

Remedial Natura Impact Statement (rNIS)

Substitute Consent Application: Concrete Manufacturing Facility & Quarrying Activities, Tromman Quarry, Co. Meath



Woodrow APEM Group
Upper Offices,
Ballisodare Centre,
Station Road,
Ballisodare,
Co. Sligo,
F91 PE04,
Ireland.

Tel: + 353 71 914 0542
Email: info@woodrow.ie

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DOCUMENT CONTROL

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Client	Quarryplan Ltd. (on behalf of Keegan Quarries Ltd.)
Prepared by	Woodrow APEM Group, Upper Offices, Ballisodare Centre, Station Road, Ballisodare, Co. Sligo, Ireland. F91PE04 T: 353 (0)719140542
Lead Author	James O'Connor
Checked internally	Mike Trewby
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STATEMENT OF AUTHORITY

Woodrow APEM Group (hereafter known as Woodrow) is an established and accomplished environmental consultancy committed to delivering robust ecological assessment services for clients in the private and public sectors. Woodrow provides an in-house team of ecologists and environmental professionals whose primary specialisms include botany, habitats, birds, bats, mammals, invertebrates and aquatic ecology. Woodrow's investment in high-technology field equipment and software, and the use of Survey123 forms throughout all survey types ensures reliability and confidence in our work. Woodrow staff are fully conversant with wildlife legislation in both Ireland and the UK, and work to exacting standards, according to established guidelines issued by the Chartered Institute of Ecology and Environmental Management (CIEEM).

This report has been authored by James O'Connor.

James is an Ecologist with Woodrow, who has a PhD in aquatic sciences and a primary technical specialism in freshwater ecology. James has prior experience in monitoring wild bird populations with Birdwatch Ireland and is heavily involved in ornithological work as part of his role with Woodrow. Here, he regularly carries out mammal surveys and also performs a supporting role as Ecological Clerk of Works (ECoW). James is first author on several peer-reviewed academic research papers and has helped draft reports to disseminate key research findings to state agencies such as the Irish Environmental Protection Agency (EPA) as well as Irish county councils.

This report has been reviewed and approved by Mike Trewby, Associate Director with Woodrow. Mike is the company's lead ornithologist and field work manager. Mike worked for Birdwatch Ireland from 2003 to 2010 conducting research on red-billed chough, red grouse and breeding seabirds. Prior to joining Woodrow in 2016, Mike worked as an independent ornithological consultant and has over 20 years fieldwork and research experience in the field of ecology. Mike regularly undertakes impact assessments for large scale developments and is a full member of CIEEM.

QUALIFICATIONS:**James O'Connor – Qualifications:**

B.Sc. – Agriculture and Environmental Management, ATU Galway, 2013.
M.Sc. – Applied Environmental Science, University College Dublin, 2015.
PhD – Aquatic Sciences, ATU Galway, 2021.

Mike Trewby – Qualifications:

B.Sc. – Zoology & Botany, University of Namibia, 1997.
PGDip – Environmental Studies, University of Strathclyde, 2002.

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1 INTRODUCTION

1.1 Background

Woodrow was appointed to compile a remedial Natura Impact Statement (rNIS) on behalf of Quarryplan Ltd. and their client Keegan Quarries Ltd. This accompanies the substitute consent (SC) application by Keegan Quarries Ltd, for the erection of the unauthorised structures in the concrete products manufacturing area of the site (i.e. northern area) in 2013 and unauthorised quarrying operations post 05 August 2018 at Tromman Quarry, Co. Meath.

1.2 Requirement for Remedial Natura Impact Statement

An Bord Pleanála has previously served a notice under s.177D(6) of the Planning and Development Act 2000 (as amended) that there was a requirement for a SC application for unauthorised quarry activities at Tromman Quarry under section 261A of the Planning and Development Act 2000. Following the coming in to force of the Planning and Development, Maritime and Valuation (Amendment) Act 2022 and resultant changes to the Planning and Development Act 2000 (as amended), the previous notice is now defunct. Notwithstanding, a Remedial Environmental Impact Assessment Report (rEIAR) and a Remedial Natura Impact Assessment (rNIS) are considered necessary for the development.

Section 177T of the Planning and Development Act 2000 (as amended) states the following with respect to *meaning* of a Natura Impact Statement:

(1)(b) *A Natura impact statement means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own or in combination with other plans or projects, for one or more than one Natura 2000 site, in view of the conservation objectives of the site or sites.*

(2) *Without prejudice to the generality of subsection (1), a Natura impact report or a Natura impact statement, as the case may be, shall include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for one or more than one Natura 2000 site in view of the conservation objectives of the site or sites.*

Section 177G of the Planning and Development Act 2000 states the following with respect to *required content* of a Natura Impact Statement:

(1) A remedial Natura impact statement shall contain the following:

(a) *a statement of the significant effects, if any, on the relevant European Site which have occurred or which are occurring or which can reasonably be expected to occur because the development the subject of the application for substitute consent was carried out;*

(b) *details of—*

(i) *any appropriate remedial or mitigation measures undertaken or proposed to be undertaken by the applicant for substitute consent to remedy or mitigate any significant effects on the environment or on the European Site;*

(ii) *the period of time within which any such proposed remedial or mitigation measures shall be carried out by or on behalf of the applicant; (c) such information as may be prescribed under section 177N;*

- (c) such information as may be prescribed under section 177N;
- (d) and may have appended to it, where relevant, and where the applicant may wish to rely upon same:
 - (i) a statement of imperative reasons of overriding public interest;
 - (ii) any compensatory measures being proposed by the applicant.

A remedial Natura Impact Statement provides information that can be used to assist the Competent Authority, in this instance, An Bord Pleanála, in applying Article 6(3) and 6(4) of the Habitats Directive¹ as necessary, remedially, under their roles, functions and responsibilities in relation to the Appropriate Assessment of plans or projects. The Competent Authority may use such information to carry out an Appropriate Assessment of the development and quarry activities in order to ascertain whether or not the project may adversely affect the integrity of any European Site.

1.3 Legislative Context to Appropriate Assessment

1.3.1 Requirement for Appropriate Assessment Screening

An Appropriate Assessment Screening provides the information necessary to fulfil the requirements of Article 6 of the EU Habitats Directive 1992 and Regulation 42 of the (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended (i.e. Habitats Regulations), in determining the potential impacts on internationally designated sites arising from the proposal. Regulation 42(1) of the 2011 Habitats Regulations requires that:

A screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.

Case law² has required that measures which are *intended to avoid or reduce* the harmful effects of the proposed development on any relevant internationally designated site (i.e. specific mitigation), cannot be considered at the screening stage of the Appropriate Assessment process and where this arises, the plan or project must be assessed fully.

A recent preliminary ruling on mitigation at Stage 1 of Appropriate Assessment³ provides an indication that where mitigation is clearly a ‘standard feature’ of the development, this can be considered within the Appropriate Assessment Screening report. However, as this ruling is not final, a precautionary approach should be administered in such cases.

¹ Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, as amended by Council Directive 97/62/EC. Available at: http://ec.europa.eu/environment/nature/legislation/habitatdirective/index_en.htm [Accessed August 2023].

² People Over Wind and Peter Sweetman v Coillte Teoranta (C-323/17); and Heather Hill Management Company clg v An Bord Pleanála [2019] IEHC 450.

³ Opinion of Advocate General Kokott delivered on 19 January 2023: Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62021CC0721> [Accessed February 2023].

At the stage of screening the need for an appropriate assessment under Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, as amended by Council Directive 2013/17/EU of 13 May 2013, features of the plan or project involving the removal of contaminants that may have the effect of mitigating a harmful effect on the protected site may be taken into account, where it is clear, on the basis of objective considerations, that those features were incorporated into the design as standard features irrespective of any effect on the protected site concerned, and all reasonable scientific doubt concerning their effectiveness can be ruled out.

If, following the screening process, a likely significant effect is predicted or cannot be ruled out; under Regulation 42(6), a Natura Impact Statement (NIS) is required in order to determine the potential for impact on the integrity of an internationally designated site. In the event of a negative assessment in terms of an adverse effect on Site integrity, a proposal can only be consented in the absence of feasible alternatives and for 'Imperative Reasons of Overriding Public Interest' (IROPI). In such cases, compensatory measures to ensure the integrity of the European Site is maintained, are required. The Guidance document on Article 6(4) of the 'Habitats Directive' states that:

Any uncertainty over the precise nature and/or magnitude of the adverse effects should be thoroughly tested. Where appropriate, a precautionary approach should be adopted, and the assessment of adverse effect based on a worse-case scenario.⁴

1.3.2 Requirement for a Natura Impact Statement

The Appropriate Assessment test assesses whether, in view of best scientific knowledge and applying the precautionary principle, and in light of the conservation objectives of the relevant European Sites, the proposed project, either alone or in combination with other plans or projects, may adversely affect the integrity of any European Site.

Regulation 42(9) of the 2011 Habitats Regulations states:

Where a public authority is required to conduct an Appropriate Assessment pursuant to paragraph (6) in relation to a plan or project that it proposes to undertake or adopt, it shall—

- (a) prepare a Natura Impact Statement,*
- (b) compile any other evidence including, but not limited to, scientific evidence that is required for the purposes of the Appropriate Assessment, and*
- (c) submit a Natura Impact Statement together with evidence compiled under subparagraph (b) to the Minister not later than six weeks before it proposes to adopt or undertake the plan or project to which the Natura Impact Statement and evidence relates.*

Section 177AE of the Planning and Development Act 2000 (as amended) sets out the appropriate procedure for local authority projects with potential to impact on European Sites. This requires that, where an Appropriate Assessment (hereinafter referred to as AA) is required in respect of a development by a local authority that is a planning authority, they will

⁴ European Commission (2007) Available at:
http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf [Accessed August 2023].

prepare, or cause to be prepared, a NIS. In this instance, the NIS shall be provided to An Bord Pleanála for them to undertake an AA.

With the Screening for AA having determined that potential significant effects on European Sites could not be excluded (see **Section 3** of this report), a NIS is required under Regulation 42(9) of the European Communities (Birds and Natural habitats) Regulations 2011. This NIS provides an assessment of the proposal considering potential impacts on Qualifying Interests (QIs) / Special Conservation Interests (SCI) within European Sites and provides mitigation proposals to avoid impacts on the integrity of European Sites. This allows for an audit trail through Article 6 of the EU Habitats Directive to facilitate an AA by a competent authority.

European Sites include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). SACs are designated for the protection of certain habitats and species under the Habitats Directive. Ireland is required under the terms of the EU Birds Directive (2009/147/EC) to designate SPAs for the protection of endangered species of wild birds. This includes certain listed rare and vulnerable species, regularly occurring migratory species, such as ducks, geese and waders, as well as wetlands, especially those of international importance, which attract large numbers of migratory birds each year.

1.4 Structure/Layout of the Report

This rNIS provides the information necessary for the Competent Authority, in this instance An Bord Pleanála, to undertake an AA of the three stages of development (i.e. ‘proposals’) outlined. The report sections, paragraphs and tables relate in sequence to the process of assessing the potential impact of the project in the context of sequential requirements of Article 6 of the EU Habitats Directive.

1.5 Main Sources of Information

The following guidance documents and sources of information were followed:

- Department of Environment, Heritage and Local Government (DoEHLG, 2009). Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities;
- European Community Habitats Directive (92/43/EEC) – The Habitats Directive;
- European Communities (Natural Habitats) Regulations 1997;
- European Commission Environment DG (2001). Assessment of plans and projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC;
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC;
- OSI Mapping⁵;
- Google Earth Pro;
- Environmental Protection Agency (EPA) Maps⁶;
- National Parks and Wildlife Services – Designations Viewer⁷;

⁵ OSI Mapping – Available at: <http://map.geohive.ie/mapviewer/> [Accessed August 2023].

⁶ EPA Maps – Available at: <https://gis.epa.ie/EPAMaps/> [Accessed August 2023].

⁷ NPWS Designations Viewer – Available at: <https://dahg.maps.arcgis.com/apps/webappviewer/> [Accessed August 2023].

- Meath County Council Planning Portal⁸;
- Environmental Management System (EMS) for Keegan Quarries Ltd, Tromman Quarry, Rathmolyon, Co. Meath. Byrne Environmental Consulting Ltd. (2009, updated August 2023);
- BCL Consultant Hydrogeologists Ltd. (2023). Tromman Quarry, Tromman, Rathmolyon Co. Meath – Planning Application for Substitute Consent for Unauthorised Development on Lands at Tromman Quarry – Hydrogeological and Hydrological Impact Assessment;
- Woodrow (2023). Remedial Ecological Impact Assessment (rEcIA) – Substitute Consent Application: Concrete Manufacturing Facility & Quarrying Activities, Tromman Quarry, Co. Meath.

