quarries, making a significant contribution to the rural Meath economy and providing a highly skilled workforce. A significant amount of the Company's total revenue stream is now derived from export sales to the UK, bringing external revenue into the 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.

The Keegan Group of companies make a significant contribution to the economic prosperity of County Meath. The population of Meath showed an increase of 5.9% 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. Figure 14.1, shows the employee numbers for the years covering the timeframe being considered, indicating steady growth.



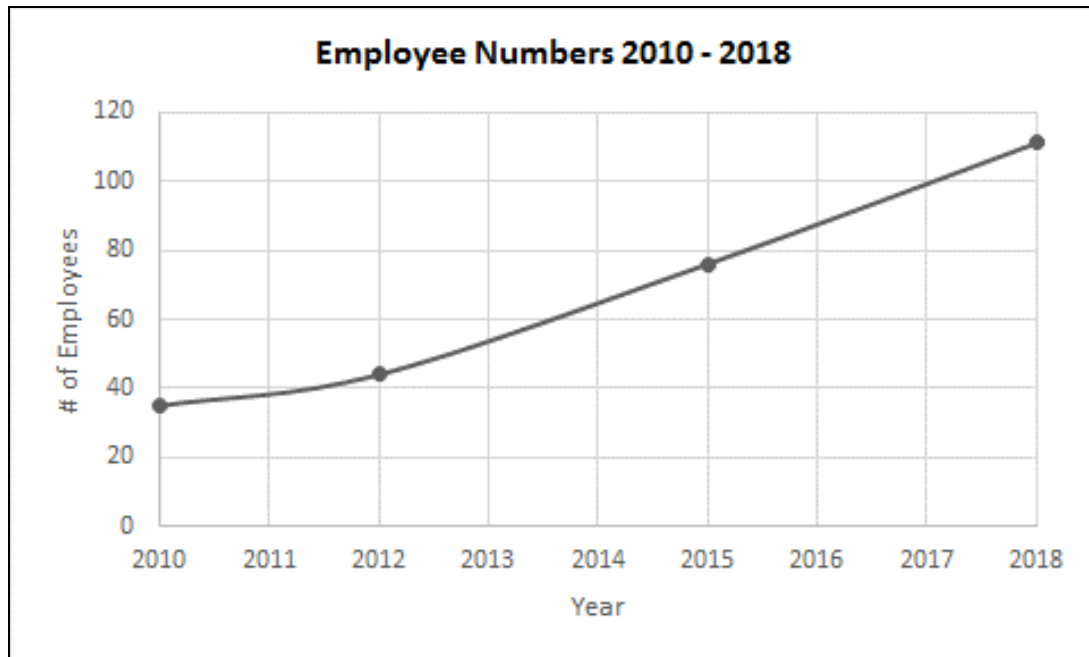


Figure 14.1 – Keegan Group - Employment Figures

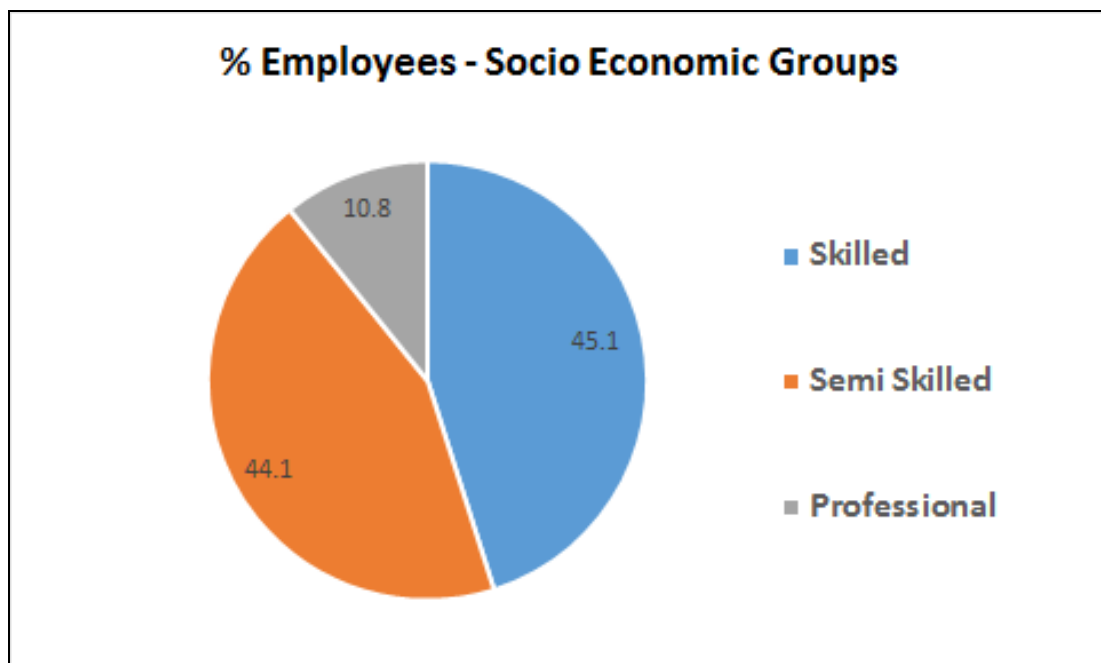


Figure 14.2 – Employment by percentage of Socio-Economic Groups

Whereas Figure 14.2 illustrates the ranges of socio-economic groups and skill sectors that are employed by The Keegan Group at the Tromman facility, highlighting the breadth of skills covered, extending beyond those normally expected in a traditional extraction site.

### 14.1.2 Local Employment

The 2016 census showed the average travel time of commuting workers in Ireland is 28.2 minutes. Meath however, due to the high numbers of people commuting to Dublin, had the highest commuting time of 34.6 minutes. Creating employment and generating economic activity in areas outside of Dublin, provides significant social and environmental benefits, as people do not need to spend hours commuting to Dublin for well remunerated employment. Upon analysis of the Keegan Group workforce the majority of employees work and live within a 10 km radius of travel, as shown in Figure 14.3.

