February 2024

Stage 1: Appropriate Assessment - Screening and Stage 2: Natura Impact Statement

Quarry Extension, Kilmacow, Co. Kilkenny

Roadstone Ltd

Fortunestown, Dublin 24. Co. Dublin

MALONE O'REGAN ENVIRONMENTAL

QUALITY
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Title: Stage 1: Appropriate Assessment - Screening and Stage 2: Natura Impact Statement, Quarry Extension, Kilmacow, Co. Kilkenny, Roadstone Ltd

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Approved By: Dyfrig Hubble **Signed:** _____

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Stage 1: Appropriate Assessment - Screening and Stage 2: Natura Impact Statement

Quarry Extension, Kilmacow, Co. Kilkenny

Roadstone Ltd

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1 INTRODUCTION

Malone O'Regan Environmental (MOR) has been commissioned by Roadstone Limited ('the Applicant') to undertake an Appropriate Assessment to assess the likely significant effects, if any, of an expansion of their existing rock quarry in Kilmacow, Co. Kilkenny on nearby sites with European conservation designations (i.e., Natura 2000 sites).

Kilmacow Quarry is primarily located in the townland of Granny, with the southern portion of the landholding extending into Aglish North. Kilmacow Quarry is located circa (ca.) 40km south of Kilkenny Town, Co. Kilkenny and ca.5.5km northwest of Waterford City, Co. Waterford. The currently permitted extractive area of the quarry is ca.27 Hectares (ha), but with the inclusion of ancillary infrastructure, the collective area is 62.07ha ('the Quarry'). The Quarry is situated in the Roadstone landholding which covers an area of ca.84ha, refer to the blueline boundary presented in Figure 1-1 for context ('the Landholding').

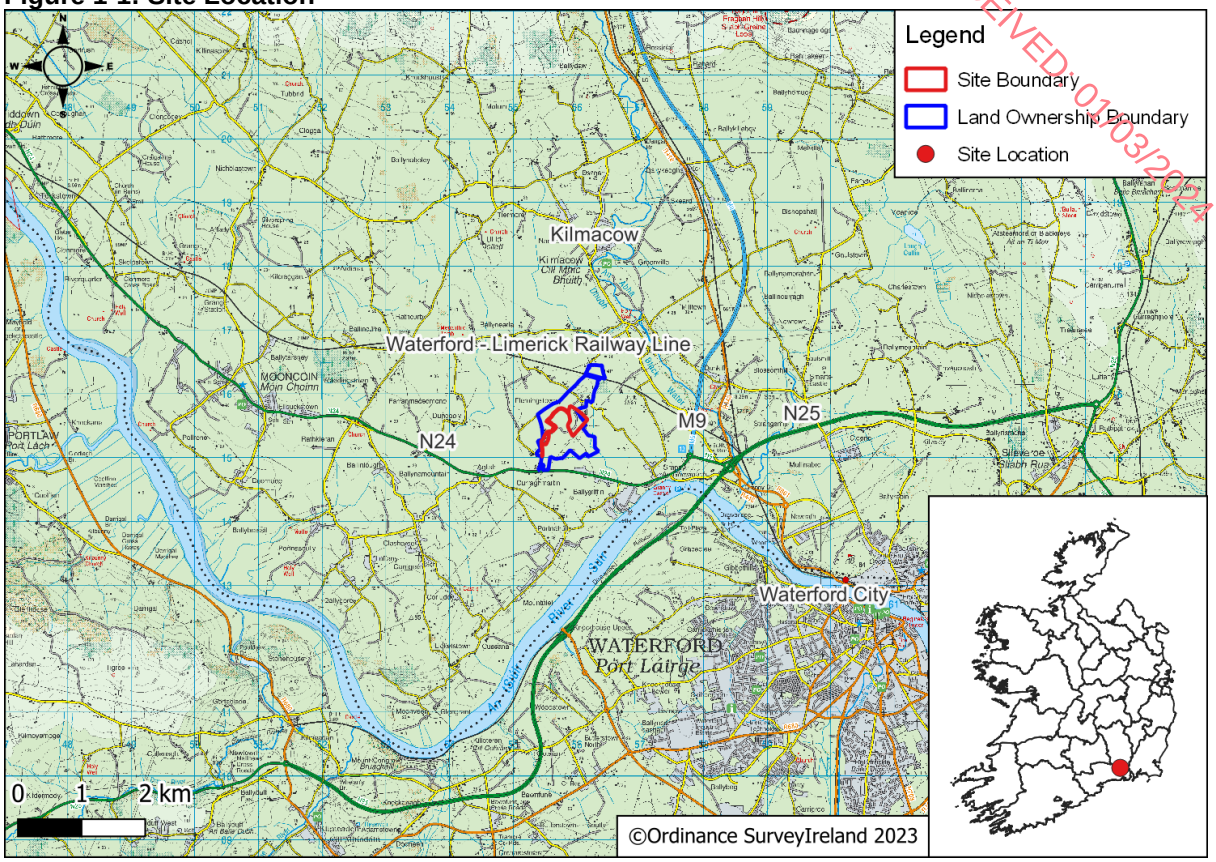
The proposed extension does not seek to increase production output at the Quarry, but to provide access to a known quality aggregate reserve at depths of up to -45 metres Ordnance Datum (mOD) from a surface level of ca.34mOD (the 'Proposed Development'). As such, this application will not seek to amend the authorised output from the Quarry, but rather extend the extraction area and extend the operational life for the Quarry in terms of aggregate production.

The Proposed Development will be located on a site that is ca.10.3 hectares (ha) in size at Ordnance Survey centre co-ordinates as Irish Transverse Mercator (ITM) 655604 615465, refer to the redline boundary shown in Figure 1-1 below for context ('the Site').

This report has been prepared to inform the Planning Authority with regard to Stage 1 (Screening) and Stage 2 (Appropriate Assessment) of the Proposed Development through the research and interpretation of best scientific, geographic and engineering knowledge and in view of the conservation objectives of the surrounding European sites. This report seeks to determine whether the Proposed Development will, on its own or in-combination with other plans / projects have a significant effect on European sites within a defined zone of influence of the Site.

On completion of the Appropriate Assessment Screening Report, it was found necessary to progress to a Stage 2 of the Appropriate Assessment process and prepare a Natura Impact Statement (NIS) to assess effects on the integrity of European sites.

Figure 1-1: Site Location



1.1 Statement of Authority

This report was checked by Ms. Sarah de Courcy, Environmental Consultant. Sarah is a qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has over 3 years' experience working in the ecological consultancy sector. Sarah has extensive experience in the preparation of Appropriate Assessment reports for various projects within Ireland. She has conducted these projects for a range of industrial sectors and different project types.

This report was reviewed and approved by Mr. Dyfrig Hubble, Associate Director - Ecologist. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Dyfrig has over 18 years' experience working in the ecological consultancy sector, including habitat surveys and appraisals and specialist protected species surveys in support of Appropriate Assessments.

1.2 Regulatory Context

The following guidance documents were adhered to for the preparation of this NIS report:

- OPR Practice Note PN01, *Appropriate Assessment for Screening for Development Management*, The Office of the Planning Regulator [1];
- *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*, European Commission [2];
- *Guidelines for Ecological Impact Assessment in the UK and Ireland*, Chartered Institute of Ecology and Environmental Management [3];

- *Managing Natura 2000 Sites:* The Provision of Article 6 of the Habitats Directive 92/43/EEC [4]*;*
- *Appropriate Assessment of Plans and Projects in Ireland, Guidance for Planning Authorities,* DoEGLH [5]; and,
- *Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10*, DoEGLH [6]*.*

This NIS was prepared in accordance with and in compliance with the following legislation:

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna better known as "The Habitats Directive". This provides the framework for legal protection for habitats and species of European importance. Articles 3 to 9 provide the legislative means to protect habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as Natura 2000. The Habitats Directive was transposed into Irish law by the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations (S.I. 477 / 2011) (as amended) [7].

For completeness, the Planning and Development Act 2000 (as amended) [8] states "European site" means:

a. A candidate site of Community Importance;
b. A site of Community Importance, F815 [(ba) a candidate Special Area of Conservation];
c. A Special Area of Conservation (SAC);
d. A candidate Special Area of Conservation (cSAC); or,
e. A Special Protection Area (SPA)

These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Conservation of Wild Birds Directive (79/409/EEC as amended 2009/149/EC) (better known as "The Birds Directive"). The Birds Directive was also transposed into Irish law through the Planning and Development Act 2000 (as amended) and S.I 477 / 2011 [7].

Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment.

> *"Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public".*

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures. First, the project should aim to avoid any negative impacts on European sites by identifying possible impacts early in the planning stage and designing the project in order to avoid such impacts. Second, mitigation measures should be applied, if necessary, during the Appropriate Assessment (AA) process to the point, where no adverse impacts on the site(s) remain. If the project is still likely to result in adverse effects, and no further practicable

mitigation is possible, it is rejected. If no alternative solutions are identified and the project is required for imperative reasons of overriding public interest (IROPI test) under Article 6 (4) of the Habitats Directive, then compensation measures are required for any remaining adverse effect.

1.3 Stages of Appropriate Assessment

There are four distinct stages to undertaking an AA as outlined in current European Union (EU) and Department of Environment, Heritage and Local Government (DoEHLG) guidance:

Stage 1: Screening

This process identifies the potential impacts of a plan or project on a Natura site, either alone or in combination with other plans and projects and considers whether these impacts are likely to be significant. If potentially significant impacts are identified the plan or project cannot be screened out and must proceed to Stage 2.

Stage 2: Appropriate Assessment

Where potentially significant impacts are identified, an assessment of the potential mitigation of those impacts is required; this stage considers the appropriateness of those mitigation measures in the context of maintaining the integrity of the Natura 2000 sites. If potential significant impacts cannot be eliminated with appropriate mitigation measures, the assessment must proceed to Stage 3.

Stage 3: Assessment of Alternatives Solutions

This process examines alternative ways to achieve the objectives of the plan or project that avoid adverse impacts on the integrity of the Natura 2000 site if mitigation measures are deemed insufficient.

Stage 4: Imperative Reasons of Overriding Public Interest (IROPI)

Assessment where no alternative solution exists for a plan or project and where adverse impacts remain. This includes an assessment of compensatory measures, where in the case of projects or plans, can be considered necessary for IROPI.

2 METHODOLOGY

2.1 Determining Zone of Influence

The starting point for this assessment was to determine the Zone of Influence. The Zone of Influence comprises of the area in which the Proposed Development may potentially affect the conservation objectives (or qualifying interests) of a European site.

Guidance in Appropriate Assessment of Plans and Projects in Ireland notes that a distance of 15km is recommended for the identification of relevant European sites [5]. However, guidance from the NPWS recommends that the distance should be evaluated on a case-by case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects (cumulative) [6]. For some projects the distance could be greater than 15km, and in some cases less than 100m.

Definition of the zone of influence for the proposed works includes evaluating the following:

- Identification of the European sites that are situated within, in close vicinity or downstream within the zone of influence of the Proposed Development;
- Identification of the designated habitats and species and conservation objectives for the identified European sites;
- Identification of the environmental conditions that stabilise and increase the qualifying interests of the European sites towards favourable conservation status;
- Identification of the threats/impacts, actual or potential that could negatively impact the conservation objectives for the European sites;
- Identifying the activities of the proposed works that could give rise to significant adverse impacts; and,
- Identification of other plans or projects, for which in-combination impacts would likely have significant adverse effects.

2.1.1 Source-Pathway-Receptor Model

European sites are only at risk from significant effects where a source-pathway-receptor link exists between a Proposed Development and a European site. This can take the form of a direct impact (e.g. where the Proposed Development is located within / in close vicinity to the boundary of a European site), or an indirect impact (where impacts occur outside of the European site but affect ecological receptors within the European site e.g. impacts to water quality which can affect estuarine habitats at a distance from the impact source).

The likely effects of the Proposed Development on any European site have been assessed using a source-pathway-receptor model. A source-pathway-receptor model is a standard tool used in environmental assessment [9] [10]. The model comprises of:

- A *source*: any potential impacts from the Proposed Development, e.g. the runoff of sediment / construction pollution;
- A *pathway*: the means or route by which a source can affect the ecological receptor; and,
- A *receptor*: the qualifying interests and / or special conservation interests of the European sites.

In order to establish the Zone of Influence of the Proposed Development works, the likely key environmental impacts / changes associated with the Proposed Development were determined having regard to the project characteristics set out in Section 3.3 of this report. The Zone of Influence for various potential impact pathways are discussed in Section 4.1.

2.2 Desk Based Review

A desk-based review of information sources was completed, which included the following sources of information:

- Review of aerial maps of the Site and surrounding area;
- The National Parks and Wildlife Service (NPWS) website was reviewed with regard to the most up to date detail on conservation objectives for the European sites relevant to this assessment [11];
- The Kilkenny County Council (KCC) Planning Portal was reviewed to obtain details about existing / proposed developments in the vicinity of the Site [12];
- The Waterford City and County Council (WCCC) Planning Portal was also reviewed given the proximity of the Site to Waterford City [13];
- The Department of Housing, Local Government and Heritage (DoHLGH)'s Environmental Impact Assessment (EIA) portal was reviewed to obtain details on proposed and granted EIA projects within the vicinity of the Site [14];
- An Bord Pleanála (ABP) Portal was reviewed to obtain details on ABP cases within the vicinity of the Site [15];
- The 'N24 Waterford to Cahir' website was reviewed to obtain details on the N24 Road Improvement Scheme [16];
- The National Biodiversity Data Centre (NBDC) website was reviewed with regard to species distributions [17]; and,
- The Environmental Protection Agency (EPA) Maps website was reviewed to obtain details about watercourses in the vicinity of the Site [18].

2.3 Field Based Studies

In order to gain a full understanding of the Site and surrounding habitats, the field-based assessment was extended to cover a larger study area as outlined in Figure 2-1 ('the Study Area'). The Study Area encompasses the full Site alongside Mr. Clohosey's landholding (refer to Section 3.1 below for further information) and the existing quarry void.

The quarry void was included within the Study Area primarily as a potential peregrine falcon habitat as discussed in the Environmental Impact Assessment Report (EIAR) submitted as part of this planning application.

Figure 2-1: Study Area for Ecological Assessments

2.3.1 Habitat Survey

A Site walkover was undertaken on the 12th July 2022 by two (2No.) suitably qualified MOR Ecologists. This survey was conducted to assess the extent and quality of habitats within the Study Area and to identify any potential ecological receptors associated with the European sites. The habitat survey was undertaken for the Site using Fossit's '*Guide to Habitats in Ireland'* [19] in line with the Heritage Council's *'Best Practice Guidance for Habitat Survey and Mapping,'* [20].

An updated survey was carried out on the 29th September 2023 by a suitably qualified and experienced MOR Ecologist to ensure any changes to the habitats within the Study Area were recorded and reflected in this assessment.

The assessment was extended to also identify the potential for these habitats to support other features of nature conservation importance, such as species afforded legal protection under either Irish or European legislation.

2.3.2 Protected / Notable Species

As part of the overall Biodiversity assessment of the Study Area, an assessment was carried out on the potential for these habitats to support other features of nature conservation importance, such as species afforded legal protection under either Irish or European legislation, including those that were identified occurring locally through the desktop study.

In addition, the Study Area was assessed for the presence of any noxious / invasive species such as Japanese knotweed (*Fallopia japonica*) or Himalayan balsam (*Impatiens glandulifera*).

This information was used as part of the NIS to inform the assessment of potential adverse effects on both Annex I / II species and Annex I habitats.

2.3.3 Survey Limitations

No survey limitations were encountered.

2.3.4 Hydrological Assessment

2.3.4.1 Chemical Water Quality Assessment

Site investigation works were carried out by Hydro Environmental Services Ltd. to characterise the baseline geological, hydrogeological and hydrological environment.

These investigation works involved the following:

- *'Walkover surveys and hydrological mapping of the Landholding and the surrounding area were undertaken whereby water flow directions and drainage patterns were recorded;*
- *Logging of exposed subsoil profiles and existing bedrock quarry side walls for structural features and groundwater inflows/seepages;*
- *Drilling of two (2No.) additional monitoring wells within the lands to be purchased from Mr Clohosey;*
- *Continuous groundwater level monitoring using in-situ data loggers in the internal monitoring wells (October 2022 to present);*
- *Field hydrochemistry measurements (electrical conductivity, pH and temperature) were taken to determine the origin and nature of surface water flows, groundwater inflows as well as characterisation of quarry discharge water;*
- *Quarry discharge water and receiving river waterbody sampling was undertaken for baseline water quality and impact assessment; and,*
- *Groundwater quality baseline sampling of the internal monitoring wells.'*

These investigations were used to inform Chapter 8 – Water (Hydrogeology and Hydrology) of the EIAR submitted as part of this planning application, the results of these investigations have been included within this report, as appropriate.

