

# Environmental Impact Assessment Report for further quarrying operations at Tromman Quarry

## Ecological Impact Assessment

Keegan Quarries Ltd, Tromman, Rathmolyon, Co. Meath

August 2019



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## DOCUMENT CONTROL

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As members of CIEEM, Mike and Will are required to abide by a strict code of professional conduct in all aspects of this work.

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# 1 INTRODUCTION

## 1.1 Background

Woodrow Sustainable Solutions Ltd (Woodrow) was appointed to undertake this Ecological Impact Assessment (EclA) on behalf of Quarryplan and their client Keegan Quarries Ltd. This report provides a detailed ecological assessment to inform the production of the Environmental Impact Assessment Report (EIAR), which will accompany a planning application (the Application) seeking to secure planning consent for the further mineral extraction at Tromman Quarry, Tromman, Rathmolyon, Co. Meath.

## 1.2 Site location

The neighbouring enterprises of Keegan Quarries Ltd including Tromman Quarry and the pre-cast concrete manufacturing facility (totalling 22.5 ha) are located in the townland of Tromman, Rathmolyon in Co. Meath. The linear site extends on the northern side of the R156 Rathmolyon-Ballivor road. The site is situated approximately 2.2 km northwest of Rathmolyon Village, 6.4 km south of Trim and 9 km north of Enfield.

## 1.3 Current development

The evolution of activities that have occurred with the Tromman Quarry site have a well-documented planning history. The original consent for quarrying activity dates back to 1998 and was followed by ancillary consents in 2001 and 2003 that provided consent for the mobile blockmaking plant and pre-cast concrete manufacturing facility in the northern part of the site. In 2004 approval was provided for the bulk of what is currently the operational quarry (c. 13.94 ha). Permission was granted to enlarge the extraction area of the quarry further (c. 2.85 ha) and since 2012 quarrying activities have expanded into the south-eastern corner of the site. This resource has not yet been fully exhausted.

## 1.4 Description of the proposed development

The further quarrying activities at Tromman Quarry, as shown in the quarry development schematics below, initially involves the quarry face progressing laterally to the excavation boundary in the south and south-eastern margin of the site and then developing to a depth of roughly 13mAOD. The spoil heap between the existing quarry and the pre-cast concrete manufacturing facility can then be moved and placed in the quarry void in the southern margin. Re-locating the overburden facilitates a lateral extension of quarry activity to the excavation boundary in the north and will also involve advancing the western face c. 20-25 m, which will enlarge the extraction area by c. 2.55 ha and down to a final depth of 13mAOD. It is estimated that a total of c. 9,817,000 tonnes of target mineral should be released in this development.

The concrete batching plant, block-yard and pre-cast concrete manufacturing facility in the northern end of the site are beyond the proposed extraction area and will remain in situ. The approved drainage infrastructure (three-stage settlement tank system and licensed discharge point) is located along the north-eastern boundary of the site adjacent of the pre-cast concrete manufacturing facility.

The following summarises the phases of the proposed quarrying activities and the schematics below provide visual representation of the proposed expansion at Tromman Quarry.

**Phase 1** – Extraction will be focused primarily in the southern margin of the site. The preparatory works for the eastern and southern quarry face expansion has largely been completed under a previous consent, including the removal of a bungalow and stripping of vegetation and some overburden. A garage associated with the bungalow remains will also be demolished and removed.

**Phase 2** – Quarrying activity continues to be concentrated in the southern margin of the site, increasing the depth of the quarry to 13mAOD.

**Phase 3** – The northern spoil heap, estimated at c. 338,000 m<sup>3</sup> of material, will be removed and placed into the void in the southern margin of the quarry. It is proposed that the majority of the 13mAOD bench will be filled up to the 28mAOD level. This will form the initial stages in the site restoration process. As the spoil heap is removed, the extraction will be progressed in a northerly direction, with some westerly expansion (20-25 m) of the quarry face.

**Phase 4** – Extraction continues to progress along the lower benches of the quarry in a northerly direction.

Figure 1: Phased development plans for Tromman Quarry



## 1.5 Purpose of ecological impact assessment

The EclA can be considered as having following aims:

- Establish the ecological baseline for the development or activity and determine the ecological value of the features identified;
- Provide an objective and transparent assessment of the ecological impacts of the development or activity in terms of national, regional and local policies relevant to nature conservation;
- Recommend mitigation measures to avoid, reduce and remedy any ecological impacts identified;
- Identify any residual impacts of the development or activity post-mitigation;
- Demonstrate that a development or activity will meet the legal requirements relating to habitats and species.

## 1.6 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:

### Legislation

- 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
- Bern and Bonn Convention
- The Wildlife Act (1976) as amended (2000)
- Flora (Protection) Order, 1999

### Policies and plans

- Meath County Development Plan 2013 - 2019 adopted 17th December 2012 – see Section 9.7 Natural Heritage
- DoCHG (2017) National Biodiversity Action Plan 2017 - 2021
- Meath Biodiversity plan 2015-2020, Meath County Council (2015)
- Eastern River Basin District, River Basin Management Plan 2009 - 2015
- River Basin Management Plan for Ireland 2018 - 2021

### Guidance

- EPA (2017). Revised Guidelines on the information to be contained in Environmental Impact Statements. Draft report August 2017. 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)

## 2 IMPACT ASSESSMENT METHODOLOGY

The impact assessment methodology applied follows the Chartered Institute of Ecology and Environmental Management 'CIEEM' guidance (CIEEM 2018). The following list provides a useful summary of the process for undertaking an EclA, as detailed in the CIEEM guidance document.

Task	Description
➤ Scoping	<ul style="list-style-type: none"> <li>Determining the matters to be addressed in the EclA, including consultation to ensure the most effective input to defining the scope.</li> </ul>
➤ Establishing the baseline	<ul style="list-style-type: none"> <li>Collecting information and describing the ecological conditions in the absence of the proposed project, to inform the assessment of impacts.</li> </ul>
➤ Important ecological features	<ul style="list-style-type: none"> <li>Identifying important ecological features (habitats and species) that may be affected, with reference to a geographical context in which they are considered important.</li> </ul>
➤ Impact assessment	<ul style="list-style-type: none"> <li>An assessment of whether important ecological features may be subject to potential impacts and characterisation of these impacts and their effects.</li> <li>Assessment of potential residual ecological impacts of the project remaining after mitigation and the significance of their effects, including cumulative effects.</li> </ul>
➤ Avoidance, mitigation, compensation & enhancement	<ul style="list-style-type: none"> <li>Incorporating measures to avoid, reduce and/or compensate potential ecological impacts, and the provision of ecological enhancements.</li> </ul>
➤ Monitoring	<ul style="list-style-type: none"> <li>Monitoring impacts of the development and evaluation of the success of proposed mitigation, compensation and enhancement measures.</li> </ul>

### 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 proposed development, and as such occur within its 'zone of influence'. The zone of influence depends on the likely impacts of the proposed development or activity and the presence of ecological connections that provide a pathway for such impacts to an ecological feature of interest which is sensitive to such impacts. Any such ecological connections are described below.

### 2.2 Evaluating ecological features within the zone of influence

Those ecological features which occur 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: Geographic frame of reference used to determine value of ecological resources (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> </ul>



Importance	Criteria
	<ul style="list-style-type: none"> <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> <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> </ul> </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>
<b>Local Importance (Higher Value)</b>	<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>
<b>Local Importance (Lower Value)</b>	<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 are of some importance in maintaining habitat links.</li> </ul>

The status of a species as requiring protection at an international level (such as otter) does not necessarily impose an international conservation value on any single example of that species found at the site. Approaches to attributing nature conservation value to species have been previously developed for some species groups such as birds and bats. The approach to attributing nature conservation value to bat populations and foraging habitats is adapted from Wray *et al.* 2010. Bird species conservation status is attributed by the Birds of Conservation Concern (BoCCI) list (Colhoun and Cummins, 2013).

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.

## 2.3 Identification and Characterisation of Impacts

When describing ecological impacts reference is made to the following characteristics;

- positive or negative;
- extent;
- magnitude;
- duration;
- timing;
- frequency; and,
- reversibility.

However, the assessment only needs to describe those characteristics relevant to understanding the ecological effect and determining the significance; and as such does not need to incorporate all stated characteristics (CIEEM 2018).

## 2.4 Significant effects on important ecological features

For the purpose of EclA, '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"). Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy). As such effects can be considered significant in a wide range of geographic scales from international to local. Consequently, 'significant' effects are qualified with reference to the appropriate geographic scale (CIEEM 2018).

## 2.5 Assessment of residual impacts and effects

After characterising the potential impacts of the development and assessing the potential effects of these impacts on the 'Important Ecological Features', mitigation measures are proposed to avoid and / or mitigate the identified ecological effects. Once measures to avoid and mitigate ecological effects have been finalised, assessment of the residual impacts and effects is undertaken to determine the significance of their effects on the 'Important Ecological Features'.