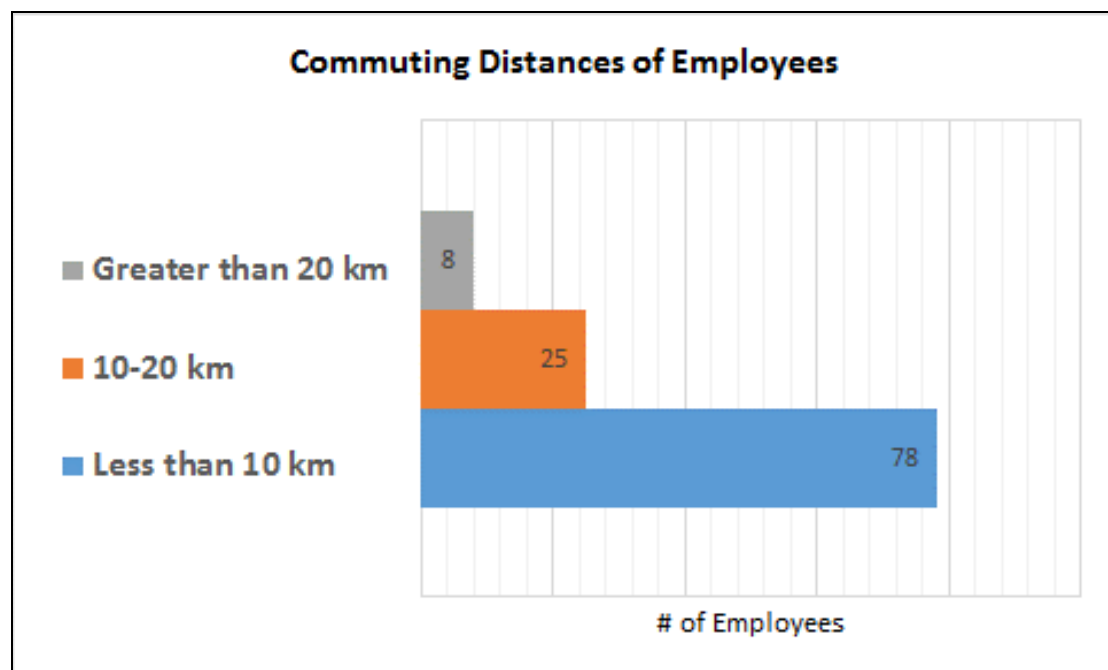


Figure 14.3 Employee average commuting distance to Tromman Quarry

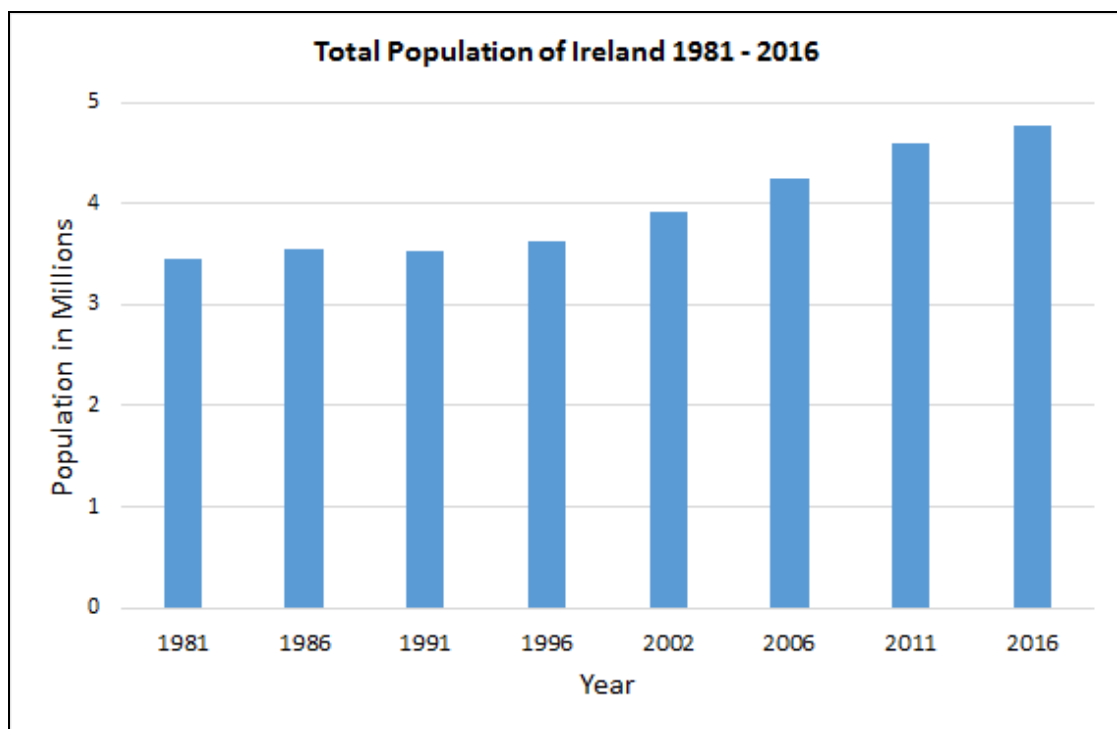
### 14.1.3 Contribution to National housing stock.

It is widely reported that the provision of affordable housing is reaching the stage of crisis. The manufacturing facilities at Tromman Quarry are providing

fast track off site solutions along with a full range of complimentary materials for the construction of housing.

With the creation of the Land Development Agency the Government has challenged the Agency to build 150,000 new homes over the next 20 years in accordance with Project Ireland 2040. This will put a huge strain on planned mineral