2.3.4.2 Water Framework Directive Assessment

Hydro Environmental Services Ltd. undertook a Water Framework Directive (WFD) Assessment as part of the EIAR. The WFD assessment was prepared to determine if any specific components or activities associated with the Proposed Development will compromise WFD objectives or cause a deterioration in the status of any surface water or groundwater body and / or jeopardise the attainment of good surface water or groundwater status.

Refer to Appendix A for further details.

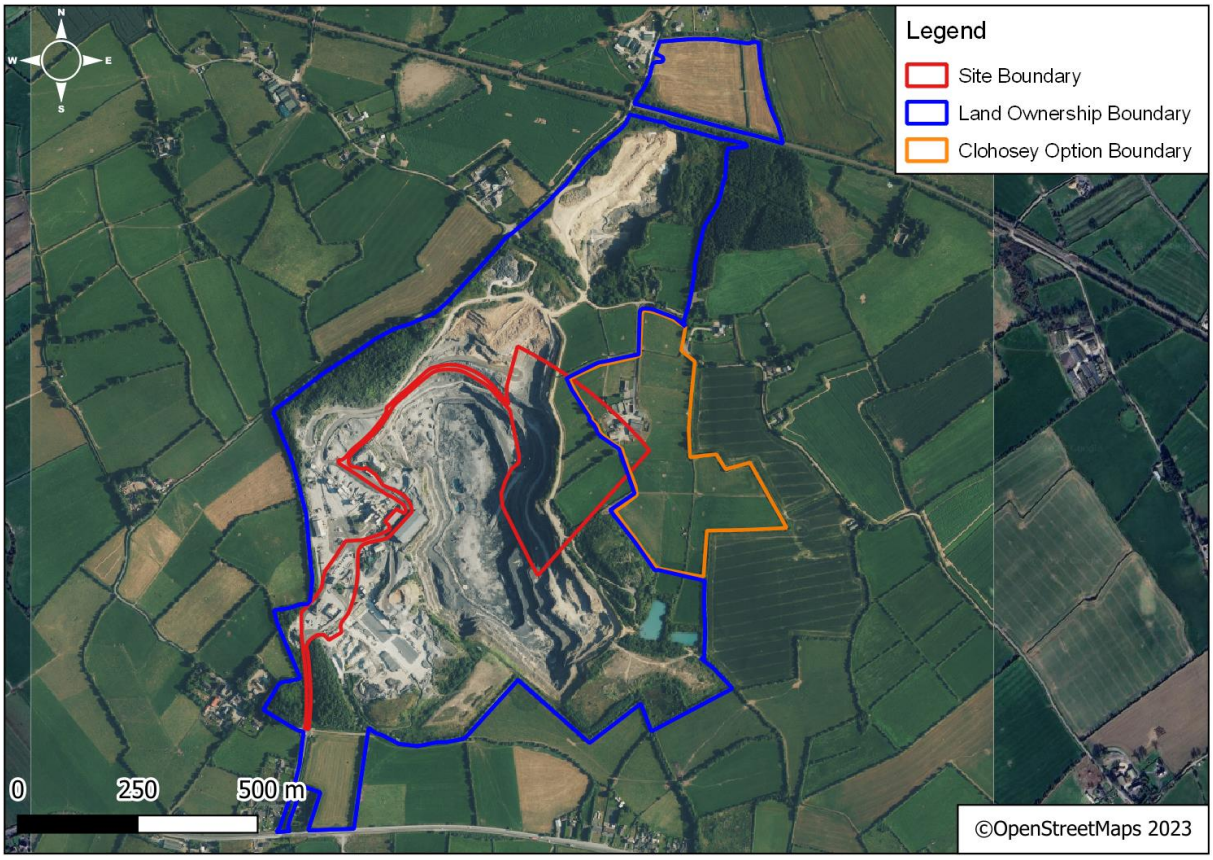
3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 Site Context

The Site is ca.10.3ha in size and is located within the Aglish Electoral District in Co. Kilkenny; however, its proximity to Waterford means that it also lies within the Waterford Metropolitan Area. There is no specific land-use zoning for the Site or wider Study Area within either the Kilkenny County Development Plan (KCDP) 2021-2027 [21] or the Waterford Metropolitan Area Strategic Plan (WMASP) [22].

The Site is primarily comprised of agricultural land in the form of hedgerows / treelines and improved agricultural land within the Landholding. The easternmost portion of the Site extends beyond the Landholding into the Clohosey lands. These lands are part of a 10.9ha. landholding currently owned by Mr Liam Clohosey. Roadstone have an agreement in place with Mr. Clohosey, to purchase these lands, should this application be successful. Refer to Figure 3-1 for context.

Figure 3-1: Context on Landownership Boundaries



The Clohosey lands comprise of improved agricultural grassland, hedgerows / treelines, a house and farm outbuildings. Mr. Clohosey's house and associated buildings will be unoccupied should the Proposed Development proceed. The lands owned by Mr. Clohosey are accessed off the L7433 local road.

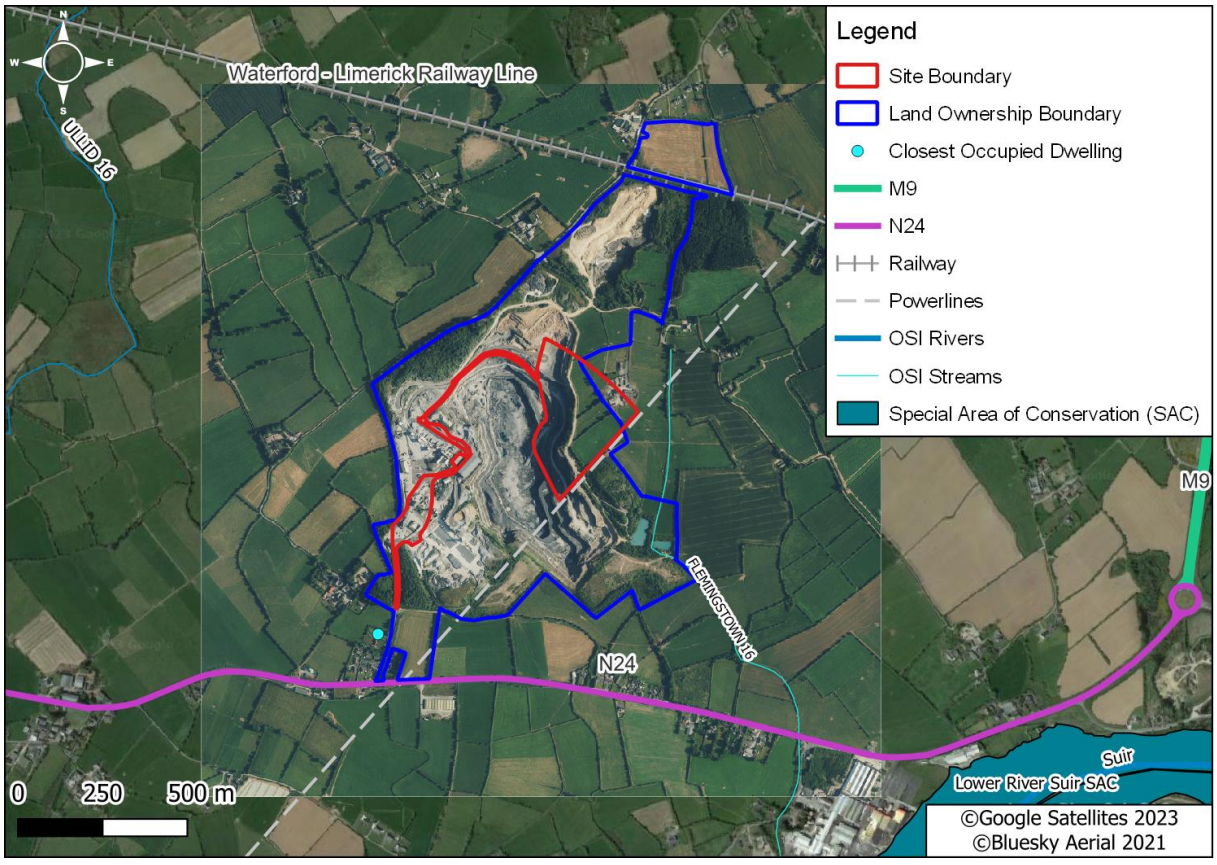
The westernmost portion of the Site extends back into the Quarry, primarily to allow for the seamless integration of the authorised quarry face with the proposed extension lands, and to maintain access through the established entrance off the L7434 local road to the southwest. This area comprises active quarry operations and infrastructure such as internal haul roads, an existing weighbridge and wheel wash. To date, quarrying activities within this area have extracted material to a depth of -45mOD.