1.6 Site Visits

Woodrow carried out site visits within the site boundary on the following dates:

- 28 August 2018 – An Extended phase 1 habitat assessment and habitat mapping.
- 16 October 2018 – An Extended phase 1 habitat assessment and habitat mapping.
- 18-19 June 2019 – Bat and breeding bird surveys

The above surveys were intended to establish an initial ecological baseline assessment at the site, while additional surveys performed in summer of 2023 (outlined below) sought to provide a contemporary update to this baseline. Data gathered were used to inform the rEcIA (Woodrow, 2023). For the rNIS, the information gathered during site visits can be used to assess the potential for the proposals to affect the integrity of European Sites.

Site visits performed during the 2023 field season were as follows:

- 12 July 2023 – Breeding bird survey.
- 01 August 2023 – Deployment of static bat detectors.
- 03 August 2023 – Terrestrial mammal and breeding bird survey.
- 10 August 2023 – Extended Phase 1 Habitat assessment, including assessment of potential roost features (PRFs) for bats and invasive alien species (IAS).

⁸ Meath County Council Planning Portal. Available at: <https://www.meath.ie/council/council-services/planning-and-building/planning-permission/> [Accessed September 2023].

2 DESCRIPTION AND FEATURES OF THE PROJECT

2.1 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, Co. Meath. The site is situated c. 2.2 km north-west of Rathmolyon Village and some 6.4 km south of Trim. The site is bounded to the west by Kilsaran's Tromman Quarry, to the south by the regional road R156 and to the north and east by agricultural fields. The location of the quarry site in relation to the wider landscape is presented in **Figure 1**.

2.2 Description of the Quarry Site

Quarrying has occurred on the site since the first grant of planning permission in December 1998 (Ref: 97/1 868). Operational works occurring on the quarry site include quarry extraction of material and concrete manufacturing. The general approach to operations has not varied substantially since this first approval and the unauthorised activities post 05 August 2018 have been confined to the main quarry void and therefore within the confines of the disturbed footprint of the quarry.

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

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

2.3 Subjects of this Remedial Natura Impact Statement

The three proposals outlined in **Table 1** below, are considered in the context of their impacts on European Sites.

Table 1. The three proposals of this rNIS.

Proposal	Proposal Title	Assessment Requirements	Background	Assessment Period
1	Manufacturing Facility Extension	<ol style="list-style-type: none"> 1. Construction of structures at the Pre-cast concrete manufacturing facility over the period 2013-2018. 2. Operation of the manufacturing facilities 	<p>The unauthorised construction of manufacturing structures in the northern section of the Site between 2013- 2018 (see Figure 2.1 – Figure 2.4). The foundations used for the additional structures was paved ground prior to their construction. The construction of the various structures was completed in less than six months, reflecting the limited groundworks and additional services required.</p>	2013 to 05 August 2018 (whereby this subject is then considered under Subject 2 below)
2	Cumulative Quarry Activities to include operation of manufacturing facility since August 2018	<ol style="list-style-type: none"> 1. Operation of the manufacturing Facility Extension 2. Placement of overburden and processing waste into storage 3. Maintenance of site waters 4. Drill and Blast 5. Crush and Haul 6. Transport to and from site 7. Restoration and after use 	<p>It is considered appropriate to consider the continued impact of all quarry activities within the red line boundary (see Figure 1) including the manufacturing facilities from the 05 August 2018 onwards, the point at which the continuation of site activities became unauthorised.</p> <p>It is considered that August 2018 comprises an additional baseline date, following which the environmental impact of all the site activities will need to be cumulatively considered, as SC is also being sought for the continuation of activities in the lacuna between expiration of consent and the submission of the application.</p>	05 August 2018 to submission of SC.
3	Immediate Remediation	<ol style="list-style-type: none"> 1. Site restoration 2. Post-restoration 	<p>The SC process does not allow for the granting of future development. As such, an application under Section 37L (s.37L) of the Act is submitted alongside this SC application.</p> <p>It is considered that two scenarios can therefore be reasonably expected to occur. The first scenario is that this SC application and the accompanying s.37L application are not granted and the site is restored and remediated. The second scenario is that the accompanying s.37L application is granted, with a continuation and extension of quarrying operations and associated manufacturing and ancillary operations at the site.</p> <p>The predicted impacts associated with the continuation of operations and extension of the existing quarry are detailed in a</p>	Immediate remediation to site restoration and post-restoration

Proposal	Proposal Title	Assessment Requirements	Background	Assessment Period
			separate ecological assessment and NIS, which is submitted as part of the s.37L application. It is however considered appropriate to consider the impact of immediate remediation to site restoration and post-restoration in the instance that the SC application related to this rNIS is not successful.	

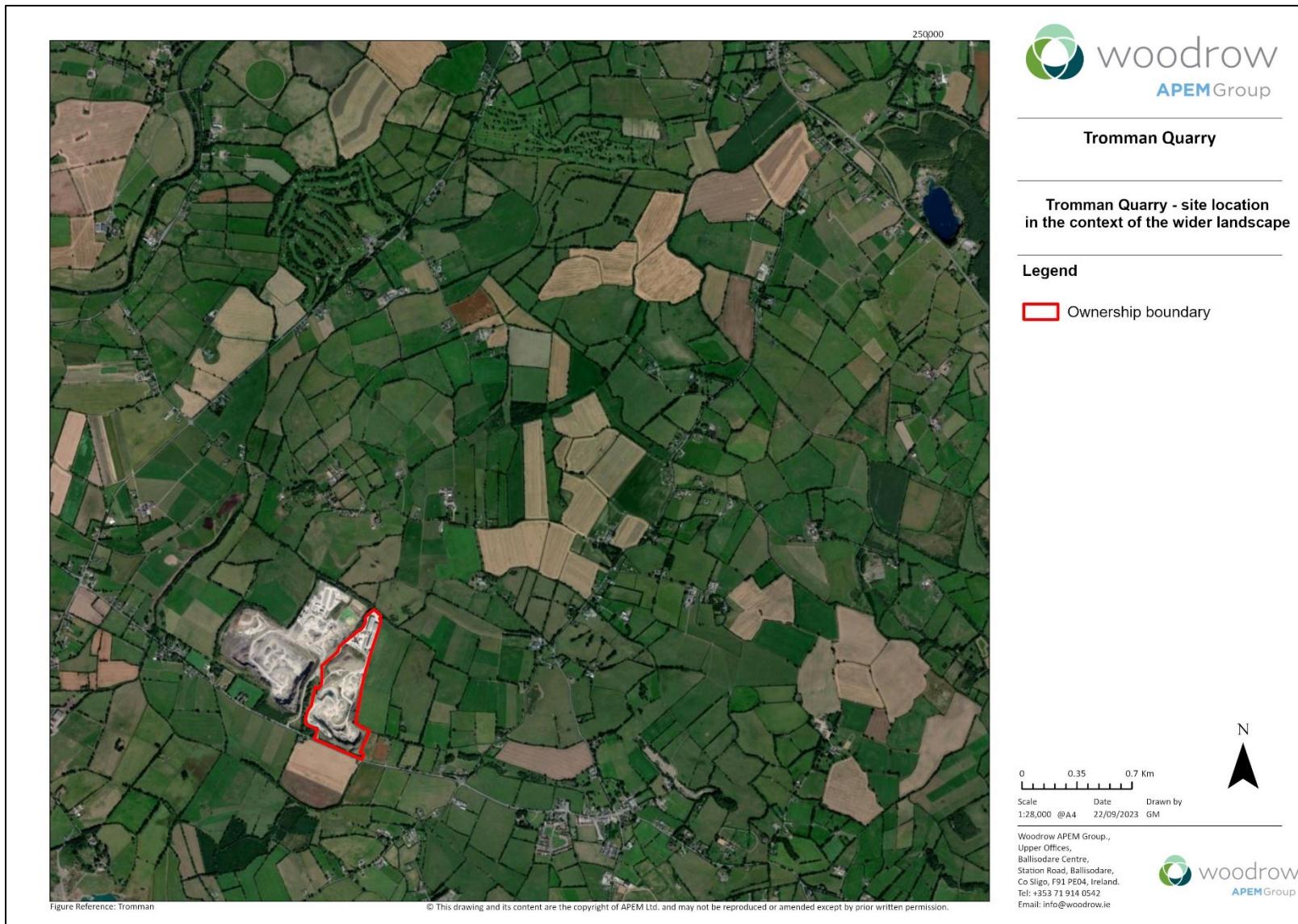


Figure 1. Site location in the context of the wider landscape.



Figure 2.1. The northern section of Tromman Quarry on 18 April 2009. Note that none of the additional structures listed have been built but the paved ground is visible. Source: rEIAR (2023).

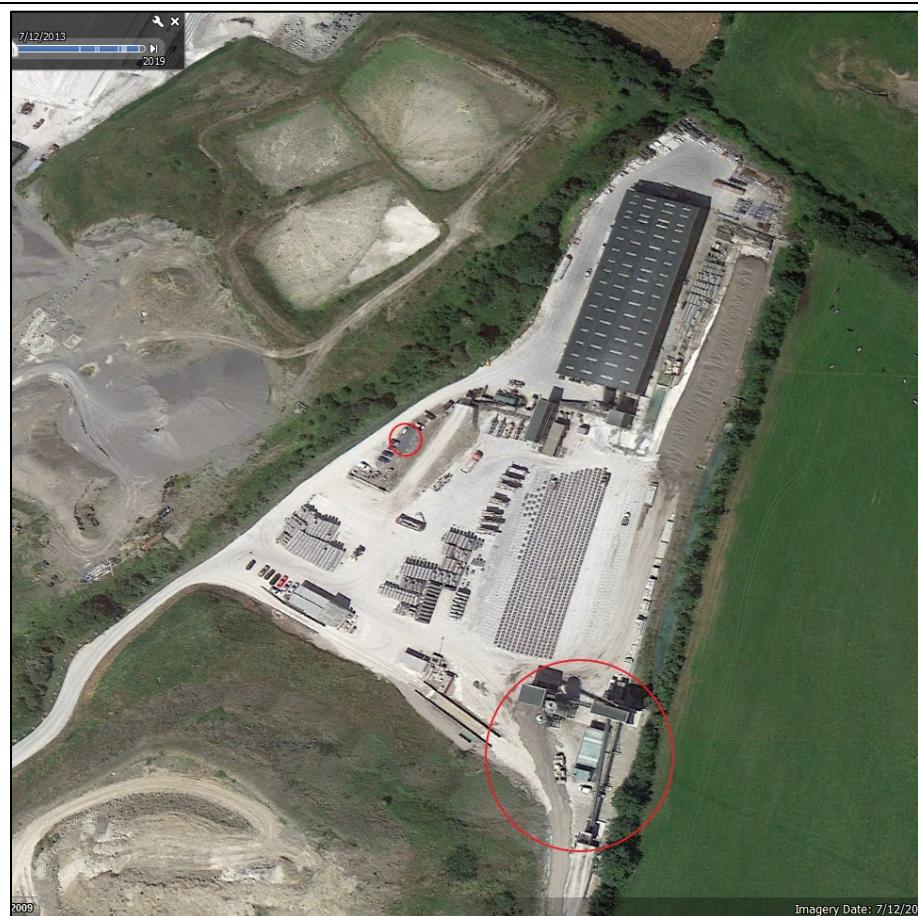


Figure 2.2. The northern section of Tromman Quarry on 12 July 2013. Note the introduction of a ready mixed concrete batching plant in the south-east corner of the manufacturing part of the site and the upgrading of the ESB substation on the western boundary. Source: rEIAR (2023).