## 2.6 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 2018). Different types of actions can cause cumulative impacts and effects. As such, these types of impacts may be characterised as:

- Additive/incremental – in which multiple activities/projects (each with potentially insignificant effects) add together to contribute to a significant effect due to their proximity in time and space (CIEEM 2018).
- Associated/connected – a development activity 'enables' another development activity, e.g. phased development, as part of separate planning applications. Associated developments may include different aspects of the project which may be authorised under different consent processes. It is important to assess impacts of the 'project' as a whole and not ignore impacts that fall under a separate consent process (CIEEM 2018).

### 3 ECOLOGICAL SURVEY METHODOLOGY

Surveys of the terrestrial ecology at the site were undertaken following specific guidelines for the relevant target species outlined below. 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 2018). This guidance document outlines an accepted approach for the evaluation of impact from such developments.

#### 3.1 Desk based review of biological records

A desktop study was undertaken during August 2018 to gather information on the likely distribution of species in the general area prior to the field survey visits, so that a targeted approach to surveying could be undertaken. This desktop study was updated in June 2019 and has included reviewing the following sources of information:

- Environmental reporting for developments/ activities within the Tromman Quarry, specifically ecological and hydrological sections within the EIS (May 2009) updated in 2019 (BCL Hydrogeologists Ltd).
- Biological records for the area, undertaken utilising information available from the National Biodiversity Data Centre (NBDC). Tromman Quarry spans two 10 km squares [N74 & N75] and the biological records for both squares were reviewed, as well as 2x2 km tetrads covering and adjoining the site ([N74U, N75Q, N74Z & N75V]). The NBDC bat suitability index (Lundy *et al.* 2011), was also consulted.

Information from the NBDC was downloaded from Biodiversity Maps on 07-Feb-19  
<https://maps.biodiversityireland.ie/Map>

#### 3.2 Surveys undertaken

The quarry was visited twice during 2018 and once 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
- Visit 3: 18-19<sup>th</sup> June 2019 Surveyor: Mike Trewby

During the 2018/2019 site visits, the whole of Tromman Quarry was covered with the primary aim of mapping and describing the habitats within the site, as classified in Fossitt (2000) and following best practice methodology (Smith *et al.* 2011), as well as collecting information on occurrence and potential suitability for protected species. Ecological information collected included:

- Usage of the site by terrestrial mammals, in particular looking for signs of badgers and following mammal trails within the site to locate any badger setts or other mammalian burrows.
- Bat surveys, including bat roost suitability surveys, roost emergence and activity survey (by means of 7 deployed static detectors and undertaking a transect) undertaken on 18-19<sup>th</sup> June 2019.
- Breeding bird surveys undertaken on 18-19<sup>th</sup> June 2019.
- Amphibian suitability surveys to investigate the ability of waterbodies within the site to support common frog and smooth newt.
- Protected invertebrate habitat suitability, such as habitat suitability for marsh fritillary butterfly.
- Non-native, invasive species occurring within the site.

### **3.3 Limitations**

The 2019 survey, 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 were optimal and therefore sufficient to assess the ecological impacts.

## 4 DESIGNATED SITES

### POTENTIAL ECOLOGICAL & HYDROLOGICAL CONNECTIONS

#### 4.1 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 for this EclA; and the conclusions of the Natura Impact Statement (NIS) are referenced appropriately.

No part of the application site lies within a designated Special Area of Conservation (SAC) or Special Protection Area (SPA). A map showing the Natura 2000 (European Sites) within 15 km of Tromman Quarry is illustrated in Figure 2 below. As a result of hydrological connections two Natura 2000 sites were brought through to Stage 2 Appropriate Assessment (NIS Woodrow 2019b). The Natura 2000 sites and the Qualifying Interests assessed were:

- River Boyne and River Blackwater SAC - Qualifying Interests:
  - Alkaline fens
  - \*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno - Padion*, *Alnion incanae*, *Salicion albae*)
  - River lamprey (*Lampetra fluviatilis*)
  - Otter (*Lutra lutra*)
  - Salmon (*Salmo salar*)
- River Boyne and River Blackwater SPA - Qualifying Interests:
  - Kingfisher (*Alcedo atthis*) – breeding

The concluding statement of the NIS (Woodrow 2019b) is as follows:

*This Natura Impact Statement has identified the particular types of effect that have potential for adverse impact on the integrity of the River Boyne and Blackwater SAC and the River Boyne and Blackwater SPA. The statement identifies mitigation measures that will ensure avoidance of these effects; so that the structure and functions of the SAC and SPA are not affected, thus demonstrating that mitigation will be sufficient to avoid adverse impact due to the proposed development of the development assessed. These mitigation measures are set out in Section 6. The implementation of these control measures on site means that it can be concluded in the light of best scientific knowledge, that there 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, i.e. the integrity of these, or any other Natura 2000 sites.*

*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.*

*This Natura Impact Statement has identified the particular types of effect that have potential for adverse impact on the integrity of the River Boyne and Blackwater SAC and the River Boyne and*

*Blackwater SPA. The statement identifies mitigation measures that will ensure avoidance of these effects; so that the structure and functions of the SAC and SPA are not affected, thus demonstrating that mitigation will be sufficient to avoid adverse impact due to the proposed development assessed. These mitigation measures are set out in Section 6. The implementation of these control measures on site means that it can be concluded in the light of best scientific knowledge, that there 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, i.e. the integrity of these, or any other Natura 2000 sites. 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.*

There is a gradient dropping south away from the site and therefore, the potential for connectivity between the site and the River Boyne via a stream to the south of the site was investigated. The distance from Tromman Quarry to the SAC via this southern stream is shorter (c. 1.6 km), which flows into a tributary of the River Boyne and joins the main river at Boardsmill (after c. 5 km). No direct hydrological link has been identified (BCL Hydrogeologists Ltd 2019) and the volume of water running off the site to the south is low; as surface water is directed into the quarry void and discharged into the northern drain via the licenced discharge point. In addition, surface runoff to the south is limited by a series of berms, existing woodland and more recent planting of trees along the southern boundary.

Excess surface water from the quarry is pumped into a deep drain, after passing through a series of constructed settlement tanks, that flows north along the eastern boundary of the site and discharges into the watercourse along the northern boundary. There is another drain along the western boundary of the site, which historically flowed north also discharging into the northern stream. Prior to the establishment of the pre-cast concrete manufacturing facility, this western stream received water flowing east-west through the site via an open drain. There was no baseflow observed within the western stream, however pools in the channel suggest that there is flow during periods of prolonged or heavy rainfall.

## 4.2 Natural Heritage Areas

No part of the application site lies within an NHA or pNHA. A map showing the NHAs and pNHAs within 15 km of Tromman Quarry is illustrated in Figure 3 below. There was only 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.

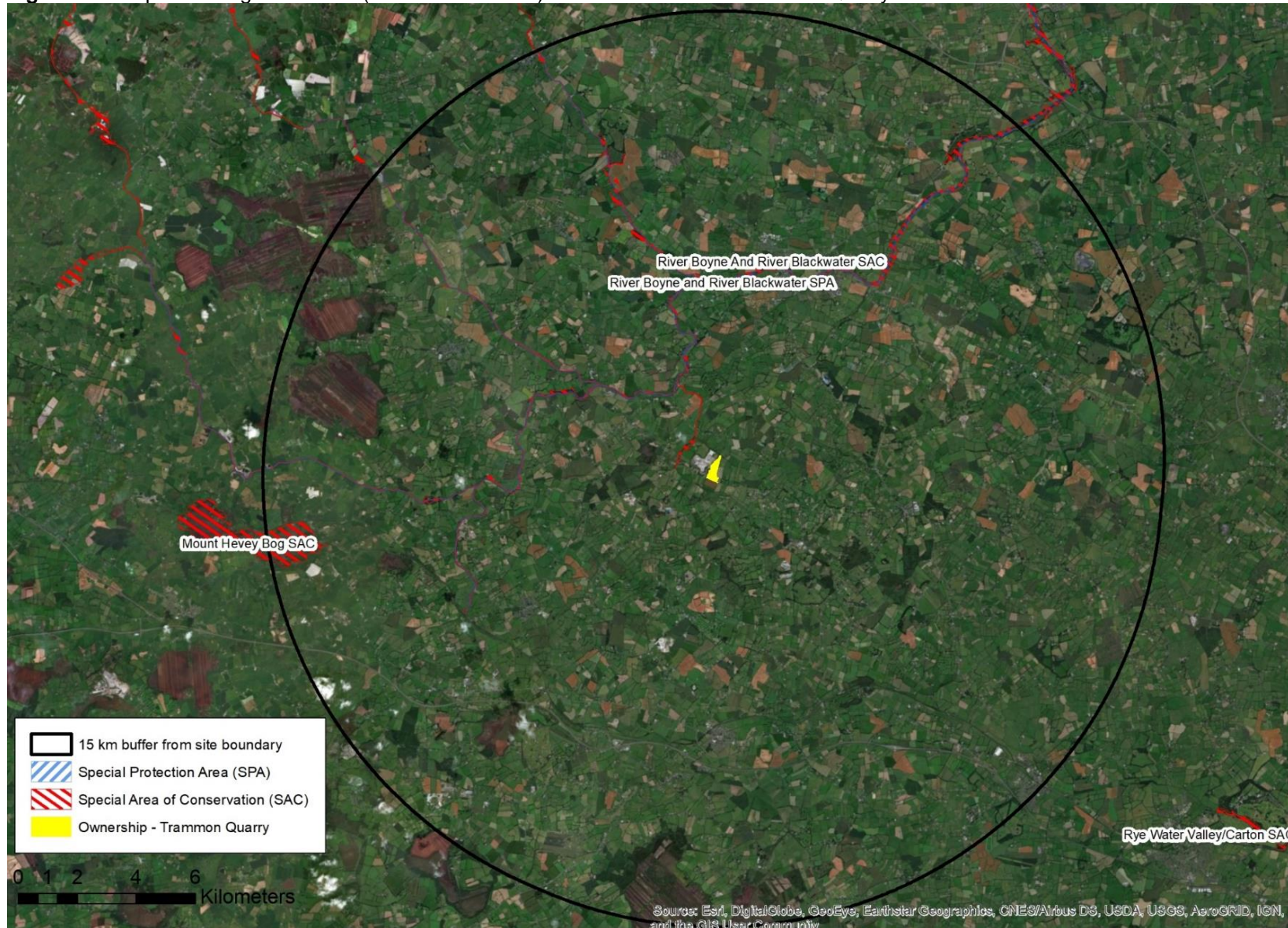
### **Natural Heritage Areas (NHAs) and distance from Tromman Quarry**