Powerlines are located outside the Site boundary to the southeast, these powerlines cross over the quarry pit within the Quarry. The Proposed Development has been designed to maintain a 25m buffer between these lines and the extraction area. As such, there will be no requirement for the Proposed Development to interact with these power lines.

The lands surrounding the Site and Quarry comprise of agricultural fields in the form of pastures and one-off residential dwellings. The Flemingstown Stream is located ca.90m from the Site at its closest point. This watercourse is hydrologically connected to the Lower River Suir SAC, refer to Section 3.2 below for further details.

The N24 national road is located ca.215m south of the Site along the southern extent of the Landholding. The Waterford-Limerick railway is located ca.540m north of the Site. Roadstone own lands immediately north and south of this railway line as shown in Figure 3-2.

Figure 3-2: Site Context



3.2 Watercourses within the Vicinity of the Site

The Site is situated within the Suir WFD Catchment [Catchment_ID: 16] and the Pil_SC_010 subcatchment [Subcatchment_ID: 16_27] [18].

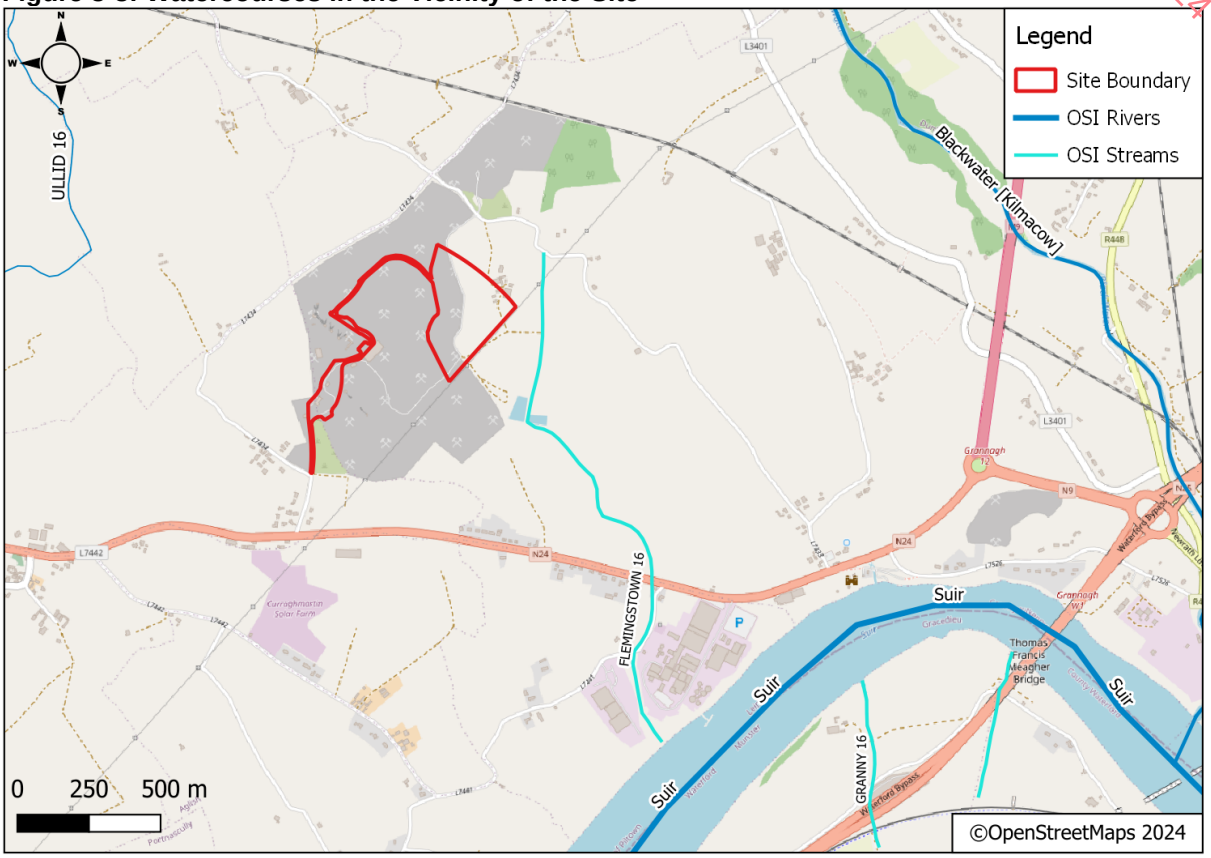
The nearest hydrological feature of note is Flemingstown Stream. This watercourse is located ca.90m east of the Site within the wider Study Area. The existing attenuation ponds within the Quarry discharge to this stream under Discharge Licence No. ENV/W82. Flemingstown Stream flows for ca.1.3km from this discharge point before draining into the Middle Suir Estuary. The Middle Suir Estuary forms part of the Lower River Suir SAC.

Under the Water Framework Directive (WFD) 2000/60/EC, as amended, the EPA classifies the status and the risk of not achieving good water quality status for all waterbodies in Ireland [18]. According to the WFD 2016-2021 monitoring events (which was the most recent data available at the time of writing this report) the water quality within Flemingstown Stream is

'*poor,'* and the risk of this stream not achieving a '*high*' water quality status is '*under review*' [18]. The Middle Suir Estuary is considered to be '*at risk*' and its water quality is classified as '*moderate*' [18].

The location of the key surface water features in the vicinity of the Site are illustrated in Figure 3-3 below.

Figure 3-3: Watercourses in the Vicinity of the Site



3.3 Description of the Proposed Development

The Quarry currently incorporates a permitted extraction area of ca.27ha. The Site includes ca.3.4ha of the existing extraction area, to ensure that the Proposed Development adjoins the Quarry in a seamless manner. The Proposed Development will provide for a ca.6ha quarry floor. As such, the footprint of the current extraction area will increase by ca.2.6ha. The remainder of the Site will be utilised for boundary treatments including fencing, landscaped berms, access and buffers between sensitive features (i.e. powerlines etc.). Images of the Quarry and Site are shown in Plate 3-1 and Plate 3-2 below.

Plate 3-1: Existing Quarry - View of Eastern Quarry Face with Extension Lands in the Distance

Plate 3-2: Field within Extension Lands - Facing West towards Quarry

The Site has an estimated reserve of ca.2,920,000m^3 (or ca.7,592,000 tonnes) of aggregates within a proposed extraction area of ca.6ha.

The Proposed Development will involve the stripping of existing overburden to access the underlying rock within the proposed extraction area. Overburden removed will be used to construct peripheral screening berms around the permitter of the extraction area. The

proposed works will also involve the demolition of two (2No.) farm outbuildings and a pump house within the Clohosey lands alongside the relocation of pipes carrying water from the quarry floor to the attenuation ponds that currently pass through the proposed extraction area.

Industry standard blasting methods will be utilised to produce broken rock by opening a series of 15m high benches. A mobile crusher and screening plant will follow the operational face within the Site boundary. After this initial processing, blast rock which has undergone primary crushing / screening will be hauled to the fixed crushing and screening plant within the Quarry by articulated dump trucks. The quarry extension will be ca.5 benches deep when complete, depending upon existing ground elevation, bringing the finished ground level to ca.-45mOD (from existing levels of ca.34mOD).