deposits, although it is expected that a large number of these will be constructed using the innovative modular twin wall system adopted at the Tromman site, demand for more traditional building materials manufacture on site is also anticipated to remain high.

CSO Census 2016 results show that the population of Ireland increased by 3.8% over 5 years (2011 – 2016) and displayed a continuous growth since 1991 illustrated in Figure 14.4. A recent report by the Housing Agency

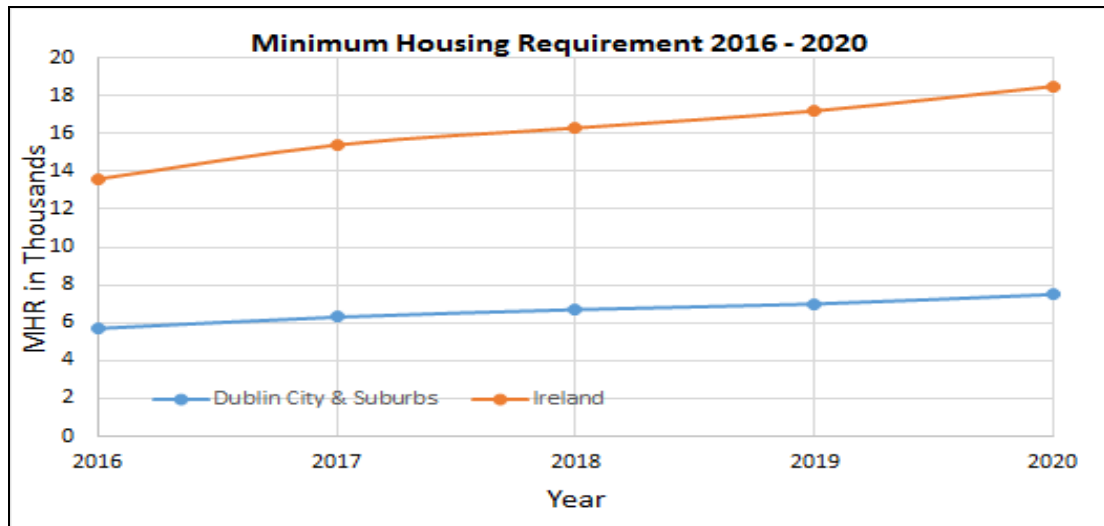


**Figure 14.4 – Population Growth in Ireland**

(Housing Supply Requirements, Feb 2017) on the projected demand for housing in urban settlements resulted in an estimate of a minimum housing