- Molerick Bog                      10.5 km

### **Proposed Natural Heritage Areas (pNHAs) and distance from Tromman Quarry**

- Ballina Bog                      9.8 km
- Ballynabarry Fen              9.7 km
- Mount Hevey Bog              13.3 km
- Rathmoylan Esker              2.0 km
- Royal Canal                      8.1 km
- Trim                                 8.1 km

**Figure 2:** European Designated Sites (Natura 2000 Sites) within 15 km of the Tromman Quarry site



**Figure 3: Natural Heritage Areas and proposed Natural Heritage Areas within 15 km of the Tromman Quarry site**





## 5 BASELINE CONDITIONS

### 5.1 Surrounding landscape character

The Tromman Quarry is within a rural setting and rolling hills dominate, with pastoral agriculture and patches of arable production being the most prominent feature of the landscape. There is another quarry directly adjacent to Tromman Quarry which is operated by Kilsaran International.

### 5.2 Ecological baseline

Site visits undertaken in October 2018 and June 2019 provide the information for the baseline ecological conditions. The results of these surveys are provided in the sections below.

#### 5.2.1 Terrestrial mammals

The map in Figure 4 shows the location of the main mammal features located within the site, excluding mammal trails. 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. A single disused burrow was located within the woodland outside the southern boundary of the site - the dimension, while relatively narrow would have facilitated access by badgers, but could have been excavated by rabbits, which were active in parts of the site.

While numerous trails were detected criss-crossing the overburden currently stored in the middle of the site, no setts were recorded during surveys and any burrowing activity recorded was associated with rabbit activity. A possible fox earth was recorded at the edge of a dense patch of bramble/willow scrub located on the steep slopes above the quarried face.

Investigating mammal usage within the manufacturing facility is problematic, as the concrete hardstand makes it difficult to track animals. By its nature, the hardstand associated buildings, plant and curing / stored product are unlikely to offer suitable habitat for most mammal species, other than rodents.

Other mammals listed as occurring in the wider area [10-km squares N74 & N75] include wood mouse, house mouse, brown rat, grey squirrel, rabbit, Irish hare, pygmy shrew, hedgehog, pine marten, otter, mink and red deer (NBDC). House mouse, brown rat, grey squirrel and mink are all listed as high impact invasive species by the NBDC, with rabbits listed as medium impact invasive species. The limited availability of woodland in the environs of the site is likely to restrict the occurrence of typical woodland species like pine marten to animals dispersing or commuting through the area. Red squirrel populations although reported as expanding across Ireland are recorded as absent from large parts of Co. Meath including the application site (Lawton *et al.* 2015). The quarry would also be considered largely unsuitable for sustaining hare, hedgehog and deer populations. Similarly, although otters may use the various tributaries of the River Boyne, the small size of the drain running along the northern boundary of Tromman makes it suboptimal and means that any usage will only be periodic at most.

**Figure 4:** Distribution of terrestrial mammal activity within Tromman Quarry



## 5.2.2 Bats

Bat suitability indices are displayed online at NBDC maps within 5x5 km squares. The squares surrounding the quarry have been scored as holding habitats of moderate suitability for bats. Scores were at the upper end of the moderately suitability category for three squares, with the score for one of the squares neighbouring the site being just over the threshold for classification as moderately-high suitability. For individual species, habitat suitability was ranked as:

- Moderately-high for four species: common and soprano pipistrelles, Leisler's and Daubenton's,
- Moderate for two species: brown long-eared and Natterer's,
- Moderately-low for two species: Nathusius' pipistrelle and whiskered bat,
- Nil for lesser horseshoe bat, as this region does not support the species.

In terms of habitat features within the site, broadleaved woodland, hedgerows, treelines and watercourses, which are all located around the periphery of the site only, are likely to offer the best foraging opportunities for bats. While limited to the outer edge of the site there is good potential for connectivity between these habitat features within the application site and wider area.

Bat surveys were undertaken on the night of 18<sup>th</sup>-19<sup>th</sup> June 2019 by means of 7 deployed static bat detectors around the site. In addition, a roost emergence survey was conducted at the garage scheduled for demolition in the south-east of the site and this was followed by a bat activity transect around the outer parts of the site. 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 (quarried) or built-up parts of the site.

Locations of bat detectors are shown in Figure 5 and the number of passes by species at each location is shown in Table 1.

NBDC records show the occurrence of Leisler's (9), common (65), soprano (1) and Nathusius' (1) pipistrelles in 2014 [N75Q]. These four species along with Daubenton's and brown long-eared have been recorded in the wider area within the two 10-km square covering the site [N74 & N75]. Environmental documentation for the adjoining notes whiskered bat (*Myotis mystacinus*) as being resident.

Since 2012 the extension of the active face in the south-eastern corner of the quarry has resulted in the loss of some habitat features potentially utilised by bats and may have affected connectivity through the site. A section of beech hedgerow (c. 55 m), a treeline/hedge (c. 90 m) and an earth bank/ hedge (c. 145 m) along the old top of the quarry face have been removed. The negative impacts of habitat removal have been compensated for by the planting of a broadleaved screening belt along southern boundary of the site.

Potential roosts at the site were limited to ruined and disused buildings (including an abandoned gate lodge within woodland, outside the southern boundary of the site – see Plate 1, and a disused modern garage Plate 2 - see Figure 5 for locations), and some ivy clad trees with occasional older specimens offering deadwood and knots. Preliminary assessment of potential roosts found the tree sites to have low to negligible suitability due to the limited level of shelter provided and are only likely to be used opportunistically by small numbers of bats. The suitability of the abandoned gate lodge for roosting bats was assessed as low to moderate due to the roof having collapsed, and cover was limited to chimneys, occasional fissures between stonework and some overhangs created between buckled plaster and walls. The abandoned farm buildings (Trommant) located out of the site and on the lands of the neighbouring quarry were identified as having moderate to high potential suitability as a roost site. Contemporary buildings within the site are steel and aluminium sheds, generally considered to have limited suitability as bat roosts. To facilitate quarry expansion a dwelling has been demolished in the south-eastern corner of the site. All that remains is a small, relatively modern red-brick garage. An

emergence survey was undertaken at this building on 18<sup>th</sup> June 2019. No bats were recorded emerging from the building.

**Table 1.** Bat species recorded at Tromman Quarry on 18<sup>th</sup>-19<sup>th</sup> June 2019

<b>SM2 unit ID number - Habitat feature</b>	<b>Number of bat passes</b>	<b>Species recorded</b>
WSS-03 - Treeline/ hedgerow	125	Brown long-eared bat Common pipistrelle Soprano pipistrelle Leisler's bat
WSS-07 - At garage - Beech hedgerow	37	Common pipistrelle Soprano pipistrelle Leisler's bat
WSS-08 - At ruin - In woodland (outside site)	489	Common pipistrelle Soprano pipistrelle Leisler's bat <i>Myotis</i> sp.
WSS-10 - At settlement tanks - Treeline/ hedgerow	1	Common pipistrelle Note: noise from water entering tanks may have affected recording
WSS-12 - Ditch & treeline - Discharge channel	215	Brown long-eared bat Common pipistrelle Soprano pipistrelle Leisler's bat
WSS-13 - Beech trees - Treeline/ hedgerow	44	Common pipistrelle Leisler's bat
WSS-14 - Closest point to potential roost buildings at Trammont - Treeline/ hedgerow	106	Common pipistrelle Soprano pipistrelle Leisler's bat

**Figure 5.** Tromman Quarry: locations of static bat detectors (18-19<sup>th</sup> June 2019), potential bat roost and foraging habitats



**Plate 1:** Abandoned gate lodge showing examples of potential roost spaces



**Plate 2:** Disused garage showing internal structure of building

### 5.2.3 Birds

The bird species recorded during site visits (and desk-based studies) were typical for the habitat availability in the area – predominately an intensively managed pastoral landscape with some arable cultivation and a network of hedgerows / treelines and small woodlands.