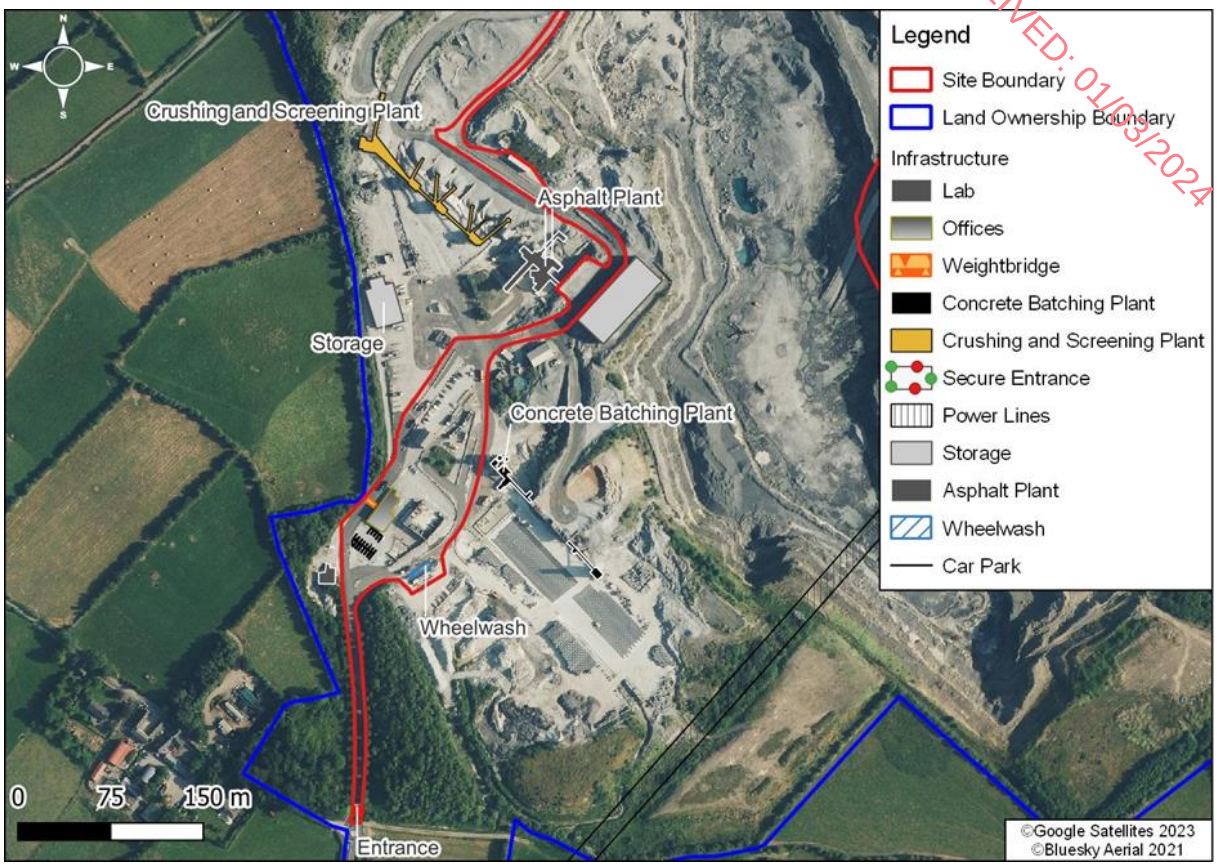
The Proposed Development will be a continuation of the quarrying activities currently in-place at the Quarry. As such, the Proposed Development will incorporate blasting, crushing, screening and stockpiling of materials into its operational phase.

The Proposed Development will seek to utilise established ancillary infrastructure within the Quarry including the:

- Existing haul routes;
- Site office;
- Weighbridge;
- Wheel wash;
- Aggregate processing plant;
- Concrete batching plant;
- Asphalt plant;
- Attenuation ponds;
- Maintenance garage;
- Storage; and,
- Crushing and screening plant.

Refer to Figure 3-4 below for context on the existing infrastructure within the Quarry.

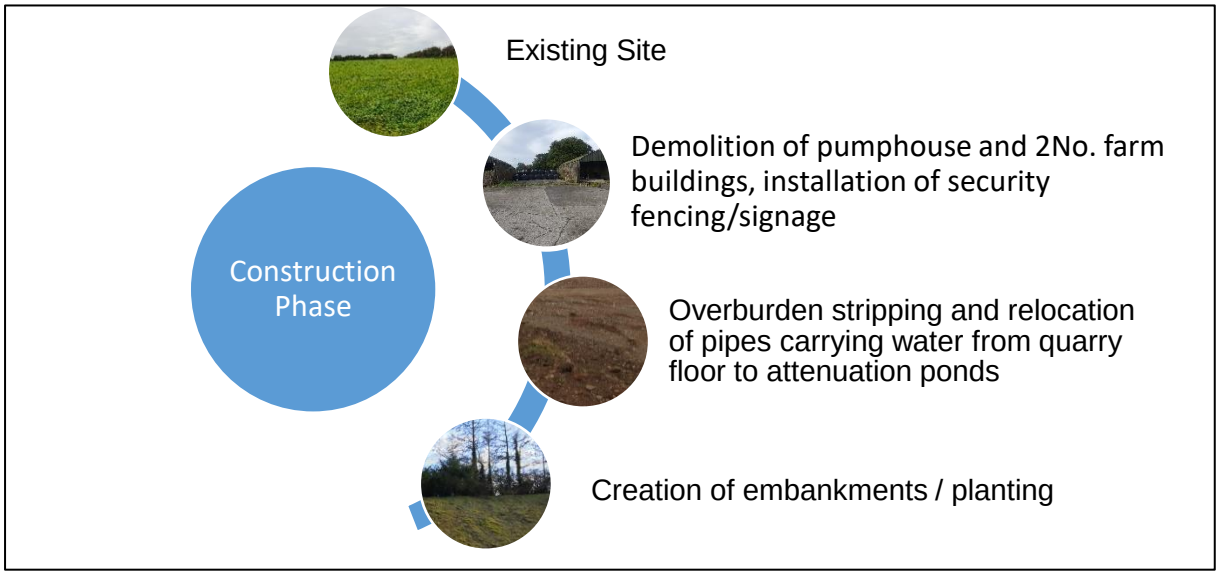
Figure 3-4: Existing Ancillary Infrastructure