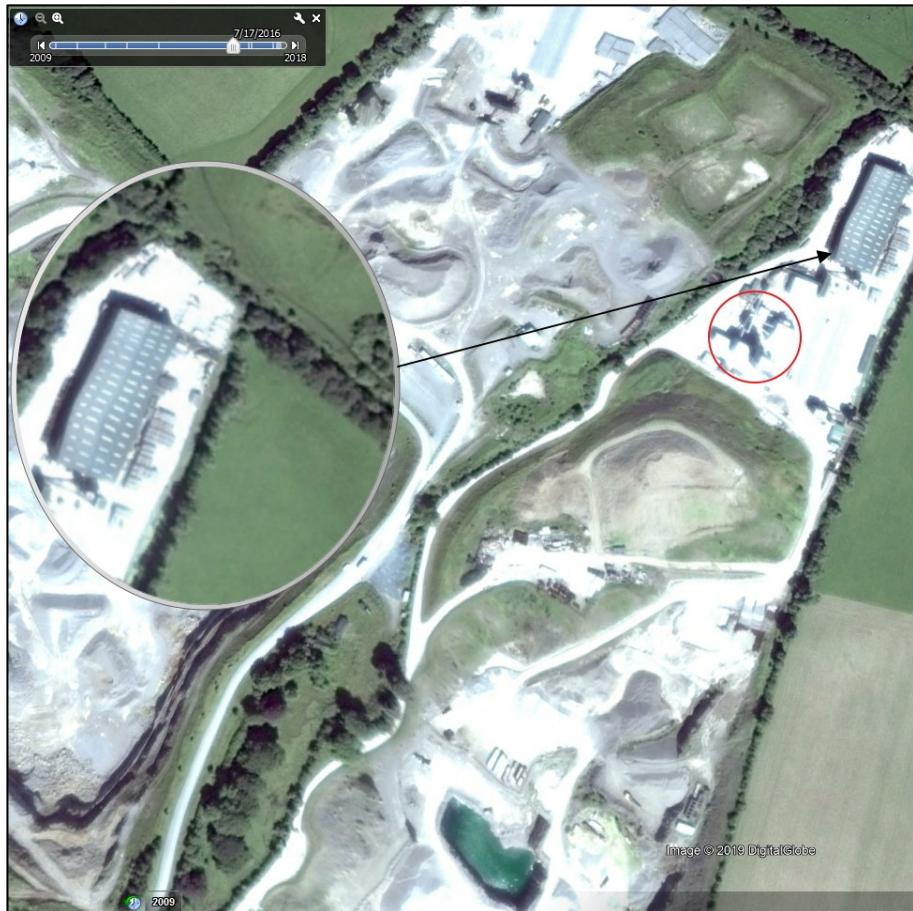


Figure 2.3. The northern section of Tromman Quarry on 17 July 2016. Note the concrete manufacturing yard including the recently erected limestone fines plant, (circled red), with the storage of concrete blocks on the open yard, immediately to the east of the permitted building (see inset) is also evident. Source: rEIAR (2023).



Figure 2.4. 24 March 2017 – The layout of the manufacturing part of the site as it currently stands, with the concrete yard and the internal arrangement of the concrete block making yard and associated storage area, reverting to the central location (see inset). Source rEIAR (2023).



Figure 3. Tromman Quarry on 27 August 2018 (left) and 27 August 2023 (right). Source: rEIAR (2023).

3 EUROPEAN SITES WITHIN THE ZONE OF INFLUENCE OF THE SITE

As stated above, European Directive 92/43/EEC (The Habitats Directive) requires that any plans or projects that could, alone or in combination with other plans or projects, affect a European Site, be subject to screening for potential significant effect on any European Site.

3.1 Screening Assessment of European Sites

The following section provides information on the European Sites in the vicinity of the three development proposals at Tromman, Co. Meath (namely the erection of additional structures in the precast manufacturing facilities, quarry activities since 05 August 2018 and immediate remediation) that have the potential to be within the Zone of Influence (ZoI). All European Sites within 15 km of the quarry site are shown in **Figure 4**.

The potential impacts on European Sites are dependent on the location, topography and environment at the development site, the nature of impacts arising, the sensitivity of receptors and the causal links and conduits, rather than simply the distance. In many cases the potential ZoI could be considerably less than 15 km (for example noise and airborne pollution) while the potential ZoI could be greater than 15 km, for example if there is a significant and direct hydrological pathway (e.g. a main river which flows directly into a European Site); or if the range of a QI/SCI extends over areas which are greater than 15 km from a European Site for which they are a listed feature of interest.

European Sites with potential pathways for impacts are identified in order to establish the ZoI of the proposals. These can then be assessed based on factors such as proximity to the proposed works, the QI/SCI of the European Sites (and the species or habitats upon which these rely), and their conservation status. Further information on this is also available within the Office of the Planning Regulator (OPR) (2021) *OPR Practice Note PN01 Appropriate Assessment Screening for Development Management*.

A surface water and groundwater management system has been in place since 2009 (see Environmental Management System EMS produced by Byrne Environmental Consulting Ltd.). As a result, all ingress waters (groundwater and surface runoff) within the Tromman Quarry landholding are discharged, under control, into a ditch at the north-eastern corner of the concrete products yard. This ditch gently descends to the north-west to its confluence with the Rathmolyon Stream, which is c. 200 m downstream from the quarry discharge point. EPA mapping (see **Figure 6**) shows the hydrological link with the SAC and SPA to be immediately north-west of the site, via the Rathmolyon Stream flowing into the Tromman Stream, which is designated as SAC along this section. However, during the course of site investigations this was not found to be the case; and the Rathmolyon Stream was found to turn perpendicular to the SAC, flowing north into the Knightsbrook stream, as correctly depicted in **Figure 7**.

The screening process highlights that three European Sites: River Boyne and River Blackwater SAC, River Boyne and River Blackwater SPA and Mount Hevey Bog SAC (see), occur within 15 km of the quarry site. While the Formal Stream also flows in a westerly direction c. 300 m south of the red line boundary, a review of the Hydrogeological and Hydrological Impact Assessment for the site (BCL Consultant Hydrogeologists Ltd., 2023), found that there is no direct hydrological pathway to this stream, with the only possible connectivity to the River Boyne and Blackwater SAC on the southern extent of the site, being

shallow road drains that run along the R156, and which were found to be dry during the site visits.

Therefore, the quarry site is c. 1 km south-east of the River Boyne and River Blackwater SAC in direct distance (see **Figure 5**) and c. 10 km south-west via hydrological connection (see **Figure 7**), while it is c. 2.6 km south-east of the River Boyne and River Blackwater SPA in direct distance (see **Figure 5**) and c. 10 km south-west via hydrological connection (see **Figure 7**). The quarry site is also c. 13 km north-east of the Mount Hevey Bog SAC. European Sites within the 15 km potential Zol are listed in **Table 1**, with **Figure 4** and **Figure 5** illustrating the proximity of the quarry site to these European Sites.

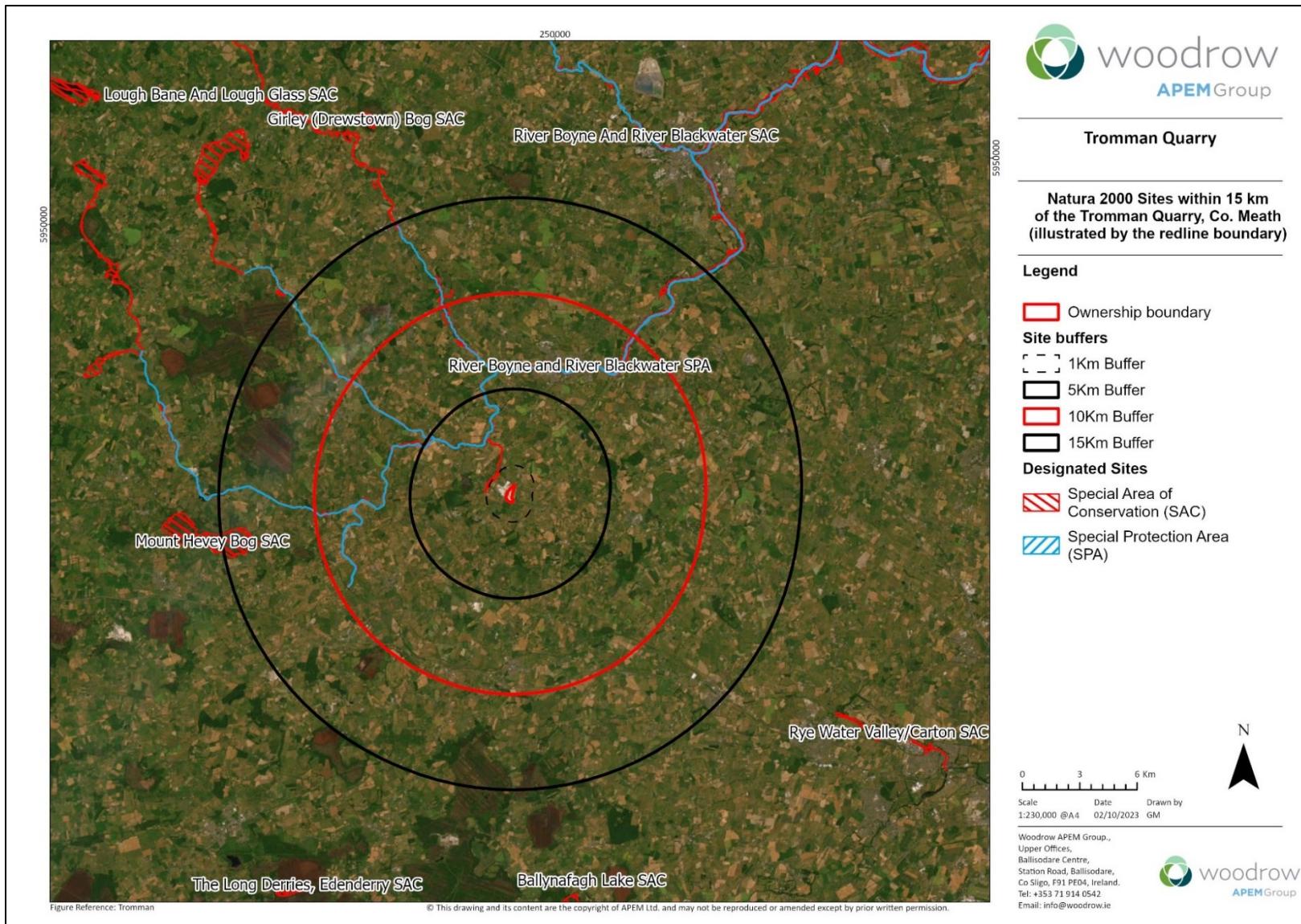


Figure 4. European Sites (Natura 2000 Sites) within 15 km of the Tromman Quarry, Co. Meath (illustrated by the red line boundary).

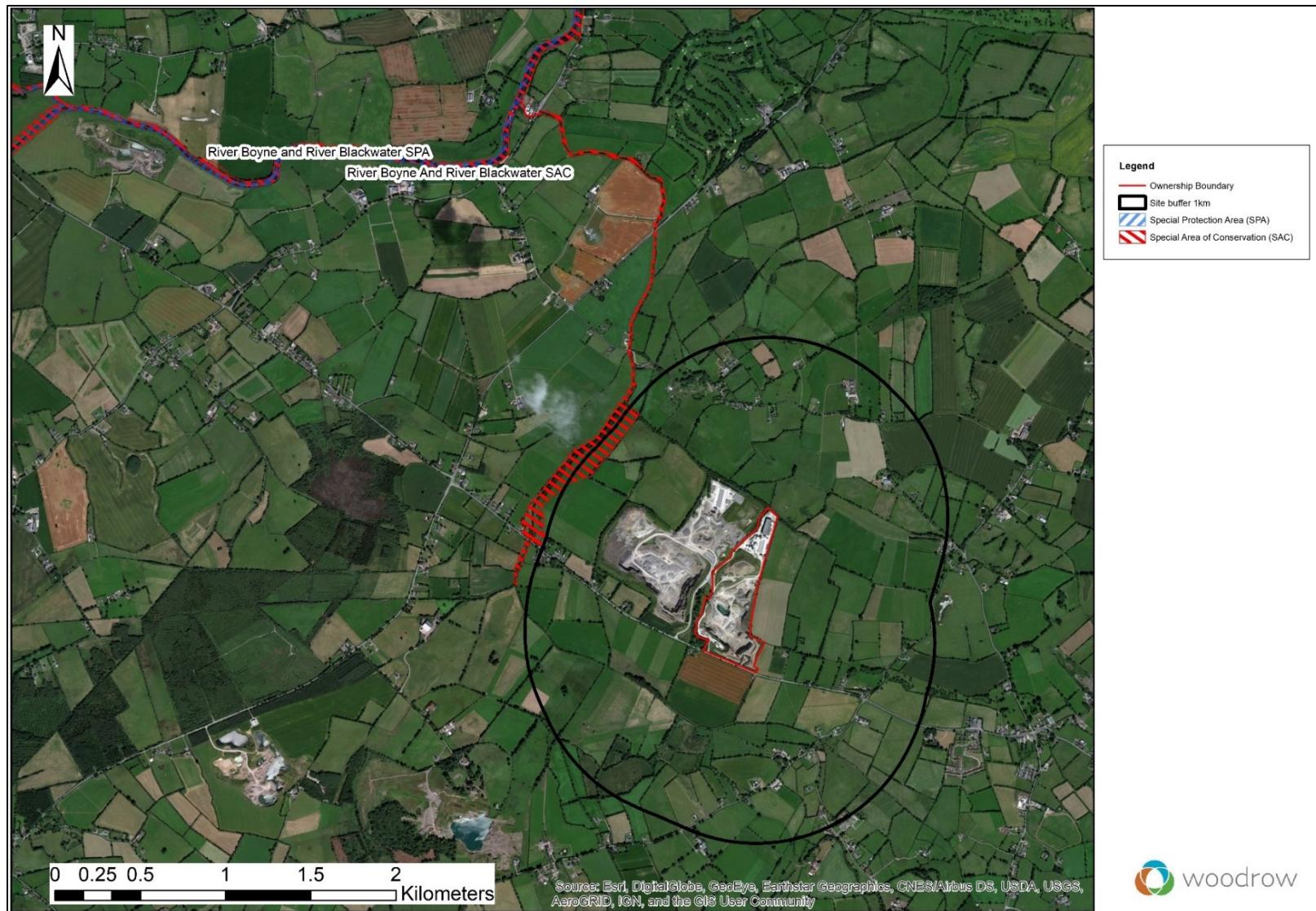


Figure 5. European Sites within 1 km of the quarry.