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\*, linnets\* and 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 yellowhammer 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.

Based on NBDC data the only Red listed species of conservation concern (Colhoun & Cummins 2013) within the tetrads (2x2 km-sq.) covering the site are yellowhammers. Amber listed species

(Colhoun & Cummins 2013) with potential to be breeding at the site include starling, swallow, house martin and house sparrow. Other Amber listed species recorded in the direct environs of the site include spotted flycatcher, which could potentially breed in the woodland adjacent to the site.

Other species of conservation concern that have associations with the built environment and quarries include kestrel (Amber listed), which have been recorded within the 10-km squares covering Tromman Quarry. The quarried cliffs do offer potential nesting ledges for this species.

Kingfisher (Annex 1/ Amber listed) are likely to travel up and utilise the various tributaries of the River Boyne; and could potentially reach the ditch running along the northern boundary of Tromman Quarry. However, the small size of the watercourse means that any usage will only be periodic.

#### **5.2.4 Reptiles 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*). The occurrence of standing water within the site is likely to be short-lived due the karstic nature of the underlying geology; however, any standing water within the site is likely to be inhabited by frogs during the breeding season. While some aspects of the site would be ostensibly suitable for common lizard (*Zootoca vivipara*) in habitat terms, the level of disturbance within the site and the agriculturally improved nature of the surrounding habitat means this species is unlikely to occur.

The settlement tanks on the eastern boundary of the site, were assessed as unsuitable for smooth newt (*Lissotriton vulgaris*) breeding ponds, as they are essentially vertical-sided concrete tanks that do not exhibit any of the more natural features typically favoured by newts, such as vegetated, relatively shallow edges. Other areas of water at the base of quarry are highly transient in nature due to de-watering and shifting of quarrying activities; and as such were assessed as unsuitable for newts.

#### **5.2.5 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)

Figure 6 provides a map showing the occurrence of habitat types within the site, as classified in Fossitt (2000). The following provides a description of the habitat types occurring within the site, based on habitat classifications in Fossitt (2000).

##### **FL8 Other artificial lakes and ponds**

Sequential aerial imagery shows that Tromman Quarry has had water bodies associated with the deepest areas of extraction at the base of the quarry – the quarry sump. The location of these waterbodies has shifted over time, mirroring quarry face progression. The dry conditions experienced during 2018, combined with de-watering meant that no significant ponds were visible during site visits. Water was observed pooling in places at the base of the quarry and this was very shallow and coloured with a heavy sediment load.

As referenced above, there is a constructed system of holding tanks running along the eastern boundary of the site, which is a control measure to trap sediment and prevent contamination of surface waters. This consists of a series of vertical side concrete tanks and as such have no natural features. Galvanized steel meshed security fencing limits access to the tanks.



**Plate 3:** Concrete settlement ponds



**FW4 Drainage ditches**

A drainage ditch flows west along the northern boundary of the site. The flow is anthropogenic in origin, arising from de-watering activities in the quarry and upstream of the discharge point. There was no baseflow. This watercourse is within the River Boyne catchment and flows over c. 10 km, via the Knightsbrook River to join the Boyne to the north of the site, just east of Trim.

There is another channel on the western boundary of the site running adjacent to the pre-cast concrete manufacturing facility. The sides of this channel have been heightened, creating a deep, steep sided channel that has become densely vegetated with scrub and trees. As with the northern drain, there is no natural baseflow in this channel, however pools suggest that there is flow into it during periods of prolonged or heavy rainfall.

**Plate 4:** Licenced discharge point flowing into northern drain at northeast corner of site



**GA2 Amenity grassland**

Several small areas within the site have been landscaped and are managed as short grassy lawns, including the verges along the quarry roads. In parts the predominately grassy swards, although far from being species rich, were observed to support moderately diverse assemblages of broadleaved herbs and the following species were recoded; dandelion (*Taraxacum* spp.), clovers (*Trifolium* spp.), plantains (*Plantago* spp.), yarrow (*Achillea millefolium*), common knapweed (*Centaurea nigra*), self-heal (*Prunella vulgaris*) and charlock (*Sinapis arvensis*).

**WD1 (Mixed) broadleaved woodland**

The only area within the site mapped as WD1 broadleaved woodland was a small stand of beech trees (< 10 trees) just north of the south-eastern quarry face (see Plate 5).

On the western side of the main entrance to Tromman Quarry there is relatively mature woodland, however this lies beyond the site boundary. The oldest specimens in this area are non-native species, including common beech (*Fagus sylvatica*). There is a ruined gate lodge within the woodland and although the area has been become overgrown, historically it would probably have been managed as WD5 (scattered trees and parkland) leading north up to the main farm house (Trammont) - the grounds of which border the site and have also been abandoned.

**Plate 5:** Beech trees on above quarry in SE of site

**WS1 Scrub**

Although only small areas have been mapped as WS1 scrub, there were several patches where scrub, predominately gorse (*Ulex europaeus*), brambles and willow (*Salix* sp.) are colonising previously bare ground. These patches of scrub have been incorporated within areas mapped as ED3 recolonising bare ground. Scrub encroachment was particularly noticeable at the top of the quarry faces where the gradient becomes less steep and more soil accumulates, as well as on parts of the central stockpile of overburden.

**Plate 6:** Patchy scrub colonising quarried slopes



### **WS2 Immature woodland**

A screening belt (c. 10 m wide) of predominately broadleaved species has been planted along the southern boundary of the site and stretches east from the site entrance to the southeast (c. 290 m). This woodland is relatively young (c. 6 years old) and was planted in 2012. Species recorded include birch (*Betula* spp.), ash sp. (*Fraxinus* sp.), rowan (*Sorbus aucuparia*), common osier (*Salix viminalis*), maple sp. (*Acer* sp.) and larch (*Larix* sp.). The woodland was planted infield of the original roadside hedgerow and species within the hedge (predominately hawthorn with the occasional ash, elder, grey willow and sycamore) will eventually become assimilated into the planting scheme.

### **WS3 Ornamental/ non-native scrub**

There are two beds on the embankments on either side of the road that have been planted with ornamental shrubbery. While predominately planted with shrubs, some of the elements could also be classed as BC4 (Flower beds and borders). As all the species planted are non-native, further investigation may be required to identify the exotic species and determine the suitability of the current planting scheme, as a control measure to prevent the risk of introducing invasive species.

### **WL1 Hedgerows**

Almost the entire outer perimeter of the site is demarcated with hedgerows. The age and condition of the hedgerow varied from some recently planted dense hedging along the western boundary to older remnant hedgerows taking on the characteristics of WL2 treelines. Hawthorn was the dominant hedgerow species, with bramble, elder, ash, willow, ivy and dog rose all featuring. A length of ornamental cypress species has been planted along the southern boundary of the site car park and is becoming a treeline.

### **WL2 Treelines**

Many of the hedgerows along the site boundary are not heavily managed and are developing or have already developed into treelines. Ash trees are the main native tree species occurring in treelines, with non-native beech and sycamore also recorded.

### **Disturbed ground**

According to Fossitt (2000) exposed rock, piles of spoil or quarried material and bare ground within an active quarry should be classified as ED4 - active quarries and mines. A decision was taken to deviate slightly from Fossitt (2000) and make the distinction between areas being actively quarried (ED4), areas of spoil/bare ground (ED2), recolonising bare ground (ED3) and built infrastructure within the quarry, e.g. roads (BL3). Areas where quarried material is temporarily stored within the site were mapped as either ED4 (active quarry) or BL3 (built infrastructure) if on a concrete hardstand.

### **ED2 Spoil and bare ground**

Within the Tromman Quarry two basic categories of spoil and bare ground were considered, including:

- Overburden (spoil) consisting of topsoil and subsoil that has been stripped off the surface of the site to facilitate access to the quarriable material beneath. The overburden has been stored within the confines of the site and currently forms a large mound located in the centre of the site. This spoil provides a good substrate for colonising plants and is rich in nutrients. The spoil will be utilised for restoration works to infill the quarry.
- Areas where the topsoil and subsoil has been stripped off, exposing the upper layers of the quarriable material, which is exposed rock often with a covering of loose rocky till, where access to soil and nutrients for plants are limited. The area in the south-east of the site where the overburden has recently been stripped was mapped as bare ground.