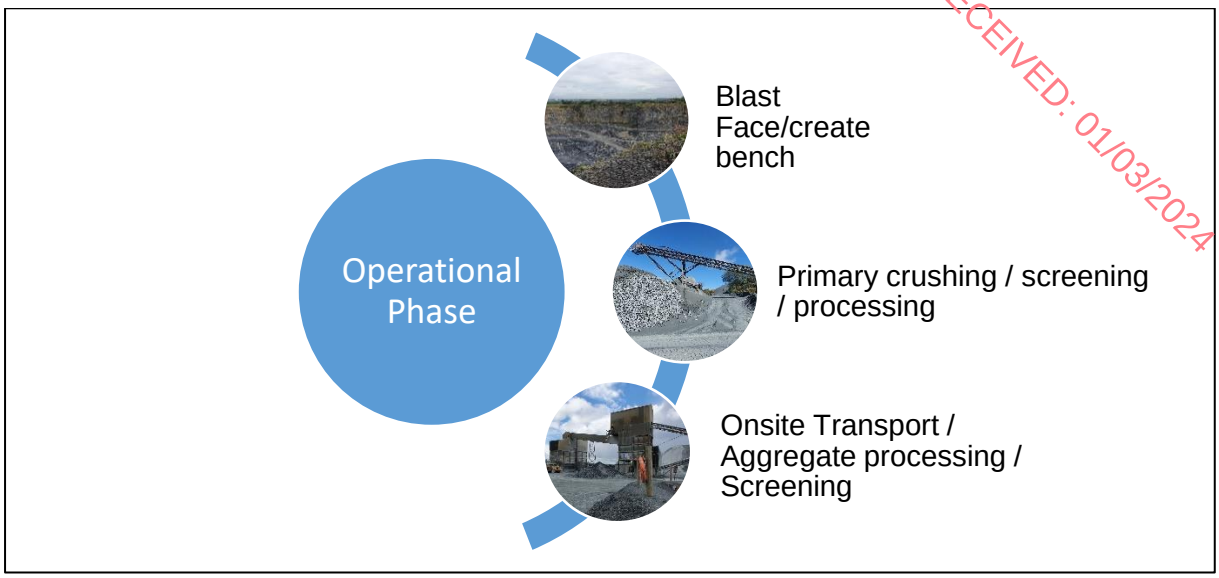


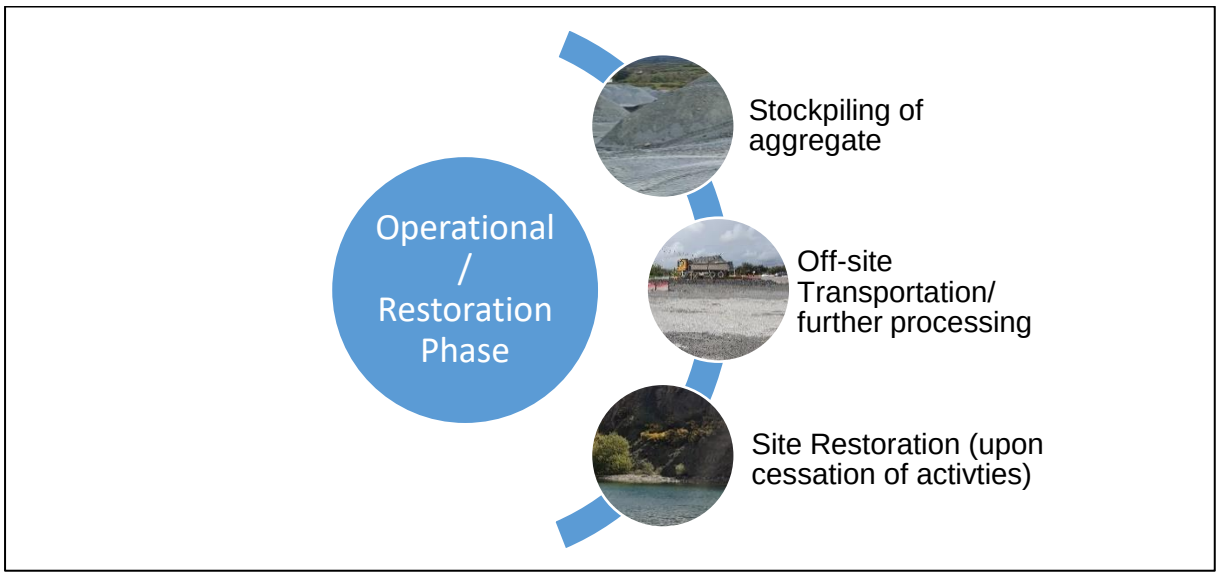
Upon removal of the aggregate reserve, the Site will undergo rehabilitation as per the Restoration Plan which is submitted with this planning application. The Restoration Plan has been designed to align with the existing restoration plan which was submitted and agreed with the Competent Authority under planning reference: 16/700.

The general process from the site preparation works through to rehabilitation is shown in Figure 3-5 below.

Figure 3-5: Process Flow Diagram







It should be noted that as the Proposed Development is an extension to the Quarry, the potential impacts arising from the existing Quarry in combination with the Proposed Development have been assessed as part of this NIS.

3.3.1 Scale of the Proposed Development

It is proposed to extract within the permitted outputs which range from 700,000-1,000,000 tonnes of aggregates per annum pending market conditions. An overview of the timelines associated with the Proposed Development are as follows:

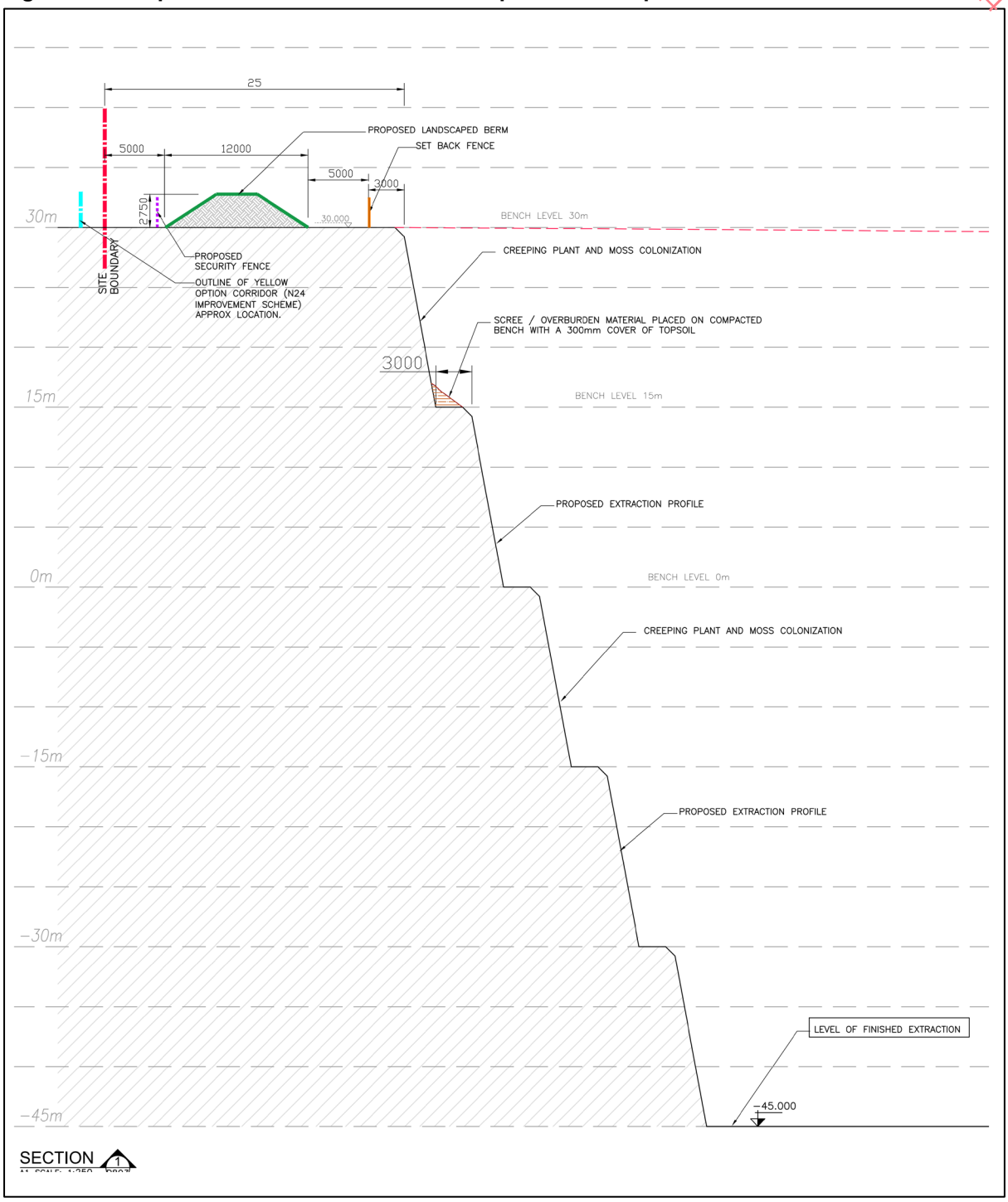
- Construction Phase (0.5 years);
- Operation Phase (19 years); and,
- Restoration Phase (0.5 years).

If the Proposed Development meets the proposed peak extraction rate (ca.1,000,000 tonnes per annum), the extension lands could be exhausted over a 7.5-year operational period. However, due to the unknown future economic and market needs, it is likely that the Proposed Development will extract at a lower rate than the historic peak and will therefore need a longer

operational period. Planning permission is therefore being sought for a 19 year operational period.

The Proposed Development will be completed in a phased manner. Cross sections of the Proposed Development's finished extraction levels are included in Figure 3-6 below, as extracted from Drawing P804_P.