requirement (MHR) of 81,118 homes between the years 2016 - 2020. Dublin City and Suburbs alone account for 74% of this requirement.

Figure 14.5 represents the number of residential units that are projected to be required at a minimum to cater to the growing needs of the area per annum, at a National level and Dublin City & Suburbs.



**Figure 14.5 – Minimum Housing Requirement**

The Mineral Products Association (MPA; trade association for aggregates in the UK) estimates that 50 tonnes of aggregate are required for the construction of a typical house. With the widely recognised unprecedented demand for housing, naturally the demand for aggregate to construct the housing units reflects this demand. Based on the Housing Agency's MHR figures, 1.79 million tonnes of aggregate will be required for the years 2019 & 2020.

It is of vital Socio-Economic importance that a steady and adequate supply of aggregate in Ireland is maintained, attempting to satisfy society's long-term housing requirements.

#### **14.1.4 Socio Economics and the importance of Export Markets**

The quarry in Trammon is a high-quality mineral resource and it must be utilised to its full value, with properties that make it ideal for high quality finished and export markets (With 50% of the Pre-Cast exported to the UK).

Without the continued operation of the quarry the Company's export business, which is focussed on the Tromman products would collapse. "Success in export markets is crucial to the long-term growth of Irish businesses and the Irish economy. Support for companies focused on growth through international sales is a priority for Enterprise Ireland." Enterprise Ireland have been fully supportive of Keegan Precast operations and have been involved in developing new products and markets over the recent years.

#### **14.2 Impacts that have occurred.**

With the progressive development of structures during the period 2013 -2017 and the associated product expansion outlined, the market businesses market diversification has mirrored this expansion. Turnover has increased by 53% over the timeframe considered, reflecting the transition to the manufacture of higher value products and employment levels have also grown during this period from 90 direct employees to the current level of 130 direct employees, with the associated wage bill rising to a level of some €8.1M. This is a tangible positive impact in this rural location in Meath which assists in diminishing the daily commute towards Dublin. The introduction of the additional capacity and precast twin wall factory facility has further opened up export markets to the company. As an example, the completion of the new Swansea University Halls of residence Phase 1 and 2 contracts being constructed during this period, bringing important external revenue into the region.



**Figure 14.6 – Phase 1 Swansea Halls of Residence Projects**

### **14.3 Impacts that are occurring**

The continuation of quarrying post the 5<sup>th</sup> of August 2018 has maintained the supply of the primary resource to the added value manufacturing element of the Site which has maintained the competitive capabilities of the business with continued sales growth anticipated in these value added products and an associated reduction in dry sales, thus maximising the end use of the high purity resource. Direct employment figures have risen during the last 12 months by an additional 20 full time employees. Leading to a rise in direct wages of approximately €600,000 per annum.

The continuation of the business has ensured, in addition to wages, the continuation of expenditure into the local economy and the payment of business rates and taxes. Therefore, the socio-economic impacts are positive.

#### **14.4 Impacts that reasonably can be expected to occur**

When considering the two alternatives that have been assessed throughout the REIAR the outcomes could not be more contrasting.

The high purity limestone resource at Tromman Quarry underpins the added value manufacturing elements of the Keegan Groups business which increases turnover from the established levels of a traditional aggregate, ready mixed concrete and block producer. In the situation where the site is closed, restored and the northern element remediated, the limestone resource is lost along with the current business model. This would have serious ramifications upon the business with wholesale contraction of the business and the associated employment levels. The socio-economic impacts of such action are considered to be significant.

The alternative, that is to be considered fully under the subsequent s.37L application would see a continuation of the supply of the resource and therefore a continuation of the business model as currently experienced. It is understood that further efforts are being made to grow the value-added element of the business and further associated employment is anticipated.

It is considered that the significance of the continued prosperity in the Meath Council area should not be understated and the potential, for continued socio-economic contributions from the delivery of continuation of supply, acknowledged.