Vegetation cover was notably sparse and non-existent in some places, due to the recent dumping or stripping of material. The following species were recorded often as single isolated plants:

Oxeye daisy (*Leucanthemum vulgare*)

Nettle (*Urtica dioica*)

Nipplewort (*Lapsana communis*)  
 Coltsfoot (*Tussilago farfara*)  
 Figwort (*Scrophularia nodosa*)

Clovers (*Trifolium* sp.)  
 Yorkshire fog (*Holcus lanatus*)  
 Dandelion sp. (*Taraxacum* sp.)

### ED3 Recolonising bare ground

Areas within the site were mapped as recolonising bare ground where vegetation cover was > 50 %. This habitat type was found around the lower slopes of the overburden stockpile (see Plate 7), although in parts the nutrient rich spoil facilitates the dominance of coarse grass species like Yorkshire fog. The small screening mound of material, on the eastern side of the site entrance, was also relatively rich in nutrients; as evidenced by a dominance of coarse grasses, nettles, thistles and docks within the re-colonising species. Areas at the top of the quarry faces where the gradient becomes less steep and more soil accumulates were also mapped as recolonising bare ground. The following species were recorded:

Field horsetail (*Equisetum arvense*)  
 Creeping bent (*Agrostis stolonifera*)  
 Yorkshire fog (*Holcus lanatus*)  
 Cock-foot (*Dactylis glomerata*)  
 Ragwort (*Senecio jacobaea*)  
 Silverweed (*Potentilla anserina*)  
 Oxeye daisy (*Leucanthemum vulgare*)  
 Selfheal (*Prunella vulgaris*)  
 Common knapweed (*Centaurea nigra*)  
 Dandelion (*Taraxacum* sp.)

Clovers (*Trifolium* sp.)  
 Docks (*Rumex* sp.)  
 Nettle (*Urtica dioica*)  
 Creeping buttercup (*Ranunculus repens*)  
 Creeping thistle (*Cirsium arvense*)  
 Spear thistle (*Cirsium vulgare*)  
 Hogweed (*Heracleum sphondylium*)  
 Colts foot (*Tussilago farfara*)  
 Rosebay (*Chamerion angustifolium*)  
 Sow thistle (*Sonchus asper*)

In small patches scrub encroachment was evident with willow (*Salix* sp.), bramble (*Rubus fruticosus* agg.) and gorse (*Ulex europaeus*) noted and at a small number of locations two non-native species were recorded - butterfly-bush (*Buddleja davidii*) and traveller's-joy (*Clematis vitalba*). In places the saplings of tree species were noted, including willows (*Salix* sp.), sycamore (*Acer pseudoplatanus*) and Cypress spp. (possibly *Cupressus x leylandii*)

### ED4 Active quarries and mines

As shown in Figure 6, the majority of this site is an active quarry, which is largely exposed limestone.

**Plate 7:** South-facing view over quarry void



**Plate 8:** Central spoil heap showing gradation of colonisation by plants - top to bottom



### **Built land**

#### **BL2 Earth banks**

There are several longstanding earth banks within the site, mainly occurring along the perimeter of the site. These were associated with hedgerows and/or treelines and were mapped as such – see Figure 6. Stretches of relative newly constructed embankments (berms) around the upper edge of quarry faces were classed as earth banks.

#### **BL3 Buildings and artificial surfaces**

The northern part of the site, involved in the manufacturing of concrete products is entirely under a concrete hard stand with several associated sheds, buildings and plants. This northern section is connected to the working quarry, spoil storage area and the main entrance via two roads both surfaced with concrete or hard core. The main offices for Keegan Quarries Ltd are located at the southern end of the site, just beyond the main site entrance, with this southern end of the site also having substantial areas of hard-standings for parking cars and machinery.

**Plate 9:** Pre-cast concrete manufacturing facility in the northern part of the site



**Figure 6:** Habitat types mapped in Tromman Quarry, as classified in Fossitt (2000)



### 5.2.6 Invasive species

Figure 7 shows the distribution of non-native and potentially invasive plant species within Tromman Quarry. No high impact invasive plant species (as listed by NBDC) were recorded during the site visits. Likewise, there were no plant species recorded on the 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.

Two medium impact invasive species (as listed by NBDC) occurring on the site were traveller's-joy (*Clematis vitalba*) and sycamore (*Acer pseudoplatanus*). Although not listed by NBDC, snowberry (*Symphoricarpos albus*) was recorded within the site. This species is Amber listed by Invasive Species Ireland - see <http://invasivespeciesireland.com>. The Amber list includes non-native species where the risks posed are uncertain. Other Amber listed species recorded within the site include butterfly bush (*Buddleja davidii*), Cotoneaster sp. and European beech (*Fagus sylvatica*). As indicated in Figure 7, leading into the site from the main entrance are two borders on either side of the road, which have been planted up with an array of non-native shrubs.

The non-native species identified as currently occurring within Tromman Quarry that pose a potential risk of spreading and infecting quarried product are traveller's-joy, Buddleia and possibly sycamore.



**Figure 7:** Tromman Quarry - map showing the distribution of non-native species



## 6 EVALUATION OF IMPORTANT ECOLOGICAL FEATURES WITHIN THE ZONE OF INFLUENCE

This section provides a value assessment of the habitats and species within the Zone of Influence of the proposed development or activity, based on survey results and following the geographic evaluation methodology. It forms the basis of the impact assessment in the following section.

### 6.1 Evaluation of designated sites within the Zone of Influence

The Tromman Quarry site does not lie within, or immediately adjacent to, any Natura 2000 site. The River Boyne and River Blackwater SAC and River Boyne and River Blackwater SPA are hydrologically linked to the development via a drain and lie approximately 10 km downstream by hydrological connection.

**Evaluation:** International Importance

### 6.2 Evaluation of important habitats within the Zone of Influence

#### 6.2.1 FL8 Other artificial lakes and ponds

Anthropogenic habitats of low conservation and ecological value that are subject to high levels of disturbance, include: settlement ponds that are fenced, vertical-sided concrete tanks and the water gathering at the base of the quarry that is subject to continuous pumping operations (de-watering) and only forms temporary water bodies in the operational sump and contains heavy sediment loads.

**Evaluation:** Local Importance (Lower Value)

#### 6.2.2 FW4 Drainage ditches

A variety of drains on the periphery of the site offer only limited habitats for aquatic species and wildlife corridors due to their current low flow (or lack of flow).

**Evaluation:** Local Importance (Lower Value)

#### 6.2.3 GA2 Amenity grassland

Some small patches are supporting a range of broadleaved herbs and wild flowers that provide foraging habitats for invertebrates.

**Evaluation:** Local Importance (Lower Value)

#### 6.2.4 WD1 (Mixed) broadleaved woodland

The only area mapped as WD1 within the site was a small group of non-native beech trees perched above the southeast quarry face. The clump consists of less than 10 trees. Two of the trees were noted as having holes that could provide potential roost sites for bats and the group of trees provides a small area of foraging habitat for wildlife.

A small block of woodland outside (just west of the site entrance), but bordering the site, is a vestige of a more garden / parkland type habitat, with a high proportion of non-native trees and remnant hedgerows. The ground storey was relatively diverse in places, although non-native species (e.g. snowberry) were found to be a prominent feature in parts. This offers a nesting and foraging habitat for birds on the periphery of the site. However, this area is assessed as having negligible to low potential for roosting bats, but offers a feature for foraging bats; as well as a wildlife corridor for other species.

**Evaluation:** Local Importance (Higher Value)

### **6.2.5 WS1 Scrub**

Scrub cover within this site is relatively young resulting in a patchy and sparse coverage dominated by gorse, bramble and willow. These patches are not species rich – but they offer some cover and limited foraging habitat for mammals and suitable nesting locations for breeding birds.

*Evaluation:* Local Importance (Higher Value)

### **6.2.6 WS2 Immature woodland**

A screening belt (c. 10 m wide) of predominately broadleaved species incorporating a mix of native and non-native species acts as a natural buffer along the southern site boundary for the limited amount of surface water runoff flowing south. This also provides a wildlife corridor, a feature for foraging bats and dense nesting cover for birds. This area was assessed as having no potential for roosting bats.

*Evaluation:* Local Importance (Higher Value)

### **6.2.7 WS3 Ornamental/ non-native scrub**

Ornamental shrubbery planted at site entrance, with some exotic flowers possibly providing a food source for invertebrates.

*Evaluation:* Local Importance (Lower Value)

### **6.2.8 WL1 Hedgerows**

Almost the entire outer perimeter of the site is demarcated with hedgerows. The age and condition of the hedgerow varied from some recently planted dense hedging along the western boundary to older remnant hedgerows taking on the characteristics of WL2 treelines. These provide a feature for foraging bats, a wildlife corridor and nesting/ foraging habitats for birds.