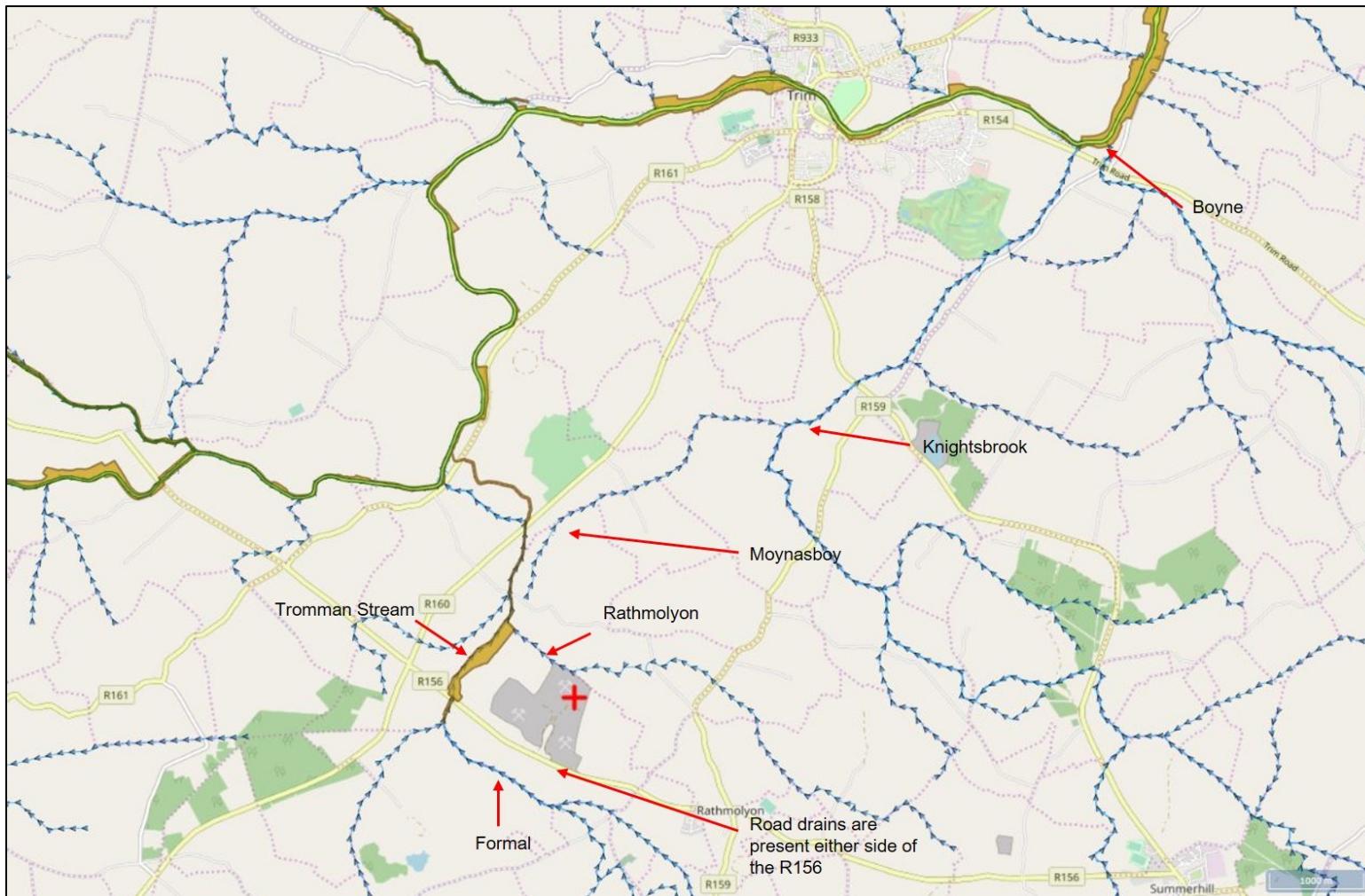


Figure 6. EPA mapping showing the local surface water network in relation to the quarry site (location denoted by red cross). The River Boyne and River Blackwater SAC is illustrated by the orange / brown colour. Source of the map and waterbody names: EPA⁹.

⁹ EPA Maps - <https://gis.epa.ie/EPAMaps/>

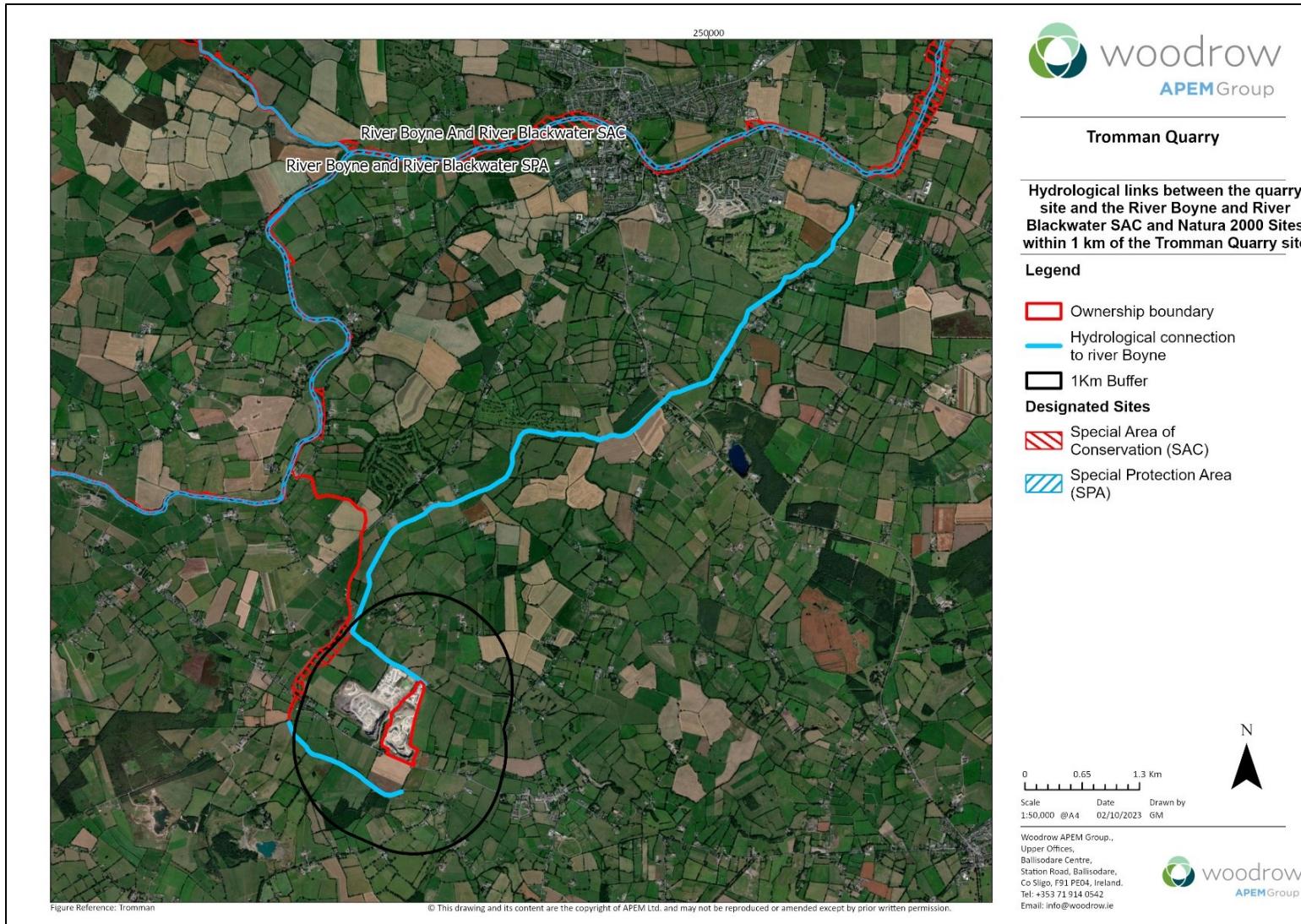


Figure 7. Simplified surface water map illustrating the correct hydrological links between the quarry site and the River Boyne and River Blackwater SAC.¹⁰

Table 2. European Sites with potential connectivity to the quarry, and which may incur impacts as a result of the three proposals outlined.

Likely Significant Effect - Where a plan or project is likely to undermine any of the Site's conservation objectives;

Possible Significant Effect - Where a plan or project has an indicated potential to undermine any of the Site's conservation objectives, but where doubt exists about the risk of a significant effect in the current context. Nevertheless, where doubt exists about the risk of a significant effect, use of the precautionary principle requires this effect to be considered appropriately within the Article 6 assessment.

Sites highlighted in grey have the potential to be affected by the proposals.

European Site Name (Site Code)	Qualifying Interests (QI's) {QI code} Special Conservation Interests (SCI) [SCI code] <small>* = Priority Habitats</small>	Approximate Distance of the European Site from the quarry site at the Closest Point	Within the Zone of Influence?	Proposals Number and Description of the Proposal	Potential for Significant Effects and nature of potential impact¹¹¹²
Special Areas of Conservation (SAC)					
River Boyne and River Blackwater SAC (002299)	<ul style="list-style-type: none"> • River lamprey (<i>Lampetra fluviatilis</i>) [1099] • Atlantic salmon (<i>Salmo salar</i>) [1106] • Otter (<i>Lutra lutra</i>) [1355] • Alkaline fens [7230]¹³ • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)* [91E0] 	<p>c. 1 km to the north-west in direct distance</p> <p>c. 10 km to the north east along a hydrological link (Rathmolyon and Knightsbrook streams) (see Figure 7)</p>	Yes	<p>Proposal 1: Construction of structure in the precast manufacturing facility:</p> <ul style="list-style-type: none"> - Construction of structures - Operation of the pre-cast manufacturing facility and ancillary structures 	<p>Possible Significant Effects –</p> <p>Potential localised water pollution (hydrocarbons) during construction operations and the potential indirect impact on the SAC.</p> <p>The potential inappropriate disposal of waste arising during the project and the potential indirect impact on the SAC.</p> <p>Potential localised water pollution (cement) during the operation of the Manufacturing Facility Extension.</p>
		<p>c. 1 km to the north-west in direct distance</p> <p>c. 10 km to the north-east along a hydrological link (Rathmolyon and Knightsbrook streams) (see Figure 7)</p>	Yes	<p>Proposal 2: Cumulative quarry activities since 05 August 2018</p> <ul style="list-style-type: none"> - Operation of the pre-cast manufacturing facility and ancillary structures - Placement of overburden and processing waste into storage - Maintenance of site waters 	<p>Possible Significant Effects –</p> <p>Potential localised water pollution (cement) during the operation of the manufacturing facility.</p> <p>Potential localised water pollution (cement and sediment) during placement of overburden and processing (via direct water entry and/or via airborne material entering the water).</p>

¹⁰ Note the hydrological link immediately north of the site was found by hydrologist surveys for the rEIAR to run perpendicular to the River Boyne and River Blackwater SAC and not to run directly into it as is shown in the EPA maps in Figure 6.