Figure 3-6: Proposed Cross Sections of the Proposed Development

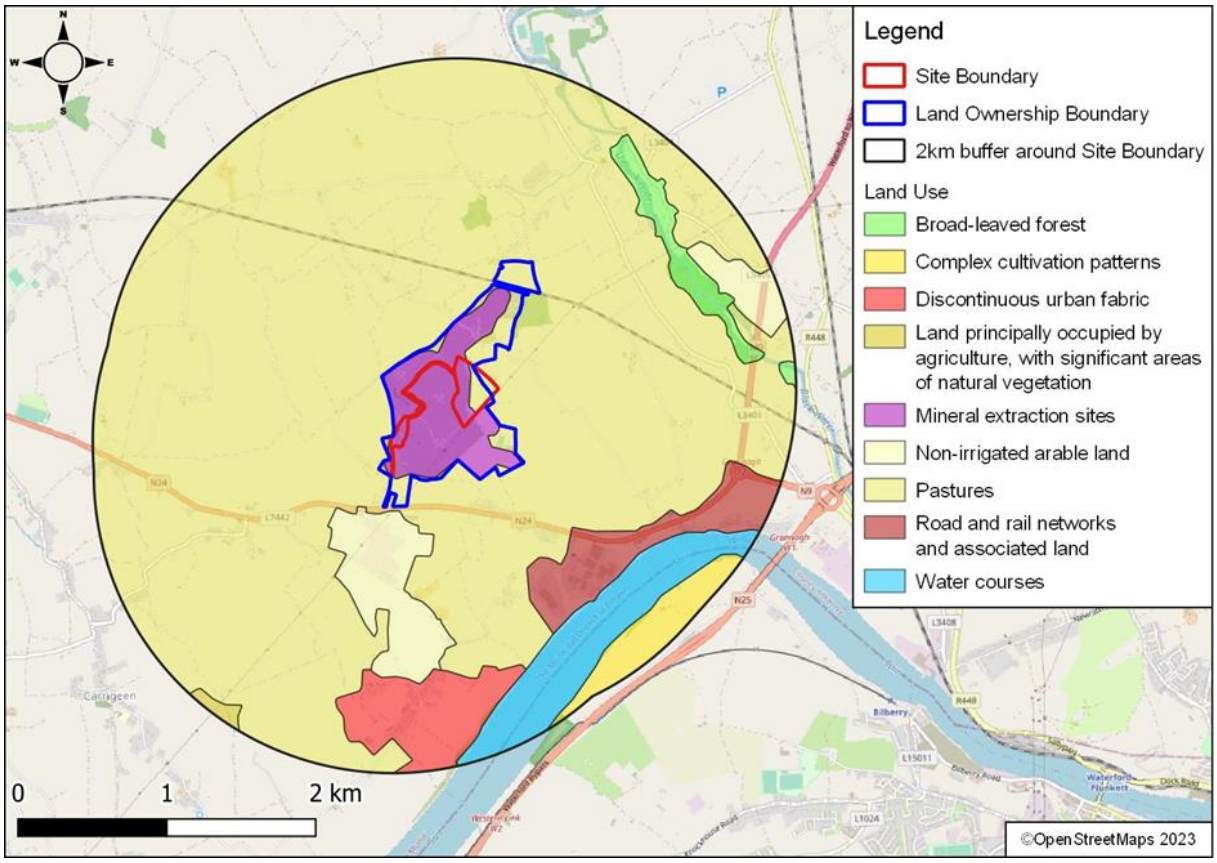


3.3.1.1 Land-take

The Site incorporates an area of ca.10.3ha which will extend the permitted Quarry and existing extraction area in an easterly direction.

The majority of the Site is owned by Roadstone and comprises of the existing Quarry and greenfield lands with a minor portion extending into a farmyard. The easternmost portion of the Site is owned by Mr. Liam Clohosey and is under agricultural use. Based on the Corine 2018 dataset, the locality is dominated by agricultural fields in the form of pastures with scattered areas of non-irrigated arable land also present. The Quarry directly adjacent to the Site is classified as a mineral extraction site. Refer to Figure 3-4 below for further details.

Figure 3-7: Corine 2018 Land Use within 2km of the Site



3.3.2 Construction Phase

Prior to commencement of aggregate extraction, the Site must be prepared accordingly. The Site preparation works, which will be completed as part of the Construction Phase and will be undertaken by the Applicant over a period of 6 months. The Construction Phase will include the following:

- Installation of security fencing and signage around the periphery;
- Demolition / removal of structures;
- Relocation of pipes;
- Vegetation clearance;
- Removal of topsoil under archaeological supervision and overburden stripping;

- Construction of berms with overburden, covering in topsoil, seedings and planting; and,
- Construction / preparation of haul routes.

The Quarry is currently secure with boundary fencing and an established site entrance to the south and an alternative secure entrance to the L7433 to the north. As part of the construction phase, additional security fencing will be installed along the eastern boundary of the Site to encompass the proposed extension lands. This additional fencing will tie into the existing security fence onsite. The fencing will include safety signage at regular intervals to ensure personnel approaching the Site can clearly understand the dangers associated with activities at the Site.

Furthermore, general infrastructure required for the Proposed Development is currently in-place within the Quarry. The Proposed Development will utilise existing ancillary infrastructure, thereby reducing the potential effects associated with the construction phase.

3.3.2.1 Demolition / Removal of Structures

Two (2No.) farm outbuildings and a pump house located on Clohosey lands will be removed to facilitate the Proposed Development. These structures are of a simple nature and consist of a corrugated iron roof over concrete. These structures are located within the eastern portion of the Site as shown in Figure 3-8 below and presented in Drawings P802_P and P803_P. Full details on these structures are presented in Engineering Drawings P805_P to P807_P. Photographs of these buildings are also shown in Plates 3-3 and 3-4 below.

The structures will be completely dismantled and removed using a long arm excavator, hydraulic breaker, excavator and articulated dump truck. The cement used to secure the foundations of the outbuildings and pumphouse will be broken up and removed to reveal the underlying ground. The quality of the concrete material will be assessed and if appropriate, it will undergo processing and recovery within the C&D waste recovery facility at the Quarry. If the material is not suitable for processing at the Quarry, it will be transported to an offsite location for appropriate disposal in a licensed facility. The sheds and pump houses are minor structures, and the resultant waste will be minimal. All works will be undertaken in accordance with best practice guidance and legislation applicable at the time of decommissioning.

Figure 3-8: Structures to be Removed

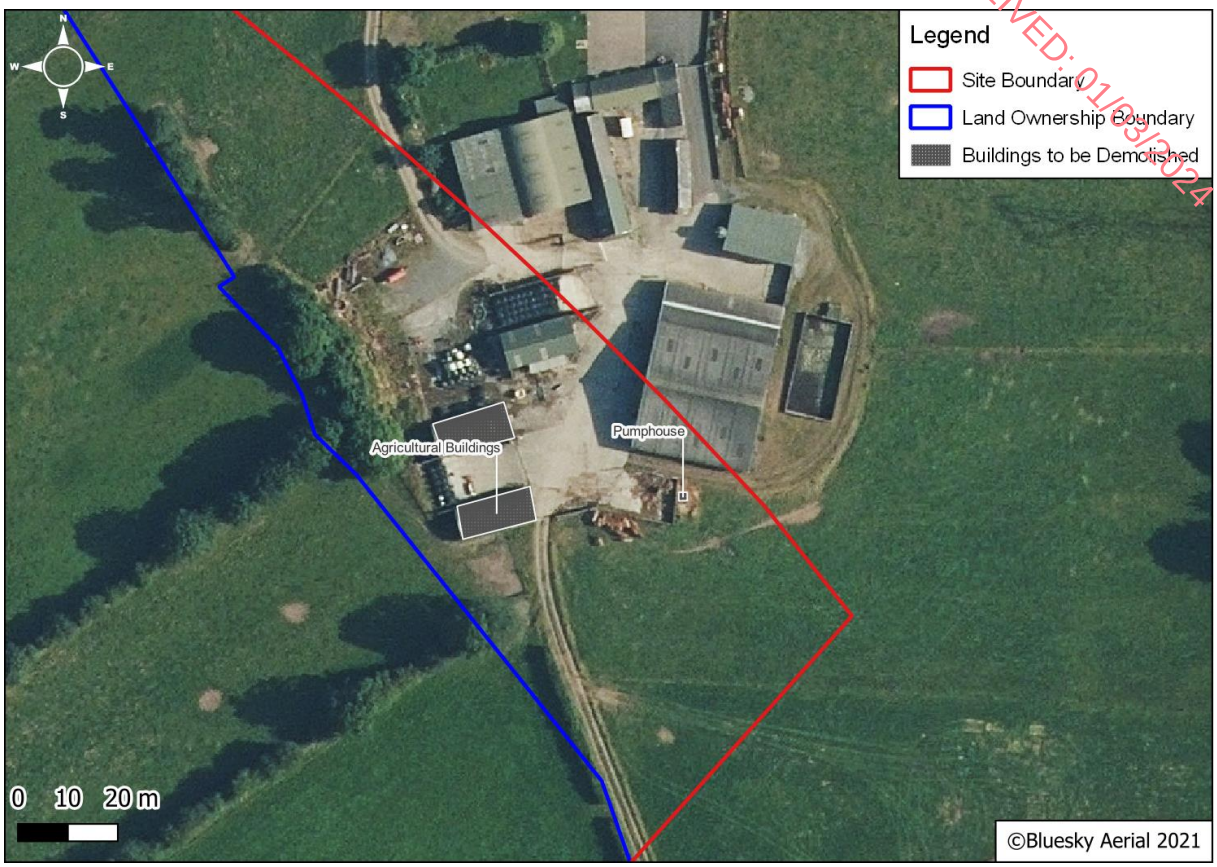


Plate 3-3: Farm Outbuildings to be Removed

Plate 3-4: Pump House to be Removed

3.3.2.2 Relocation of Pipes

The Quarry currently pumps water from the quarry floor up its eastern face, funnelling it through pipes atop the quarry face to attenuation ponds in the southeast portion of the Landholding, refer to Plate 3-5 for context. This overall process will not change as a result of the Proposed Development, however, pipes transporting water will be moved to facilitate the new extraction area. The pipes reaching the top of the quarry face will be relocated further to the southeast away from extraction activities. It is important to note that these pipes are not fixed in place nor deeply buried.