*Evaluation:* Local Importance (Higher Value)

### **6.2.9 WL2 Treelines**

Many of the hedgerows along the site boundary are not heavily managed and are developing into treelines. These provide a feature for foraging bats, a wildlife corridor and nesting/ foraging habitats for birds. Ivy clad trees were assessed as having negligible to low potential for roosting bats.

*Evaluation:* Local Importance (Higher Value)

### **6.2.10 ED2 Spoil and bare ground**

These areas are the result of quarrying activity, are not species rich and are typically subject to high levels of disturbance due to the often temporary nature of spoil heaps; nevertheless, the spoil does provide substrate for badger setts and other burrowing animals.

*Evaluation:* Local Importance (Lower Value)

### **6.2.11 ED3 Recolonising bare ground**

Some areas exhibit greater species richness than others, however they are not generally considered to be of notable ecological value.

*Evaluation:* Local Importance (Lower Value)

### 6.2.12 ED4 Active quarries and mines

Quarries are anthropogenic habitats that have the potential to offer a range of habitats for protected species, e.g. spoil heaps for badger setts, exposed earth for mining bees and sand martins, settlement ponds for newts, cliff faces for nesting birds like peregrine falcon and occasionally offer the physical or chemical conditions to create interesting habitats, e.g. tufa-forming springs. However, Tromman Quarry was considered to have a relatively low intrinsic value for wildlife.

**Evaluation:** Local Importance (Lower Value)

### 6.2.13 BL2 Earth banks

Traditional boundary banks can be 100s of years old, representing relatively undisturbed habitat with an agricultural landscape, which offers suitable cover and protection for smaller fauna (e.g. invertebrates, amphibians, reptiles, birds and rodents) and can support bryophytes and lichens. As such, they are considered to be of ecological value in the landscape.

**Evaluation:** Local Importance (Higher Value)

### 6.2.14 BL3 Buildings and artificial surfaces

Anthropogenic habitat of low conservation and ecological value that is subject to high levels of disturbance. Potentially buildings can offer nest sites for birds and roosts for bats, and these features can be enhanced by erecting nest and bat boxes.

**Evaluation:** Local Importance (Lower Value)

## 6.3 Evaluation of fauna within the Zone of Influence

### 6.3.1 Birds

Only two Red listed (breeding meadow pipit and yellowhammer) and 10 Amber listed Birds of Conservation Concern were recorded, with four of these species exhibiting breeding behaviour and a further five noted as having the potential to breed at this site. The drain on the northern periphery of the site could be periodically utilised by foraging kingfishers, a species listed on Annex I of the EU Birds Directive and a Qualifying Interest of the River Boyne and River Blackwater SPA.

Of the species recorded, only peregrine falcon is listed under Annex I of the EU Birds Directive, and although exhibiting territorial behaviour in the area, a breeding site within quarry was not confirmed. Peregrine, along with raven, jackdaw and feral pigeons, were the only species typically benefiting from quarrying activities that were noted as breeding or potentially breeding at the site. While sand martins were present no breeding colonies were identified and birds were thought to be nesting within the adjacent quarry.

Overall the range of bird species noted to date, for both the manufacturing facility (no cliff faces) and the site as whole, are considered to be typical for the habitats present within the environs, with some red and amber BoCCI listed species occurring (Colhoun & Cummins 2013). However, all of the species noted are considered common and widespread throughout Ireland; and as such, are considered in the context of this site to be of relatively low conservation value.

All breeding bird species are protected under the Wildlife Act, 1976 and the Wildlife (Amendment) Act, 2000.

**Evaluation:** Local Importance (Higher Value)

### 6.3.2 Bats

Bat surveys conducted on 18<sup>th</sup>-19<sup>th</sup> June 2019 recorded the following species; brown long-eared bat (*Plecotus auratus*), lesser noctule (*Nyctalus leisleri*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), Leisler's bat (*Nyctalus leisleri*) and *Myotis* species.

NBDC reports Nathusius' pipistrelle (*Pipistrellus nathusii*), Daubenton's bat (*Myotis daubentonii*) and Natterer's bat (*Myotis nattereri*) within the 10 km squares covering the site. Interestingly, whiskered bat (*Myotis mystacinus*) was noted as being resident in environmental documentation for the adjoining quarry.

Given the habitat types available on the site – small block of relatively open broadleaf woodland, hedgerows, treelines, buildings and small water courses, it is considered that the bats will mainly utilise the area for foraging and commuting. The availability of suitable roosting sites was assessed as negligible to low – limited to ivy clad trees.

All bats species including the species listed above, are protected under Annex IV of the Habitats Directive.

**Evaluation:** Local Importance (Higher Value)

### 6.3.3 Badger (& other mammals)

There was evidence of badgers utilising the site, including a network of well-worn paths indicative of regular use by badgers, a badger latrine, an isolated badger scat and rooting activity. No active badger setts were located within the site or adjacent to the site, although areas of spoil on the site (once scrubbing up) will become increasingly attractive. A suspected fox earth was located within impenetrable scrub on upper slopes of an old quarry face.

The small blocks of woodland, hedgerows, treelines and scrub do offer some cover for mammals, and some of the species found on the site may provide a source of food e.g. brambles. The northern part of the site occupied by the manufacturing facility was assessed as being of limited value to mammals. The small waterbodies on the periphery of the site could be periodically utilised by otters.

**Evaluation:** Local Importance (Higher Value)

### 6.3.4 Herpetofauna - reptiles and amphibians

The only reptile or amphibian records for the 10-km squares (NBDC) covering Tromman Quarry were for common frog (*Rana temporaria*). There is some limited potential for reptiles and amphibians to forage or take cover on the site e.g. within scrub or the old stone walls. However, there is limited suitable open habitat on the site, such as rough grassland for lizards. In addition, the water features within the site were considered as low quality for breeding amphibians. As such, the habitats on the site are considered to be of low value for Herpetofauna populations.

**Evaluation:** Local Importance (Lower Value)

## 6.4 Important Ecological Features within the Zone of Influence

Table 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 2 below.

**Table 2. Important Ecological Features and their Evaluation**

<b>Important Ecological Feature</b>	<b>Evaluation</b>
<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)

## **7 IMPACT ASSESSMENT OF IMPORTANT ECOLOGICAL FEATURES WITHIN THE ZONE OF INFLUENCE**

The Ecological Impact Assessment is undertaken in this section. The methodology set out in Section 2 is applied to Important Ecological Features which have been identified and described in Section 5, and evaluated in Section 6. All impacts are described in the absence of mitigation.

### **7.1 Potential ecological impacts of the proposed development**

In the absence of mitigation measures the following impact sources have been judged as having the potential to arise should proposed quarrying activities recommence at Tromman Quarry.

#### **7.1.1 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, 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 the 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 extraction activities, dewatering and discharge of water.

Without appropriate control measures, contaminants would enter the drain 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.

#### **7.1.2 Potential impacts on Designated Sites**

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 site, and consequent impact on the Qualifying Interests.

The NIS (Woodrow 2019b) concluded that the distance of the hydrological link to Natura 2000 sites downstream of the development (c. 10 km) in combination with the existing control measures in place 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.

#### **7.1.3 Potential impacts on flora and habitats**

##### **7.1.3.1 Habitat loss and fragmentation**

Habitat loss incurred as part of preparatory works for the south-eastern quarry expansion (vegetation stripping) and replacement planting along the southern boundary, occurred within the consented timeframe for quarrying (2011 to 2017), i.e. pre-August 2018. As this loss has been previously assessed for ecological impacts, it does not form part of this report. Vegetation stripping in preparation for expansion of the eastern and southern quarry faces had largely been completed pre-August 2018; however, further quarrying activities will require the removal of 60 m of non-native beech hedgerow in the south-east of the site, as well as the removal of a garage.

Quarry expansion to the south, north and west will result in the loss of small patches of WS2 Scrub that have colonised the upper levels of the quarry faces. There will be no further loss of WS2 Scrub on the south-eastern quarry face, as vegetation has not yet colonised these recently quarried faces.

### 7.1.3.2 Dust deposition on flora

Quarrying activities generate dust and in the absence of mitigation, dust emissions have the potential to exceed permitted levels. Fugitive dust is typically deposited within 10 to 200 m of the source; the greatest proportion of which, comprising larger particles (> 30 microns) is deposited within 100 m. Large amounts of dust deposited on vegetation over a prolonged period results in adverse effects on plant productivity, which can lead to the 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 potentially having a cleansing effect, washing deposits off foliage (UK DoE, 1995).

A reviewed by Farmer (1993) found that 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 previously set planning conditions for the site – 350 mg/m<sup>2</sup>/day. Based on previous adherence with these limits the impact on flora in the vicinity of the quarry will be minimal and in addition there are no dust sensitive terrestrial habitats adjacent to the development.