¹¹ EPA Maps - <https://gis.epa.ie/EPAMaps/> - Information from this website has been used to assist this screening exercise.

¹² EPA Flood Maps - <http://www.floodinfo.ie/map/floodmaps/> - Information from this website has been used to assist this screening exercise.

European Site Name (Site Code)	Qualifying Interests (QI's) {QI code} Special Conservation Interests (SCI) [SCI code] * = Priority Habitats	Approximate Distance of the European Site from the quarry site at the Closest Point	Within the Zone of Influence?	Proposals Number and Description of the Proposal	Potential for Significant Effects and nature of potential impact¹¹¹²
				<ul style="list-style-type: none"> - Drill and blast - Crush and haul - Transport to and from site - Restoration and after use 	<p>Potential water pollution (hydrocarbon, cement and sediment) during the maintenance of site waters.</p> <p>Potential surface water / groundwater pollution (sediment) during drill and blast.</p> <p>Potential water pollution (hydrocarbon and sediment) during crush and haul.</p> <p>Potential water pollution (hydrocarbon, cement and sediment) during transport to and from site.</p> <p>Potential water pollution (hydrocarbon, cement and sediment) during the restoration.</p>
		<i>c. 1 km to the north-west in direct distance</i> <i>c. 10 km to the north-east along a hydrological link (Rathmolyon and Knightsbrook streams) (see Figure 7)</i>	Yes	Proposal 3: Immediate remediation <ul style="list-style-type: none"> - Site restoration - Post—restoration 	Possible Significant Effects – <p>Potential water pollution (hydrocarbon, cement and sediment) during the restoration.</p> <p>Potential creation of otter habitat post-restoration and after use.</p>
Mount Hevey Bog SAC (002342)	<ul style="list-style-type: none"> • Active raised bogs* [7110] • Degraded raised bogs still capable of natural regeneration [7120] • Depression on peat substrates of the Rhynchosporion [7150] 	<i>c. 13 km to the south-west</i>	No	Proposal 1: Construction of structure in the precast manufacturing facility: <ul style="list-style-type: none"> - Construction of structures - Operation of the pre-cast manufacturing facility and ancillary structures 	None – <p>Given the location of this project (c. 13 km away from this SAC) and the fact that the habitats within the SAC are not hydrologically linked (and the habitats are rainwater fed regardless), it is considered that there is no realistic potential for significant effect.</p>
		<i>c. 13 km to the south-west</i>	No	Proposal 2: Quarry Activities since 05 August 2018 <ul style="list-style-type: none"> - Operation of the pre-cast manufacturing facility and ancillary structures - Placement of overburden and processing waste into storage 	None – <p>Given the location of this project (c. 13 km away from this SAC) and the fact that the habitats within the SAC are not hydrologically linked (and the habitats are rainwater fed regardless), it is considered that there is no realistic potential for significant effect.</p>

European Site Name (Site Code)	Qualifying Interests (QI's) {QI code} Special Conservation Interests (SCI) [SCI code] * = Priority Habitats	Approximate Distance of the European Site from the quarry site at the Closest Point	Within the Zone of Influence?	Proposals Number and Description of the Proposal	Potential for Significant Effects and nature of potential impact¹¹¹²
				<ul style="list-style-type: none"> - Maintenance of site waters - Drill and Blast - Crush and Haul - Transport to and from Site - Restoration and afteruse 	
		c. 13 km to the south-west	No	Proposal 3: Immediate remediation <ul style="list-style-type: none"> - Site restoration - Post—restoration 	None – <p>Given the location of this project (c. 13 km away from this SAC) and the fact that the habitats within the SAC are not hydrologically linked (and the habitats are rainwater fed regardless), it is considered that there is no realistic potential for significant effects.</p>
Special Protection Areas (SPAs)					
River Boyne and River Blackwater SPA (004232)	<ul style="list-style-type: none"> • Kingfisher (<i>Alcedo atthis</i>) [A229] 	c. 2.6 km north-west in direct distance c. 10 km to the north-east along a hydrological link (Rathmolyon and Knightsbrook streams) (see Figure 7)	Yes	Proposal 1: Construction of structure in the precast manufacturing facility: <ul style="list-style-type: none"> - Construction of structures - Operation of the pre-cast manufacturing facility and ancillary structures 	Possible Significant Effects – <p>Potential localised water pollution (hydrocarbons) during construction operations and the potential indirect impact on the SPA.</p> <p>The potential inappropriate disposal of waste arising during the project and the potential direct impact on the SPA.</p> <p>Potential localised water pollution (cement) during the operation of the Manufacturing Facility Extension.</p>
		c. 2.6 km north-west in direct distance	Yes	Proposal 2: Quarry Activities since 05 August 2018 <ul style="list-style-type: none"> - Operation of the pre cast manufacturing facility and ancillary structures. 	Possible Significant Effects – <p>Potential localised water pollution (cement) during the operation of the manufacturing facility.</p>

European Site Name (Site Code)	Qualifying Interests (QI's) {QI code} Special Conservation Interests (SCI) [SCI code] * = Priority Habitats	Approximate Distance of the European Site from the quarry site at the Closest Point	Within the Zone of Influence?	Proposals Number and Description of the Proposal	Potential for Significant Effects and nature of potential impact¹¹¹²
		<p>c. 10 km to the north-east along a hydrological link (Rathmolyon and Knightsbrook streams) (see Figure 7)</p>		<ul style="list-style-type: none"> - Placement of overburden and processing waste into storage - Maintenance of site waters - Drill and blast - Crush and haul - Transport to and from site - Restoration and after use 	<p>Potential localised water pollution (cement and sediment) during placement of overburden and processing (via direct water entry and/ via airborne material entering the water).</p> <p>Potential water pollution (hydrocarbon, cement and sediment) during the maintenance of site waters.</p> <p>Potential surface water/ groundwater pollution (sediment) during drill and blast.</p> <p>Potential water pollution (hydrocarbon and sediment) during crush and haul.</p> <p>Potential water pollution (hydrocarbon, cement and sediment) during transport to and from site.</p> <p>Potential water pollution (hydrocarbon, cement and sediment) during the restoration.</p>
		<p>c. 2.6 km north-west in direct distance</p> <p>c. 10 km to the north-east along a hydrological link (Rathmolyon and Knightsbrook streams) (see Figure 7)</p>	Yes	<p>Proposal 3: Immediate Remediation</p> <ul style="list-style-type: none"> - Site restoration - Post—restoration 	<p>Possible Significant Effects –</p> <p>Potential water pollution (hydrocarbon, cement and sediment) during the restoration.</p> <p>Potential creation of kingfisher habitat post-restoration and after use.</p>

Table 3. Screening matrix of the proximity of QIs/SCI of European Sites with the Zol of the quarry site.

QIs/SCI in **bold** have the potential to be affected by the proposals.

European Name Site (Site Code)	Qualifying Interests (QI's) {QI code} * = Priority Habitats	Proximity of the Qualifying Interest to the quarry site	Qualifying Interest within the Zone of Influence?
River Boyne and River Blackwater SAC (002299)	River lamprey (<i>Lampetra fluviatilis</i>) [1099]	River lamprey are present in the lower reaches of the Boyne River ¹⁴ , and the quarry site is linked to the mid and upper reaches of the River Boyne. Using the precautionary principle, this QI is taken to be within the Zol.	Ye
	Atlantic salmon (<i>Salmo salar</i>) [1106]	Atlantic salmon use the tributaries and headwaters as spawning grounds. Salmon run the River Boyne almost every month of the year ¹⁴ .	Yes
	Otter (<i>Lutra lutra</i>) [1355]	Otter can be found throughout the SAC ¹⁴ .	Yes
	Alkaline fens [7230]	The main areas of alkaline fen in the SAC are concentrated in the vicinity of Lough Shek, Freehan Lough and Newtown Lough which are c. 27 km north-west of the quarry site. There is no hydrological link between this section of the SAC and the quarry site.	No
	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)* [91E0]	Wet woodland fringes many stretches of the Boyne. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east ¹⁴ .	Yes
River Boyne and River Blackwater SPA (004232)	Kingfisher (<i>Alcedo atthis</i>) [A229]	This SPA includes the River Boyne and several of its tributaries ¹⁵ .	Ye

¹⁴ NPWS (2014). River Boyne and River Blackwater SAC (Site Code: 002299). Site Synopsis. Rev 13.Doc. Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002299.pdf> [Accessed August 2023].

¹⁵ NPWS (2010). River Boyne and River Blackwater SPA (Site Code: 004232). Site Synopsis. Available at: <https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004232.pdf> [Accessed August 2023].

3.2 Results of Screening for Appropriate Assessment

The proposals outlined involve 1) erection of additional structures in the pre-cast manufacturing facilities and operation of these facilities (2013-2018); 2) quarry activities post 05 August 2018 and 3) immediate remediation. All three proposals are located within an area that has been an active quarry since 1998. The pre-cast manufacturing facility and ancillary structures are located in the north of the quarry site (see **Figure 2.2**), whilst quarry activities and immediate remediation relate to the quarry site as a whole (see red line boundary in **Figure 1**). The three proposals are described in more detail in **Section 2.3, Table 1**.

The three proposals for the quarry site are not connected with or necessary for the management of any European Site. The quarry (i.e. the red line boundary, see **Figure 1**) is hydrologically linked to two European Sites, namely the River Boyne and River Blackwater SAC and SPA, which occur respective distances of c. 10 km to the north-east (via the Rathmolyon and Knightsbrook streams that flow along the northern boundary). As a result, these European Sites are considered to be within the Zol of the proposals, posing the risk of direct and indirect impacts¹⁶ and therefore the risk of significant effects occurring on these designated sites and their QIs/SCI.

The two European Sites and their QIs/SCI, which are considered to be within the Zol, are listed below. Due to the fact that these sites could be affected by the proposals for the reasons outlined below, it is deemed necessary, following application of the precautionary principle, to 'screen' them in and undertake an AA in order to consider if the proposals could undermine the integrity of these European Sites.

3.2.1 River Boyne and River Blackwater SAC (002299)

Qualifying Interests within the Zone of Influence

In relation to the three proposals, the quarry site is located c.1 km directly to the south-east of the River Boyne and River Blackwater SAC and a distance of c. 10 km to the south-west of the same European Site via a hydrological network that comprises the Rathmolyon and Knightsbrook streams, which flow along the northern boundary of the quarry (related to the manufacturing facilities (2013-2018) and quarry activities since 05 August 2018, as well as immediate remediation proposals) (see **Figure 7**).

Given the proximity of the site and the existing hydrological connection (albeit distant), it is considered that, as a precautionary approach, the three proposals have the potential to indirectly impact water quality at this European Site. As such, appropriate mitigation measures, which have been and/or will be in place, are required to protect the freshwater biota associated with this SAC. As a result, it is deemed necessary to include the River Boyne and River Blackwater SAC for Stage 2 AA.

The following QIs of the River Boyne and River Blackwater SAC could be affected by water quality impacts:

- River lamprey (*Lampetra fluviatilis*) [1099]
- Atlantic salmon (*Salmo salar*) [1106]
- Otter (*Lutra lutra*) [1355]

¹⁶In this report, direct impacts constitute direct or primary impacts to European Sites, for example habitat loss or mortality of QIs/SCI. Indirect or secondary impacts constitute pollution of watercourses which may flow into a European Site.

- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)* [91E0].

Conservation Objectives for the Qualifying Interests within the Zone of Influence

The conservation objectives for otter are to maintain the favourable conservation condition for the species, while for river lamprey (*Lampetra fluviatilis*), Atlantic salmon (*Salmo salar*) and alluvial forests it is to restore the favourable conservation conditions of these species / habitat (NPWS, 2021).

3.2.2 River Boyne and River Blackwater SPA (004232)

Qualifying Interests within the Zone of Influence

The quarry site is c. 2.6 km south-east in direct distance and c. 10 km to the south-west via the closest hydrological connection to the River Boyne and River Blackwater SPA (see **Figure 7**). As before and adopting a precautionary approach, it is considered that the proposals have the potential to result in indirect water quality impacts, and appropriate mitigation measures, which have been, and/or will be in place, are required to protect the associated SCI of this SPA. As a result, it is deemed necessary to include the River Boyne and River Blackwater SPA for Stage 2 AA.