#### **14.5 Conclusions**

The quantifiable socio-economic contribution of the Tromman operation is known and the importance at a local, regional and on a national level through export business is established.

The two alternatives that have been assessed throughout the REIAR provide the most contrasting outcomes in socio economic terms.

The high purity limestone resource at Tromman Quarry underpins the added value manufacturing elements of the Keegan Groups business, the loss of this resource would have serious ramifications upon the business with wholesale contraction of the business and the associated employment levels. The socio-economic impacts of such action are considered to be significant.

The alternative is the continuation of the business model as currently experienced, with the anticipated growth of the value-added element of the business and the associated prosperity.

It is considered that the significance of the continued prosperity in the Meath Council area should not be understated and the potential, for continued socio-economic contributions from the delivery of continuation of supply, acknowledged.



## **15.0 CULTURAL HERITAGE**

An archaeological evaluation of the application site was most recently prepared by Arch- Tech Limited for the 2009 EIS to accompany application TA900976 and the associated Board decision PL17.235960.

Archaeology, like geology in this instance does not alter in the timeframe, as provided for within this REIAR and accordingly there it is considered unnecessary to revisit and update the previously accepted report. As outlined under the Material Assets Chapter

All soils had been removed within the northern manufacturing area and the extraction at the relevant dates in 2013 and 2018 for the two types of development and in combination activity, resulting in there being no opportunity for impact on Cultural Heritage Assets during the timeframe to be considered.

### **15.1 Impacts that have occurred.**

No impacts on Cultural Heritage have occurred during the time frame of 2013 through to 5<sup>th</sup> August 2018.

### **15.2 Impacts that are occurring**

As outlined throughout the report the northern area remains under hardstanding and the extraction activities are taking place within the lower sinking of the void. Accordingly, there are currently no potential impacts upon Cultural Heritage.

### **15.3 Impacts that can be reasonably expected to occur**

With the potential implementation of the approved restoration schemes for the site, there will be the associated placement of soil making materials around the margins and the subsequent flooding of the quarry to a level of some 65m AOD. There will be no further removal of soils or limestone resource and therefore no impacts on Cultural Heritage Assets.

The alternative approach that will be the subject of a future s.37L application would see the continued exploitation of the limestone resource, as outlined in Chapter 5. There is no further virgin topsoil stripping proposed by the proposed rationalisation of the existing quarry void and there will be no potential impacts in relation to cultural heritage.

### **15.4 Conclusion**

It is concluded that there was no potential for there to have been any impacts upon cultural heritage during the timeframe to be considered, as there was no removal of insitu virgin material during this period.

## **16.0 INTER-RELATIONSHIP OF THE FOREGOING**

### **16.1 Clarification of Information Requirements**

The purpose of this Section is to review the inter-relationships, where they exist, of the elements that were deemed to have the potential to have a likely and significant effect and have been the subject of Sections 5 – 15 of this Statement and the Appendices.

It is considered that all of the significant areas have been reviewed in detail and any likely impacts have been recorded and mitigation measures proposed where applicable.

All interactions have been discussed in the relevant Sections and where appropriate in greater detail within the individual Specialist Reports held as Appendices. It is considered that to regurgitate these relationships in this Section would be unnecessarily wordy and be contrary to the EPA Guidelines that suggests EIAR's should be focussed.

However, for ease of reference and to indicate the natural overlap between Sections and the topics that have been considered in each Section, Table 16.1 below illustrates the areas of commonality within each Section with respect to the ten topic areas, as provided for by the Regulations.

<b>Table 16.1</b>											
<b>SECT.</b>	<b>SECTION HEADINGS IN REIAR</b>	<b>Human Health</b>	<b>Biodiversity</b>	<b>Population</b>	<b>Soil</b>	<b>Water</b>	<b>Air</b>	<b>Climate</b>	<b>The Landscape</b>	<b>Material Assets</b>	<b>Cultural Heritage</b>
5.0	Geological Assessment				√	√				√	
6.0	Water Environment	√	√	√	√	√		√		√	
7.0	Air Quality & Climate	√	√	√	√	√	√	√		√	
8.0	Noise & Vibration	√	√	√							√
9.0	Landscape	√	√	√					√	√	√
10.0	Waste Management	√	√	√	√	√		√	√	√	
11.0	Ecology		√		√	√	√		√		
12.0	Traffic	√		√	√	√	√	√			
13.0	Natural Resources	√	√	√	√	√	√			√	
14.0	Socio-Economic Impacts	√		√					√		√
15.0	Cultural Heritage	√							√	√	√