### 7.1.3.3 Non-native and invasive plant species

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. Several amber listed non-native species of plant were recorded including, snowberry (*Symphoricarpos albus*), traveller's-joy (*Clematis vitalba*), buddleia (*Buddleja davidii*) and sycamore (*Acer pseudoplatanus*).

## 7.1.4 Potential impacts on Fauna

### 7.1.4.1 Disturbance to fauna

As outlined above (under habitat loss), much of the preparatory work for quarry expansion (vegetation removal and stripping of overburden) has already been undertaken; and as such, there will be minimal direct disturbance to fauna resulting from habitat loss – see sections under birds and protected mammals below.

Quarrying activities, along with the resultant potential ecological disturbance factors including noise, vibration and movement (machinery and human operatives) have been well-established at Tromman Quarry over the last c. 18 years. As such, any fauna occurring in the area will have become habituated to disturbance factors emanating from the site and species particularly sensitive to disturbance are likely to have been displaced previously.

Given the minimal levels of lateral expansion and that all quarrying activity will be restricted to the existing quarry void and the northern spoil heap, no additional significant impacts are predicted to occur during the operational lifespan of the quarry.

### 7.1.4.2 Birds

The linear features on the periphery of the site (hedgerows/ treelines/ drains/ steams) provide nesting and foraging habitat for birds. These features will be retained throughout the operational phase of the quarry. The garage and a short section of beech hedgerow (c. 60 m) in the south-east of the site will be removed. The hedge provides potential nesting and foraging habitat for a small number of birds; and robins, song thrushes and blackbirds were recorded in the area during 2019 breeding season. The interior of the garage, which only recently became accessible (2019 breeding season) currently provides nest sites for swallows and there is potential for other species like jackdaw and starling to use the building.

Demolition of the garage and removal of the beech hedge will result in the loss of nesting habitats for a relatively small number of relatively common and widespread bird species. To ensure that the direct



disturbance of breeding birds is avoided, restrictions will be required involving the appropriate timing of removal of the beech hedge and garage (i.e. demolition/ removal out of the breeding season: 1<sup>st</sup> March to 31 August).

Peregrine were exhibiting territorial behaviour in the area. A breeding site within Tromman Quarry was not confirmed and the pair may have been nesting in the adjacent quarry. Peregrine nest on the ledges of cliffs and tall buildings. Cliffs in quarries are increasingly being utilised by breeding peregrines and have facilitated the expanding breeding range of this species in Ireland. The species' conservation concern in Ireland is currently listed as Green; as breeding numbers have recovered from historic declines (Coulhoun & Cummins 2013).

Non-active cliff faces will be available within the quarry throughout the operational lifespan of quarrying activities and cliffs will be retained as part of the restoration plans. This will have a positive impact for peregrine falcons and other cliff nesting birds including kestrels, ravens, jackdaw and rock pigeons.

It is not considered that quarry expansion poses any significant impacts upon the local bird population.

#### **7.1.4.3 Protected mammals - Bats**

The linear features on the periphery of site provide foraging habitat for bats. These features on the outer edges of the site will continue to be retained throughout the operational phase of the quarry.

The garage and a short section of beech hedgerow (c. 60 m) in the south-east of the site will be removed. The hedge is likely to provide a short length of foraging habitat for bats; however, in the context of substantial areas of similar habitats existing on the periphery of the site and in the surrounding area, the potential loss of foraging habitat is deemed to be insignificant at a local level. A roost emergence survey conducted at the garage in June 2019 did not locate any roosting bats.

No new lighting regimes are proposed; and therefore, impacts from increased Lux levels on roosting bats was discounted as is the potential loss of foraging habitat.

#### **7.1.4.4 Protected mammals - Badgers**

During surveys conducted in 2018 and 2019 minimal badger activity was recorded within the site and most of the activity was limited to animals foraging along periphery of the site. No resting places were located. The areas targeted for quarry expansion to the east, south and west are inherently unsuitable for badgers to excavate setts, as the overburden has been stripped or are steep rocky slopes/cliffs with no suitable substrate.

The spoil heap currently sitting above the proposed northern quarry extension does offer suitable substrate for badgers and there is a risk that badgers will move into the area without appropriate management of vegetation cover. Translocation of the spoil would then result in disturbance to badger resting places. However, given the current context of the site, with ample foraging and sett building opportunities in the environs, the impact is assessed as minimal.

## 7.2 Cumulative Impacts

There will not be any habitat fragmentation as a result of further quarry activities, with linear features around the site (such as hedges, treelines and drains) 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 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 (NIS, Woodrow 2019b), 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. This demonstrates that quarry activities were not contributing to a cumulative degradation of water quality.

In addition, it is noted 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 confirms compliance.

There are no other issues that are considered to be relevant with respect to potential in-combination impacts for this site.

## 8 PROPOSED MITIGATION AND ENHANCEMENT MEASURES

This section of the report aims to outline mitigation and/or enhancement measures, which aim to avoid, reduce and compensate for effects on Important Ecological Features within the zone of influence of the proposed development.

### 8.1 Mitigation for potential impacts in water quality

Without existing mitigation in place, future quarrying activities have the potential to have significant effects on ecological receptors within the zone of influence of the development, through impacting water quality. The Environmental Management System (EMS) for the site provides the list of mitigation measures to control against contamination of surface water and ground water, thereby protecting watercourses in the local area.

All quarry surface runoff and groundwater (pumped from quarry sump) are held in a primary settlement tank to remove for suspended solids. It is then pumped up to the approved drainage infrastructure in the pre-cast concrete manufacturing facility. After passing through the three-stage settlement tanks, the water is directed from these tanks into a concrete culvert that runs underground along the eastern boundary of the facility and releases the water into a c. 30 m section of 10-50 mm crushed rock berm. As covered by Trade Effluent Discharge Licence Ref. 04/2, the water is finally discharged into the drain on the northern boundary of the site, via a V-Notch weir that has been fitted with a data logger (08-Apr-19) and takes head measurements every 15 minutes.

There are very specific conditions attached to this discharge licence, detailing permitted volumes for discharge, as well as permitted chemical and physical composition of discharged waters. In order to demonstrate compliance with the limits specified in the consent, water samples must be collected from the discharge point on a regular basis and samples submitted for laboratory analysis.

With these requirements in place as mitigation, the risk of local watercourses and ground waters becoming contaminated as a result of further extraction is considered to be low, given historical compliance with the limits of the discharge licence and that there were no reported incidents during this monitoring period. During restoration of the quarry, de-watering activities would cease, meaning that discharge and flow into the northern drain would also cease. This would further diminish any hydrological link between the site and the down stream SAC / SPA.

### 8.2 Mitigation for potential impacts on habitats

#### 8.2.1 Mitigation by Avoidance / Reduction

Further quarrying activities will not significantly impact on any habitats on the periphery of the site, such as hedgerows, treeline and drains, as these areas will be avoided.

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.

There is potential for dust deposition to suppress plant productivity and lead to the degeneration of sensitive habitats. As detailed in Environmental Management System (EMS) for Keegan Quarries, updated 2019, existing control measures are in place and are employed throughout the site to suppress the generation of dust and ensure that threshold levels are not exceeded. Ongoing monitoring of dust deposition for activities within the Tromman Quarry site confirms that operations have consistently and 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.

## **8.2.2 Mitigation by Compensation**

No significant impact on habitats are anticipated to result from the proposed further quarrying activities at Tromman; and therefore, mitigation by compensation is not required.

## **8.3 Mitigation for potential impacts on breeding birds**

### **8.3.1 Mitigation by Avoidance / Reduction**

No woody vegetation, shrubs, trees or scrub, will be cleared within the breeding bird season (1<sup>st</sup> March – 31<sup>st</sup> August inclusive). To avoid disturbance to breeding birds, removal of the beech hedgerow in the south-east of the site will be scheduled to be undertaken outside of the breeding season, (i.e. September to February). Likewise, to avoid disturbance to nesting birds, work to demolish the garage will be scheduled outside of the bird breeding season.

Peregrines are known to become habituated to a range of human activity, including quarrying; however nesting birds can be sensitive to disturbance in the early stages of the breeding season (late March to early May). If nesting in the Tromman Quarry, implementation of minimal blasting schedule over this early period will limit disturbance to breeding peregrines. The following measures will be employed to protect nesting peregrines:

- There will be no blasting within 150 m of any peregrine nest while active.
- Blasting within the quarry will be limited to twice per month during the breeding season (March to June inclusive).

### **8.3.2 Mitigation by Compensation**

No significant impact on foraging or breeding birds is anticipated to result from the proposed further quarrying activities at Tromman; and therefore, mitigation by compensation is not required.