The following SCI of the River Boyne and River Blackwater SPA could be affected by water quality impacts:

- Kingfisher (*Alcedo atthis*) [A229]

Conservation Objectives for the Qualifying Interests within the Zone of Influence

To maintain or restore the favourable conservation condition of the bird species listed as SCI for this SPA (NPWS, 2022).

3.3 Conclusions

Following the screening process above, the screening matrix of all impacts (see **Table 2**) ruled out one European Site (Mount Hevey Bog SAC) for further assessment based on the distance from the site and the lack of a source-pathway-receptor linkage between the QIs and the quarry as well as their specific sensitivities. Two European Sites, namely the River Boyne and River Blackwater SAC and SPA, have been identified as being within the Zol.

Without consideration of the onsite conditions and pre-existing mitigation measures, the Screening for AA has concluded that there was, and is, capacity for Potential Significant Effects to occur on the River Boyne and River Blackwater SAC and SPA and that a rNIS is required. These European Sites and their associated QIs/SCI fall within the Zol of the proposals outlined in **Table 1** (as presented in **Table 2** and **Table 3**, and above) and are assessed in **Table 4** as part of the AA process. The rNIS is presented from **Section 4** of this report.

4 REMEDIAL NATURA IMPACT ASSESSMENT: DESCRIPTION OF EUROPEAN SITES AND QUALIFYING INTERESTS / SPECIAL CONSERVATION INTERESTS POTENTIALLY AFFECTED

4.1 European Sites Identified within the Screening for Appropriate Assessment

The Screening for AA (see **Section 3**) specifically deals with the potential for likely significant effects on European sites (and their QIs/SCI) and where this arises, the rNIS aims to assess whether the development proposals may have affected or will affect the integrity of any European Site.

The conclusions of the Screening for AA exercise can be found in **Section 3.3** of this rNIS. The Screening for AA concluded that potential significant effects on the River Boyne and River Blackwater SAC and SPA could not be ruled out at the screening stage. The AA screening identified that the three proposals occurring within the quarry site are hydrologically connected to both these European Sites (see **Figure 7**), with potential source-pathway receptor linkages that might result in water quality impacts, and subsequent knock-on effects for the QIs/SCI for which these sites are designated. Specifically, there was considered to be a potential significant effect on Atlantic salmon, river lamprey, otter and alluvial woodland within the River Boyne and River Blackwater SAC and kingfisher (*Alcedo atthis*) in the River Boyne and River Blackwater SPA.

In terms of the River Boyne and River Blackwater SAC and SPA, the following assessment considers the potential effects of water quality changes on the associated habitat and species features. This addresses the specific issues relating to the effect of distance, existing mitigation, and monitoring of discharge at the quarry site. In all instances, a worst-case scenario (pollution incident) is assessed against the pre-existing mitigation, as well as operational mitigation (for example as detailed within the Hydrogeological and Hydrological Impact Assessment – BCL Consultant Hydrogeologists Ltd., 2023). The assessment is concentrated solely on the features and potential impacts highlighted in the screening assessment (i.e. water quality impacts and associated effects on Atlantic salmon, river lamprey, otter, alluvial woodland and kingfisher).

Following a review of the Hydrogeological and Hydrological Impact Assessment for the site (BCL Consultant Hydrogeologists Ltd., 2023), it was discovered that there is no direct hydrological pathway to the stream located to the south of the quarry (Formal Stream), and therefore no risk of pollution to this watercourse. In light of this, a worst-case scenario would only occur where the proposals result in a significant detrimental change in water quality within the stream located to the north of the site (Rathmolyon Stream), either alone or in combination with other plans or project.

Table 4. Potential Significant Effects matrix for European Sites and QIs/SCI within the Zol that have the potential to be significantly affected by the three proposals.

European Site	Qualifying Interest (QI) / Special Conservation Interests (SCI)	Connectivity	Development activities	Potential Impact type and effect	Potential Cause
River Boyne and River Blackwater SAC (002299)	<ul style="list-style-type: none"> • River lamprey (<i>Lampetra fluviatilis</i>) [1099] • Atlantic salmon (<i>Salmo salar</i>) [1106] • Otter (<i>Lutra lutra</i>) [1355] • Alkaline fens [7230] • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)* [91E0] 	c. 10 km to north-east via hydrological link (see Figure 7)	<p>Proposal 1: Construction of structure in the precast manufacturing facility:</p> <ul style="list-style-type: none"> - Construction of structures - Operation of the pre-cast manufacturing facility and ancillary structures 	<p>Reduction in water quality through:</p> <ul style="list-style-type: none"> - Sedimentation resulting in inhibition of respiration in aquatic organisms, particularly salmonids. - Siltation resulting in smothering of fish eggs and affecting suitability of spawning locations. - Accidental release of toxic chemicals (hydrocarbons) and materials (cement & concrete) into surface waters directly poisoning fish and aquatic organisms 	<p>Construction of structure in the pre-cast manufacturing facility</p> <p>Construction related pollution events could impact water quality locally, however, given the distance of the hydrological link, only the accidental release of extreme volumes of toxic substances would have the potential to impact upon the European sites.</p>
			<p>Proposal 2: Cumulative quarry activities since 05 August 2018</p> <ul style="list-style-type: none"> - Operation of the pre-cast manufacturing facility and ancillary structures - Placement of overburden and processing waste into storage - Maintenance of site waters - Drill and blast - Crush and haul - Transport to and from site - Restoration and after use 	<p>Prolonged deterioration in water quality would affect the habitat suitability and survivability of Atlantic salmon and river lamprey, thereby reducing prey availability for otter.</p> <p>Pollution to surface waters (limnic, terrestrial, marine & brackish) is noted as having an impact on alluvial woodland in Ireland, however the occurrence is low (O'Neill <i>et al.</i> 2013).</p>	<p>Quarry activities since 05 August 2018</p> <p>Quarrying activities without appropriate mitigation in place could impact on water quality locally, however, given the hydrological distance, only the accidental release of extreme volumes of toxic substances would have the potential to impact the European Sites in question.</p>
			<p>Proposal 3: Immediate remediation</p>	<p>Positive ecological impacts are likely to be associated with the site restoration including the creation of a lake, which could</p>	<p>Immediate remediation</p> <p>Dewatering activities will cease, and this will</p>

European Site	Qualifying Interest (QI) / Special Conservation Interests (SCI)	Connectivity	Development activities	Potential Impact type and effect	Potential Cause
			<ul style="list-style-type: none"> - Site restoration - Post—restoration 	provide potential habitat for otter.	further diminish the hydrological link between the European Sites and the quarry.
River Boyne and River Blackwater SPA (004232)	Kingfisher (<i>Alcedo atthis</i>) [A229]	c. 10 km to north-east via hydrological link (see Figure 7)	Proposal 1: Construction of structure in the precast manufacturing facility: <ul style="list-style-type: none"> - Construction of structures - Operation of the pre-cast manufacturing facility and ancillary structures 	Sedimentation and the release of toxic chemicals may negatively affect the survival and reproduction of fish, therefore reducing prey availability for kingfisher.	Construction of structure in the precast manufacturing facility Construction related pollution events could impact water quality locally, however, given the distance of the hydrological link, only the accidental release of extreme volumes of toxic substances would have the potential to impact the European Sites
			Proposal 2: Cumulative quarry activities since 05 August 2018 <ul style="list-style-type: none"> - Operation of the pre-cast manufacturing facility and ancillary structures - Placement of overburden and processing waste into storage - Maintenance of site waters - Drill and blast - Crush and haul - Transport to and from site - Restoration and after use 	Prolonged deterioration in water quality would impact on food sources for kingfisher. Excessive levels of discharge have the potential to alter water levels, which potentially impacts on kingfisher nesting holes in riverbanks through bank erosion and inundation.	Quarry activities since 05 August 2018 Quarrying activities without appropriate mitigation in place could impact on water quality locally, however, given the distance of the hydrological link, only the accidental release of extreme volumes of toxic substances would have the potential to impact the European Sites
			Proposal 3: Immediate remediation <ul style="list-style-type: none"> - Site restoration - Post—restoration 	Positive ecological impacts are likely to be associated with the site restoration including the creation of a lake, which could provide potential habitat for kingfisher.	Immediate remediation Dewatering activities will cease, and this will further diminish the hydrological link between the European Sites and the quarry.

4.2 Description of European Sites within the Zone of Influence

Appendix I provides a copy of the site synopsis for the River Boyne and River Blackwater SAC, while **Appendix II** provides a copy of the site synopsis for the River Boyne and River Blackwater SPA.

4.3 Assessment of Potential Impacts

The screening assessment concluded that potential significant effects on the River Boyne and River Blackwater SAC and SPA could not be ruled out at the screening stage. Specifically, in the absence of mitigation, there was considered to be potential for significant effects on Atlantic salmon, river lamprey, otter and alluvial woodland within the SAC, as well as kingfisher within the SPA. These effects are primarily associated with a deterioration in water quality resulting from quarry activity.

In terms of the River Boyne and River Blackwater SAC and SPA, the following sections consider the potential effects of water quality changes on the associated habitat and species features. These address the specific issues relating to the effect of distance, existing mitigation, and monitoring of discharge at the quarry site. In all cases, the embodied mitigation in the design and approach of the proposal, as well as proposed operational mitigation (for example as detailed within the Hydrogeological and Hydrological Impact Assessment – BCL Consultant Hydrogeologists Ltd., 2023) are considered.

The assessment is concentrated solely on the features and potential impacts highlighted in the screening assessment (i.e. impacts relating to water quality and any subsequent effects on Atlantic salmon, river lamprey, otter, alluvial woodland and kingfisher).

4.3.1 River Boyne and River Blackwater SAC

Status of designated features within the SAC

The River Boyne and River Blackwater SAC supports important populations of three species listed on Annex II of the E.U. Habitats Directive, namely:

- River lamprey (*Lampetra fluviatilis*) [1099]
 - present in the lower reaches of the Boyne River
- Atlantic salmon (*Salmo salar*) [1106]
 - run the River Boyne almost every month of the year and the Boyne is important as it represents an eastern river which supports large multi-sea-winter fish
- Otter (*Lutra lutra*) [1355]
 - occur throughout the site.

The SAC also holds the priority Annex I habitat Alluvial forests with *Alnus glutinosa* & *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae), and while the area of wet woodland is small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks, as well as the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site.

Water quality impacts

The Annex II species listed as QIs of the SAC, specifically Atlantic salmon, river lamprey and otter are sensitive to water pollution. Reduction in water quality through sedimentation, and associated nutrients, can result in inhibition of respiration in aquatic organisms, particularly salmonids. Siltation can result in smothering of fish eggs and can affect the suitability of spawning locations. The accidental release of toxic chemicals (hydrocarbons) and materials (cement & concrete) into surface waters can directly poison fish and other aquatic organisms. Prolonged deterioration in water quality would affect the habitat suitability and survivability of Atlantic salmon and river lamprey, thereby reducing prey availability for otter.

Alluvial forests are generally removed from the water environment, except in times of flooding and are not considered to be at risk from water pollution in this instance. The main threats to alluvial forests include fragmented nature, abundance of alien invasive species and sub-optimal grazing regimes and drainage (O'Neill *et al.*, 2013). It is considered that there is no reasonable potential link, as there is no link to land use within the SAC and therefore no potential for influence of grazing regimes or drainage.

Potential for impacts

Proposal 1: Construction of Structures at Precast Concrete Manufacturing Facility

At the time of construction, the concrete manufacturing area was already fully paved and considered an impermeable surface, thus eliminating the risk of contamination to groundwater in the vicinity of the works. Moreover, the surface type and gradient was unchanged by the introduction of these manufacturing facilities, and hence they did not impact upon factors influencing rainfall runoff or drainage (BCL Consultant Hydrogeologists Ltd., 2023). In addition, ongoing control measures to mitigate against contamination of surface waters, including the construction of a surface water and groundwater management system, have been in place since 2009 (see Environmental Management System EMS produced by Byrne Environmental Consulting Ltd.).

On the basis that the mitigation measures outlined in the EMS were adhered to in full, and all surface runoff was collected in the settlement lagoons (latterly newly constructed tanks 2016/2017 and upgraded in 2023) for discharge via the consented discharge point (as covered by Trade Effluent Discharge Licence Ref. 04/2), the risk of local surface water and groundwater becoming contaminated as a result of construction activities is considered to have been low.

Proposal 2: Precast Concrete Manufacture area and ancillary structures combined with quarry activities since 05 August 2018

All ingress waters (groundwater and rainfall runoff) within the Tromman Quarry landholding are discharged into a ditch at the north-eastern corner of the concrete products yard. This ditch gently descends to the north-west to its confluence with the Rathmolyon Stream, which is 200 m downstream from the quarry discharge point. There were control measures in place to mitigate against contamination of surface waters including the construction of a surface water and groundwater management system since 2009 (see EMS produced by Byrne Environmental Consulting Ltd).

Given that extraction activities have mainly been focused within the quarry floor in the southern extent of the quarry (with a new face created in the quarry floor), coupled with the fact that the gradient on-site naturally draws water away from the adjoining watercourses situated to the north, then there is not expected to have been any direct surface runoff associated with quarrying activities. As of 2019, data derived from routine monitoring of the quarry discharge point, demonstrated that discharge largely complied with the specified discharge limits set out in the discharge consent (Trade Effluent Discharge Licence Ref. 04/2).

Despite a broad level of compliance, it is important to note some instances where measured values exceeded those limits specified in the consent, particularly concerning suspended solids (Discharge Effluent Quality Reports provided by Byrne Environmental Consulting Ltd.) These incidents, while relatively infrequent, underscore the need for continued vigilance regarding water quality standards.

However, on the basis that the mitigation measures outlined in the EMS were adhered to in full the risk of local surface water and groundwaters becoming contaminated as a result of manufacturing and quarrying activities is still considered to have been low. Given the hydrological distance to the European Sites concerned, it is considered that these measures were sufficient to ensure any impacts occurring. It is therefore concluded that the quarry actives in combination with pre-cast concrete manufacturing actives did not have the potential to impact on the QIs of the River Boyne and River Black Water SAC.

Proposal 3: Immediate remediation

During the remediation process the mitigation measures outlined above will still be in place and adhered to; and as such, the risk of downstream impacts arising from remediation of the site, sufficiently reduced.

Positive ecological impacts are likely to be associated with site restoration including the creation of a small lake, which could provide potential habitat for otter. In addition, dewatering activities will cease, and this will further diminish the hydrological link between the European Sites and the quarry.

4.3.2 River Boyne and River Blackwater SPA

Status of designated features within the SPA

The River Boyne and River Blackwater SPA, which has been designated solely for kingfisher (*Alcedo atthis*) [A229], historically supports a nationally important population of this species, with 19 pairs recorded in 2010 and 20-22 territories recorded in 2008.

Water quality impacts

Potential impacts primarily pertain to either major pollution incidents directly affecting the birds or a gradual decline in water quality that could reduce the availability of their food, particularly small fish, and aquatic invertebrates.

Potential for impacts

As with the potential for impact on the SAC, it is considered that the water control and pollution prevention measures currently in place (as detailed in **Section 6**) are sufficient to ensure

protection of the downstream SPA from any level of impact. It is therefore concluded that the quarry operations, across all the periods assessed, did not have the potential to impact upon kingfisher within the River Boyne and River Blackwater SPA.

During the remediation process, mitigation measures will still be in place; and as such, the risk of downstream impacts arising from remediation of the site, sufficiently reduced. Again, positive ecological impacts are likely to be associated with site restoration including the creation of a small lake, which could provide potential habitat for kingfisher. In addition, dewatering activities will cease, and this will further diminish the hydrological link between the European Sites and the quarry.

5 CONSIDERATION OF ‘IN-COMBINATION’ IMPACTS

Article 6 of the EU Habitats Directive states that any plan or project that may, either alone or in combination with other plans or projects, significantly affect a European Site should be the subject of an AA. The assessment of in-combination impacts is therefore an important part of the screening process.

In-combination impacts can be an issue when proposals have a small impact on European Sites as a result of factors such as disturbance or pollution. If other proposals also have a further small impact, the combined result can be a significant impact on the European Site.

The only potential impacts on European Sites likely to have originated from the quarry over its operational lifespan to date, or to arise from the current operation, pertains to the potential deterioration of water quality within the River Boyne and River Blackwater SAC and SPA. As outlined previously, this is largely due to a distant hydrological connection between the quarry and these SAC/SPA.

As no other potential impacts are considered to exist, the following exclusively relates to potential cumulative water quality impacts arising from the three stages of development at Tromman Quarry. These impacts may manifest in the presence of other sources of pollution in the River Boyne catchment, and more locally, in the Knightsbrook stream. The Meath County Council Planning Portal¹⁷ was searched for planning proposals (permitted and/or built) that occur along the same hydrological connection linking the quarry with the River Boyne and River Blackwater SAC. While most planning proposals pertain to the erection or extension of dwellings and farm buildings, some pertain to larger scale developments, such as the erection of warehouses or upgrades to the existing water treatment plant at Trim, Co. Meath. The latter of these applications occurs in close proximity to the River Boyne and River Blackwater SAC and includes the construction of new buildings and configuration of the existing water treatment building.

A search was also performed for known quarries within the locality. These vary considerably in scale, current level of activity and materials extracted, and include the following:

- Kilsaran’s at Tromman
- Farrelly’s at Castletown
- Fitzsimon’s at Rathmolyon
- Dixson’s at Tobertynan
- Des Keegan & Sons Ltd at Cloncowan
- Roadstone Trim at Bray Hill, Stokestown just south of Trim

While there was limited information available on five of the quarries in the area, planning records show that the neighbouring quarry belonging to Kilsaran was granted conditional planning permission for continued extraction and processing on site (2021), as well as the development of an agricultural lime production unit (2018). As with the current application, a discharge consent also exists for this quarry (Trade Effluent Discharge License Ref. 14/04).

¹⁷ Meath County Council Planning Portal. Available at: <https://www.meath.ie/council/council-services/planning-and-building/planning-permission/> [Accessed September 2023].

In-combination water quality impacts relate to both localised impacts on the Rathmolyon and Knightsbrook streams, as well as downstream impacts on the River Boyne and River Blackwater SAC and SPA. The most recent Q-value rating (2020) classifies the Knightsbrook stream as having 'Moderate Status' (Q3-4) in accordance with Water Framework Directive (WFD) monitoring. While this signifies a minor decline in water quality compared to the previous monitoring cycle, it remains marginally superior to another monitoring station located upstream of where the Rathmolyon (which receives discharge from Tromman Quarry) and the Knightsbrook streams converge. This suggests that while there may have been other pressures elsewhere in the river network, the quarry itself is unlikely to have contributed to cumulative water quality impacts.

In addition, water samples are collected on a regular basis and submitted for laboratory analysis in order to demonstrate compliance with the discharge consent (Trade Effluent Discharge Licence Ref. 04/2).

While the discharge waters generally adhered to the standards specified in the discharge consent, there was observed variability in suspended solid levels. These levels ranged from <2 mg/l (below the laboratory limit of detection) to a single instance of 41 mg/l in September 2022 (as per Discharge Effluent Quality Reports provided by Byrne Environmental Consulting Ltd.). However, the measured values for suspended solids mostly remained below the Emission Limit Values (ELV) of 35 mg/l set out within the EPA (2006) environmental management guidelines for the extractive industry, as well as the European Communities (Quality of Salmonid Waters) Regulations 1988 (S.I. No. 293 of 1988), which established a standard of ≤ 25 mg/l for salmonid waters. This includes the main channel of the River Boyne, which constitutes part of the River Boyne and Blackwater SAC and SPA located c. 10 km away.

Therefore, provided the mitigation measures outlined in the Keegan Quarries Ltd. EMS were adhered to in full, then there is not considered to be any potential for quarry operations to contribute to cumulative water quality impacts on these two European Sites.

6 MITIGATION

The following mitigation measures were considered:

- Since 2009, all ingress water within the site has been collected in the settlement lagoons (latterly newly constructed tanks 2016/2017 and upgraded in 2023) for discharge via the consented discharge point.
- Water treatment approaches employed by the quarry include a recently upgraded settlement system and a discharge volume limit. The discharge into a ditch in the north-east corner is covered by Trade Effluent Discharge Licence Ref. 04/2.
- Water samples have been collected from the discharge point annually on a quarterly basis and submitted for laboratory analysis in order to demonstrate compliance with the limits specified in the consent.

There were, and continue to be, control measures in place to mitigate against contamination of surface waters including the construction of a surface water and ground water management system in 2009 – see Environmental Management System (EMS - Byrne Environmental Consultants Ltd., 2009, updated August 2023). In relation to protecting surface waters within the Keegan Quarry site, the EMS (Byrne Environmental Consultants Ltd. 2019) states:

The following general guidelines have been considered in designing an effective surface water management system for the site.

- *Solid inert waste will be disposed of by licensed removal from the site or by recycling on the site in a designated inert waste recycling location and in a manner that will not impact on surface waters.*
- *Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment in the designated storage location. Drip trays, mobile bunds and permanent bunded areas will be installed to minimize the potential for pollution of surface water bodies.*
- *Fuelling and lubrication of vehicles and mobile plant and equipment will not be carried out close to water courses and will be conducted on concrete surfaced areas.*
- *All refill points for fuels, lubricants, hydraulic fluids or any other hydro-carbon based liquids will be located in a hardstanding bunded area.*
- *Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and any contaminated soil removed from the site and properly disposed of by an appropriately licensed contractor.*
- *Foul drainage from site offices, canteen and toilets will be discharged to the biocycle system and percolation area.*
- *All concreted surfaces used for refuelling will be drained to a petrol/oil interceptor unit.*
- *Sites for use as storage areas, machinery depots, site offices, internal haul roads or the disposal of spoil will be located as far as is practicable from watercourses.*
- *All surface water collected on-site shall be diverted to the surface water settlement pond prior to discharge via a petrol/oil interceptor to surface water.*
- *No water shall be pumped from the quarry without passing through the settlement pond system.*

- The settlement lagoons shall be inspected weekly by the Site Manager and all settled solids shall be removed by pumping as required to ensure the capacity and efficiency of the lagoons is maintained at all times.*

Absorbent materials such as absorbent booms and vermiculite will be held on site and any spillages of organic liquids such as oils, greases etc will be contained and cleaned up immediately. The contaminated absorbent material will be correctly stored in a designated area on-site prior to being collected and disposed of by an approved contractor.

All accidental discharge incidents shall be immediately reported to the environment department of Meath County Council by the Quarry Manager.

On the basis that the mitigation measures outlined in the EMS were in place, and all surface runoff was collected in the settlement lagoons for discharge via the consented discharge point (as covered by Trade Effluent Discharge Licence Ref. 04/2), the risk of local watercourses and groundwaters becoming contaminated as a result of construction activities and ongoing quarry operations, is considered to have been low. It is considered that these measures, in combination with the distance between the proposals and the European Sites, are sufficient to ensure protection of the downstream SAC and SPA from any level of impact. It is therefore concluded that the quarry has not, does not, and will not have the potential to impact on the features of the SAC or SPA through the three stages of development considered.

7 CONCLUSIONS

This rNIS assessed whether any of the three development proposals, either individually or when combined with other plans or projects, had or might have an adverse impact on the integrity of any European Site, considering the best available scientific knowledge and applying the precautionary principle.

The Screening for AA concluded that likely significant effects could not be excluded for the River Boyne and River Blackwater SAC and SPA. The following QI/SCI were considered to be within the Zol:

River Boyne and River Blackwater SAC

- River lamprey (*Lampetra fluviatilis*) [1099]
- Atlantic salmon (*Salmo salar*) [1106]
- Otter (*Lutra lutra*) [1355]
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)* [91E0].

River Boyne and River Blackwater SPA

- Kingfisher (*Alcedo atthis*) [A229]

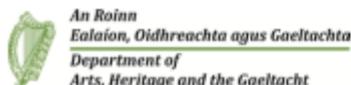
The two European Sites, and associated QI/SCI listed above, were assessed as part of the AA process. This process found that whilst a number of potential impacts pertaining to water quality were identified, including in-combination impacts, the mitigation measures presented in **Section 6** eliminate the potential for any adverse effects.

Taking into account the best available scientific knowledge, applying the precautionary principle, and considering the conservation objectives of the relevant European Sites, it is concluded that the three quarry proposals, whether on their own or in conjunction with other plans or projects, do not pose or have not posed an adverse impact on the integrity of any European Site.