## **8.4 Mitigation for Potential Impacts on Bats**

### **8.4.1 Mitigation by Avoidance / Reduction**

None of the potential bat roosts identified on the periphery of the site (ivy clad trees) will be removed during the operational phase of the quarry. A bat emergence survey of the garage (18-Jun-19), which is scheduled to be demolished to facilitate quarry expansion, found that no bats were utilising the building. As such, no bat roosts will be impacted by the proposed further quarrying at Tromman. In the interim, there is a chance that the garage becomes adopted roosting by bats; and therefore, prior to removal, the building should be inspected by a suitability experienced and licenced bat surveyor to confirm that the building is still vacant. Before removal it is advised that at the end of August the door and other entry points should be boarded up to limit access.

Removal of a short length of beech hedgerow will potentially remove bat foraging and commuting habitat within the site. This loss has already been compensated for as part of a previous consent, through the planting of trees along the southern boundary. The only other potential foraging habitats for bats that will be lost during the operational phase of the quarry will be small patches of scrub lost periodically as the faces expand. Over time, these areas will be re-colonised and scrub loss is considered temporary.

### **8.4.2 Mitigation by Compensation**

No significant impact of foraging or roosting bats is anticipated to result from the proposed further quarrying activities at Tromman; and therefore, mitigation by compensation is not required.

## 8.5 Enhancement Measures

A restoration plan has been produced for the proposal (detailed in section 4 of the EIAR and shown in outline in Figure 8 below). This outlines that the site restoration will result in the following (approximate) areas for the site as a whole (i.e. includes restoration of the pre-cast concrete manufacturing facility):

- Floating islands 0.507 Ha
- Dry woodland 2.08 Ha
- Wet woodland 0.507 Ha
- Calcareous Grassland 2.25 Ha
- Hazel Copse 0.125 Ha
- Ponds x 8No

With the remainder being retained as open water within the quarry void.

The water level is expected maintain at approximately 65m AOD following cessation of operations, with the top of the quarry banks on the southern and western areas varying from 75m to 85m AOD. This will result in cliffs of 11-21m surrounding the quarry following restoration. This will mean that parts of the site will remain suitable for nesting peregrine.

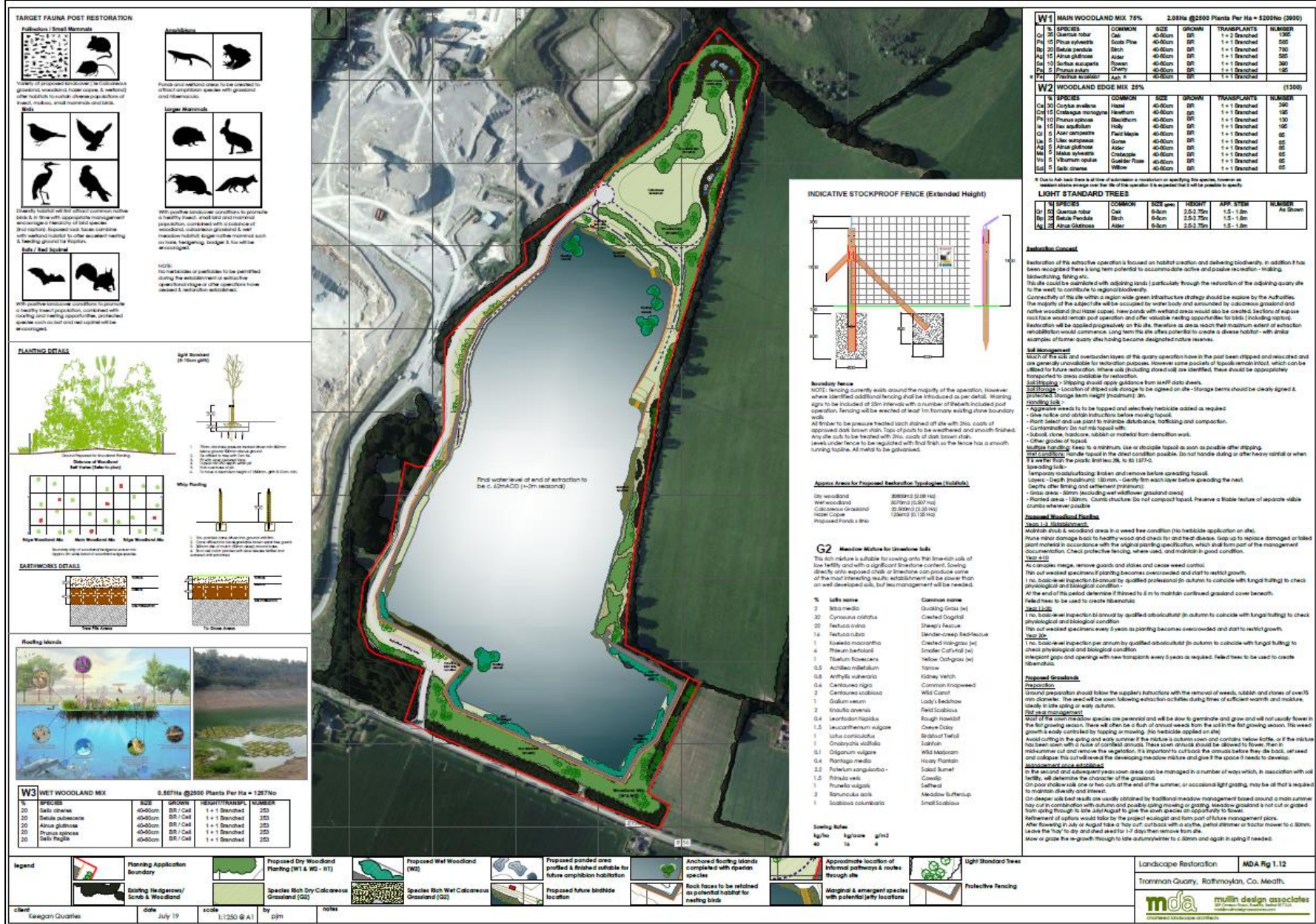
The overall impact of site restoration will be positive. The site would be restored for nature conservation through planting and natural regeneration, the range and extent of habitats occurring on the site will be increased including grasslands, transitional scrub, woodland and a lake surrounded by rocky cliffs, which will provide opportunities for a range of species.

Once quarrying activities cease, and 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 used by badgers for excavating setts.

## 8.6 Residual impacts and effects on important ecological features

Negative residual impacts are limited from negligible to minor long-term impacts. These are not considered to be ecologically significant. As shown in Table 3 below, residual impacts will not result in any significant effects on Important Ecological Features within the Zone of Influence.

Figure 8: Overview of restoration proposals (see section 4 for details)



**Table 3.** Summary of potential impacts, potential effects, mitigation undertaken and residual effects.

Important Ecological Features	Evaluation	Potential Impact	Potential Effect	Potential Significance	Mitigation / Compensation	Significance of Residual Effect
River Boyne and Blackwater SAC	International	Pollution due to suspended solids and chemicals 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, updated 2019.	Not significant
River Boyne and Blackwater SPA	International	Pollution due to suspended solids and chemicals 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, , updated 2019	Not significant
(Mixed) broadleaved woodland	Local (higher)	Habitat loss and fragmentation	Reduction in woodland habitats and connectivity with site	Significant at the local level	Existing woodland on site not targeted for removal	Not significant
Scrub	Local (higher)	Habitat loss	Loss of cover within the site	Significant at the local level	Compensatory planting of hedgerows and for screening belts undertaken	Not significant
Immature woodland	Local (higher)	Habitat loss	Loss of cover within the site	Significant at the local level	Immature woodland along southern boundary not targeted for removal	Not significant
Hedgerows	Local (higher)	Permanent loss of hedgerow	Loss of, or damage to sections of hedgerow, leading to reduced connectivity and loss of foraging habitat and cover for breeding fauna	Significant at the local level	Compensatory planting of hedgerows and for screening belts undertaken	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 at the local level	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 at the local level	Existing earth banks on site not targeted for removal	Not significant
Birds	Local (higher)	Habitat loss / disturbance	Potential for loss or disturbance of nesting sites	Significant at the local level	Minimal blasting schedule during the early stages of the breeding season (late March to early May) to limit disturbance to peregrines <ul style="list-style-type: none"> <li>• There will be no blasting within 150m of any peregrine nest while active.</li> <li>• Blasting within the quarry will be limited to twice per month during the</li> </ul>	Not significant

Important Ecological Features	Evaluation	Potential Impact	Potential Effect	Potential Significance	Mitigation / Compensation	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 at the local level	breeding season (March to June inclusive) No woody vegetation, shrubs, trees or scrub, will be cleared within the breeding bird season (1 <sup>st</sup> March – 31 <sup>st</sup> August inclusive) 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 at the local level	Compensatory planting on southern boundary of site will provide some opportunities for foraging bats	Not Significant
Invasive Alien Species (IAS)	-	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



## 9 CONCLUSIONS

Based on the collation of the above information, it is considered that further quarrying activities at Tromman will have a low adverse ecological impact via permanent habitat removal, which will then be negated by the proposed landscaping and planting as part of site restoration 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 mitigation measures at the site. Post-operation the site will be managed for wildlife and agriculture.

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