8 REFERENCES

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APPENDIX I SITE SYNOPSIS – RIVER BOYNE AND RIVER BLACKWATER SAC



SITE SYNOPSIS

Site Name: River Boyne and River Blackwater SAC

Site Code: 002299

This site comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath, and smaller areas of Cavan and Louth. The underlying geology is Carboniferous Limestone for the most part, with areas of Upper, Lower and Middle well represented. In the vicinity of Kells Silurian Quartzite is present while close to Trim are Carboniferous Shales and Sandstones. There are many large towns adjacent to but not within the site, including Slane, Navan, Kells, Trim, Athboy and Ballivor.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- [7230] Alkaline Fens
- [91E0] Alluvial Forests*
- [1099] River Lamprey (*Lampetra fluviatilis*)
- [1106] Atlantic Salmon (*Salmo salar*)
- [1355] Otter (*Lutra lutra*)

The main areas of alkaline fen in this site are concentrated in the vicinity of Lough Shesk, Freehan Lough and Newtown Lough. The hummocky nature of the local terrain produces frequent springs and seepages which are rich in lime. A series of base-rich marshes have developed in the poorly-drained hollows, generally linked with these three lakes. Open water is usually fringed by Bulrush (*Typha latifolia*), Common Club-rush (*Scirpus lacustris*) or Common Reed (*Phragmites australis*), and this last species also extends shorewards where a dense stand of Great Fen-sedge (*Cladium mariscus*) frequently occurs. This in turn grades into a sedge and grass community (*Carex* spp. and Purple Moor-grass, *Molinia caerulea*), or one dominated by Black Bog-rush (*Schoenus nigricans*). An alternative aquatic/terrestrial transition is a floating layer of vegetation. This is normally based on Bogbean (*Menyanthes trifoliata*) and Marsh Cinquefoil (*Potentilla palustris*). Other species gradually become established on this cover, especially plants tolerant of low nutrient status e.g. bog mosses (*Sphagnum* spp.). Diversity of plant and animal life is high in the fen and the flora includes many rarities. Plants of interest include Narrow-leaved Marsh-orchid (*Dactylorhiza traunsteineri*), Fen Bedstraw (*Galium uliginosum*), Cowbane (*Cicuta virosa*), Frogbit (*Hydrocharis morsus-ranae*) and Least Bur-reed (*Sparganium minimum*). These species tend to be restricted in their distribution in Ireland. Also notable is the

abundance of aquatic stoneworts (*Chara* spp.) which are characteristic of calcareous wetlands.

The rare plant Round-leaved Wintergreen (*Pyrola rotundifolia*) occurs around Newtown Lough. This species is listed in the Red Data Book and this site represents its only occurrence in Co. Meath.

Wet woodland fringes many stretches of the Boyne. The Boyne River Islands are a small chain of three islands situated 2.5 km west of Drogheda. The islands were formed by the build-up of alluvial sediment in this part of the river where water movement is sluggish. All of the islands are covered by dense thickets of wet, willow (*Salix* spp.) woodland, with the following species occurring: Osier (*S. viminalis*), Crack Willow (*S. fragilis*), White Willow (*S. alba*), Purple Willow (*Salix purpurea*) and Rusty Willow (*S. cinerea* subsp. *oleifolia*). A small area of Alder (*Alnus glutinosa*) woodland is found on soft ground at the edge of the canal in the north-western section of the islands. Along other stretches of the rivers of the site Rusty Willow scrub and pockets of wet woodland dominated by Alder have become established, particularly at the river edge of mature deciduous woodland. Ash (*Fraxinus excelsior*) and Downy Birch (*Betula pubescens*) are common in the latter, and the ground flora is typical of wet woodland with Meadowsweet (*Filipendula ulmaria*), Wild Angelica (*Angelica sylvestris*), Yellow Iris (*Iris pseudacorus*), horsetails (*Equisetum* spp.) and occasional tussocks of Greater Tussock-sedge (*Carex paniculata*).

The dominant habitat along the edges of the river is freshwater marsh, and the following plant species occur commonly in these areas: Yellow Iris, Creeping Bent (*Agrostis stolonifera*), Canary Reed-grass (*Phalaris arundinacea*), Marsh Bedstraw (*Galium palustre*), Water Mint (*Mentha aquatica*) and Water Forget-me-not (*Myosotis scorpioides*). In the wetter areas Common Meadow-rue (*Thalictrum flavum*) is found. In the vicinity of Dowth, Fen Bedstraw (*Galium uliginosum*), a scarce species mainly confined to marshy areas in the midlands, is common in this vegetation. Swamp Meadow-grass (*Poa palustris*) is an introduced plant which has spread into the wild (naturalised) along the Boyne approximately 5 km south-west of Slane. It is a rare species which is listed in the Red Data Book and has been recorded among freshwater marsh vegetation on the banks of the Boyne in this site. The only other record for this species in the Republic of Ireland is from a site in Co. Monaghan.

The secondary habitat associated with the marsh is wet grassland and species such as Tall Fescue (*Festuca arundinacea*), Silverweed (*Potentilla anserina*), Creeping Buttercup (*Ranunculus repens*), Meadowsweet and Meadow Vetchling (*Lathyrus pratensis*) are well represented. Strawberry Clover (*Trifolium fragiferum*), a plant generally restricted to coastal locations in Ireland, has been recorded from wet grassland vegetation at Trim. At Rossnaree river bank on the River Boyne, Round-Fruited Rush (*Juncus compressus*) is found in alluvial pasture, which is generally periodically flooded during the winter months. This rare plant is only found in three counties in Ireland.

Along much of the Boyne and along tributary stretches are found areas of mature deciduous woodland on the steeper slopes above the floodplain marsh or wet woodland vegetation. Many of these are planted in origin. However the steeper areas of King Williams Glen and Townley Hall wood have been left unmanaged and now have a more natural character. East of Curley Hole the woodland has a natural appearance with few conifers. Broadleaved species include oaks (*Quercus spp.*), Ash, willows, Hazel (*Corylus avellana*), Sycamore (*Acer pseudoplatanus*), Holly (*Ilex aquifolium*), Horse-chestnut (*Aesculus hippocastanum*) and the shrubs Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*) and Elder (*Sambucus nigra*). Southwest of Slane and in Dowth, some more exotic tree species such as Beech (*Fagus sylvatica*), and occasionally Lime (*Tilia cordata*), are seen. The coniferous trees Larch (*Larix sp.*) and Scots Pine (*Pinus sylvestris*) also occur. The woodland ground flora includes Barren Strawberry (*Potentilla sterilis*), Enchanter's-nightshade (*Circaea lutetiana*) and Ground-ivy (*Glechoma hederacea*), along with a range of ferns. Variation occurs in the composition of the canopy - for example, in wet patches alongside the river, White Willow and Alder form the canopy.

Other habitats present along the Boyne and Blackwater include lowland dry grassland, improved grassland, reedswamp, weedy waste ground, scrub, hedge, drainage ditch and canal. In the vicinity of Lough Shesk, the dry slopes of the morainic hummocks support grassland vegetation which, in some places, is partially colonised by Gorse (*Ulex europaeus*) scrub. Those grasslands which remain unimproved for pasture are species-rich, with Common Knapweed (*Centaurea nigra*), Creeping Thistle (*Cirsium arvense*) and Ribwort Plantain (*Plantago lanceolata*) commonly present. Fringing the canal alongside the Boyne south-west of Slane are areas with Reed Sweet-grass (*Glyceria maxima*), Great Willowherb (*Epilobium hirsutum*) and Meadowsweet.

The Boyne and its tributaries form one of Ireland's premier game fisheries and the area offers a wide range of angling, from fishing for spring salmon and grilse to seatrout fishing and extensive brown trout fishing. Atlantic Salmon (*Salmo salar*) use the tributaries and headwaters as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the Habitats Directive. Atlantic Salmon run the Boyne almost every month of the year. The Boyne is most important as it represents an eastern river which holds large three-sea-winter fish from 20-30 lb. These fish generally arrive in February, with smaller spring fish (10 lb) arriving in April/May. The grilse come in July, water permitting. The river gets a further run of fish in late August and this run would appear to last well after the fishing season. The salmon fishing season lasts from 1st March to 30th September.

The Blackwater is a medium sized limestone river which is still recovering from the effects of the arterial drainage scheme of the 1970s. Salmon stocks have not recovered to the numbers that existed pre-drainage. The Deel, Riverstown, Stoneyford and Tremblestown Rivers are all spring-fed, with a continuous high volume of water. They are difficult to fish because some areas are overgrown, while others have been affected by drainage with resultant high banks.

This site is also important for the populations of two other species listed on Annex II of the E.U. Habitats Directive which it supports, namely River Lamprey (*Lampetra fluviatilis*), which is present in the lower reaches of the Boyne River, and Otter (*Lutra lutra*), which can be found throughout the site. In addition, the site also supports many more of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. Common Frog, another Red Data Book species, also occurs within the site. All of these animals, with the addition of the Stoat and Red Squirrel, which also occur within the site, are protected under the Wildlife Act, 1976.

Whooper Swans winter regularly at several locations along the Boyne and Blackwater Rivers. Known sites are at Newgrange (approx. 20 in recent winters), near Slane (20+ in recent winters), Wilkinstown (several records of 100+) and River Blackwater from Kells to Navan (104 at Kells in winter 1996/97, 182 at Headfort in winter 1997/98, 200-300 in winter 1999/00). The available information indicates that there is a regular wintering population of Whooper Swans based along the Boyne and Blackwater River valleys. The birds use a range of feeding sites but roosting sites are not well known. The population is substantial, certainly of national, and at times international, importance. Numbers are probably in the low hundreds.

Intensive agriculture is the main land use along the site. Much of the grassland is in very large fields and is improved. Silage harvesting is carried out. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the lakes. In the more extensive agricultural areas sheep grazing is carried out.

Fishing is a main tourist attraction on the Boyne and Blackwater and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. The Eastern Regional Fishery Board have erected fencing along selected stretches of the river as part of their salmonid enhancement programme. Parts of the river system have been arterially dredged. In 1969 an arterial dredging scheme commenced and disrupted angling for 18 years. The dredging altered the character of the river completely and resulted in many areas in very high banks. The main channel from Drogheda upstream to Navan was left untouched, as were a few stretches on the Blackwater. Ongoing maintenance dredging is carried out along stretches of the river system where the gradient is low. This is extremely destructive to salmonid habitat in the area. Drainage of the adjacent river systems also impacts on the many small wetland areas throughout the site. The River Boyne is a designated Salmonid Water under the E.U. Freshwater Fish Directive.

The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as examples of other important habitat types. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks, and the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site, as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species.

APPENDIX II: SITE SYNOPSIS RIVER BOYNE AND RIVER BLACKWATER SPA

SITE SYNOPSIS

SITE NAME: RIVER BOYNE AND RIVER BLACKWATER SPA

SITE CODE: 004232

The River Boyne and River Blackwater SPA is a long, linear site that comprises stretches of the River Boyne and several of its tributaries; most of the site is in Co. Meath, but it extends also into Co. Cavan, Louth and Westmeath. It includes the following river sections: the River Boyne from the M1 motorway bridge, west of Drogheda, to the junction with the Royal Canal, west of Longwood, Co Meath; the River Blackwater from its junction with the River Boyne in Navan to the junction with Lough Ramor in Co. Cavan; the Tremblestown River/Athboy River from the junction with the River Boyne at Kilnagross Bridge west of Trim to the bridge in Athboy, Co. Meath; the Stoneyford River from its junction with the River Boyne to Stonestown Bridge in Co. Westmeath; the River Deel from its junction with the River Boyne to Cummer Bridge, Co. Westmeath. The site includes the river channel and marginal vegetation.

Most of the site is underlain by Carboniferous limestone but Silurian quartzite also occurs in the vicinity of Kells and Carboniferous shales and sandstones close to Trim.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive of special conservation interest for the following species: Kingfisher.

A survey in 2010 recorded 19 pairs of Kingfisher (based on 15 probable and 4 possible territories) in the River Boyne and River Blackwater SPA. A survey conducted in 2008 recorded 20-22 Kingfisher territories within the SPA. Other species which occur within the site include Mute Swan (90), Teal (166), Mallard (219), Cormorant (36), Grey Heron (44), Moorhen (84), Snipe (32) and Sand Martin (553) – all figures are peak counts recorded during the 2010 survey.

The River Boyne and River Blackwater Special Protection Area is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.