Plate 3-5: View of Pipes atop Eastern Quarry Face

3.3.2.3 Vegetation Clearance and Overburden Stripping

The Construction Phase will include the preparation of agricultural fields for aggregate processing activities. at the appropriate time of year and the stripping of topsoil and subsoils. It should be noted that the topsoil will be stripped under supervision by a suitably qualified archaeologist.

Plant will primarily include the use of a bulldozer and excavator. This phase will result in an exposed rock outcropping which will be suitably prepared to commence blasting.

3.3.2.4 Construction of Berms / Landscaping

Approximately 8,500m^3 of stripped topsoil and subsoil will be utilised to create two (2No.) soil embankments along the eastern boundary of the Site and proposed extraction area, refer to Drawing P803_P for context. The subsoils will be deposited first and subsequently built up until the desired height is reached. The topsoil will be placed on top of the subsoils, which will be ca.0.2m thick to allow for planting/seeding. The first berm will be ca.140m long and the second berm will be ca.250m long. The combined length of these berms is 390m and they are ca.12m wide and 2.75m high.

Once these works are complete, a planting mix will be introduced to occupy the berms and provide screening. The planting mix has been designed to replace the native species removed during the vegetation clearance works and to reflect the species found in hedgerows in the wider surrounding area. The planting mix is outlined in Table 3-1 below.

Table 3-1: Proposed Berm Planting Mix

Common Name	**Scientific Name**
High Canopy – Dominants (20%)	
Ash	*Fraxinus excelsior*
Pedunculate oak	*Quercus robur*
Scots pine	*Pinus sylvestris*
Lower Canopy – Sub-dominants (20-25%)	
Alder	*Alnus glutinosa*
Downy birch	*Betula pubescens*
Rowan	*Sorbus aucuparia*
Understory and Fringe (Higher Shrubs (20-40%)	
Bird Cherry	*Prunus padus*
Crab Apple	*Malus sylvestris*
Elder	*Sambucus nigra*
Hawthorn	*Cratageus monogyna*
Holly	*Ilex aquifolium*
Hazel	*Corylus avellana*

Common Name	Scientific Name
High Canopy – Dominants (20%)	
Understorey and Edge – Lower Shrubs (15-25%)	
Blackthorn	*Prunus spinosa*
Dog-rose	*Rosa canina*
Spindle	*Euonymus europaeus*

A setback fence will be installed between the proposed extraction area and the berms. A security fence will also be erected around the Site boundary. This fence will tie into existing fencing within the Quarry and will ensure the extension lands are secure from unauthorised access.

3.3.3 Operational Phase – Aggregate Extraction

The Quarry is a well-established operation. The Proposed Development will operate in a similar manner to the current activities at the Quarry. The proposed face will be developed in a phased manner, using industry standard drilling and blasting techniques to release the rock from the quarry benches (as presented in Figure 3-3 above and Table 3-1 below).

A mobile crusher and screening plant will follow the operational face within the Site boundary. Front end loaders will feed the blast rock into the mobile crushing and screening plant for processing. The resultant aggregate will be stockpiled temporarily, before being transported back to the Quarry for additional processing (refer to Plate 3-7 below) or will be transported offsite for direct use. The screened aggregate will be stockpiled using a loading shovel and, when required, dump trucks will be the primary mode of onsite transport for aggregates. Offsite transport will be via heavy goods vehicles (HGV's), refer to Plate 3-6 for context.

The Operational Phase will include the following activities:

- Drilling and blasting of the rock face;
- The primary crushing / screening of blast rock through a mobile primary crusher / screener;
- The placement of rock into stockpiles; and,
- The onsite transportation of rock to existing processing infrastructure within the Quarry or offsite transportation for direct use.

Table 3-2 below presents an overview of the phasing associated with the Proposed Development which is primarily based upon bench levels (ca.15m height).

Table 3-2: Planned Quarry Benching

Phase / Bench	Ground Level (mOD)
Bench 1	30 to 15
Bench 2	15 to 0
Bench 3	0 to -15
Bench 4	-15 to -30
Bench 5	-30 to -45

Restoration	Water level to replenish to 16mOD

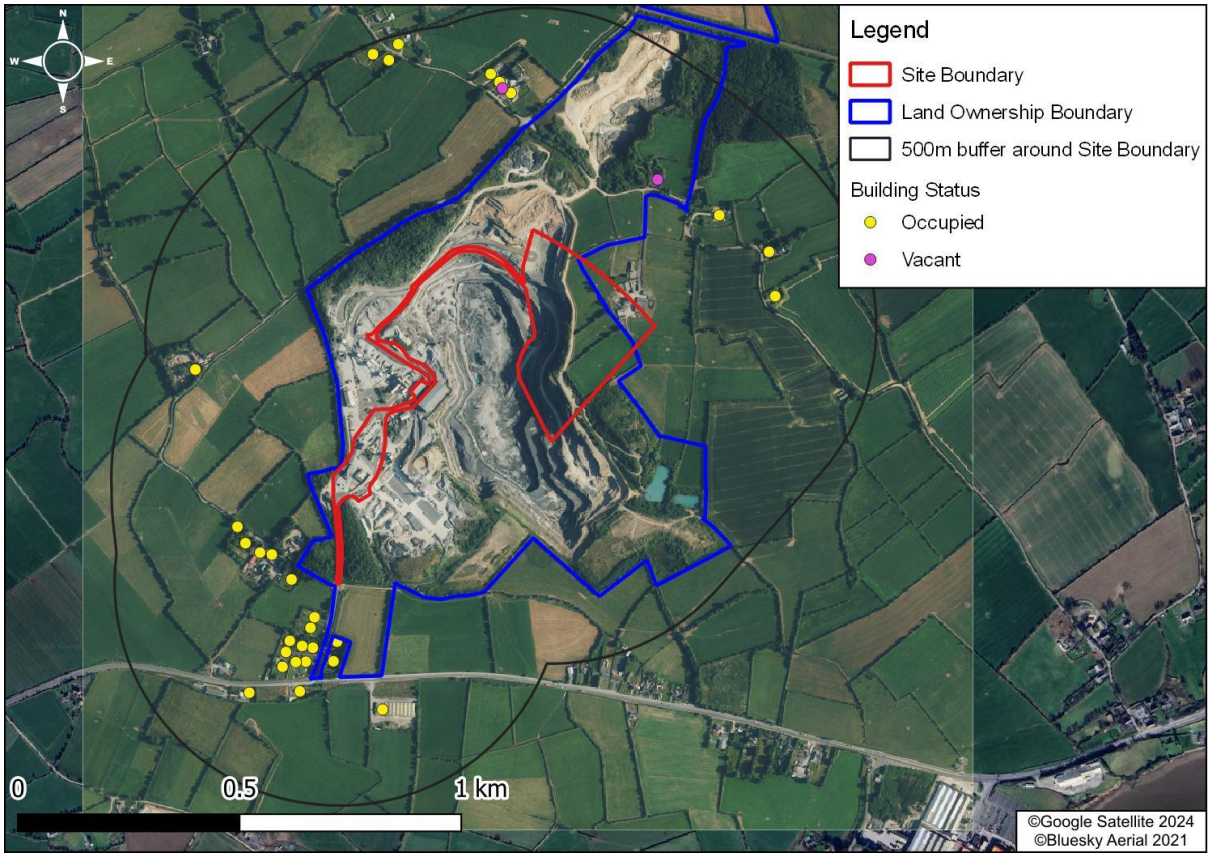
3.3.3.1 Preparation for Blasting

A drill rig will be positioned on the top of the bench that will be the subject of the blast. A hole will be drilled to a predetermined specified depth and diameter. The drillholes, to be specified by the Roadstone Blasting Engineer, will be dependent upon the size of the blast to be generated, the rock encountered, and the condition of the rock to be blasted (known fracturing, or changes in type). This preparatory work will typically last for several days.

The Roadstone Blasting Engineer will notify the supplier of the explosives, arrange the delivery and the date of the blast. The Gardai will also be notified of the time and date of the blast.

Roadstone will notify Kilkenny County Council and all residents within 500m from the Site boundary of the proposed blast date, including details for contacting Roadstone in the event of pre-blast enquiries or post blast submissions. Refer to Figure 3-9 for context.

Figure 3-9: Properties within 500m of the Site Boundary



3.3.3.2 Blasting

On the date of the blast, the Roadstone Blasting Engineer will place the necessary quantity of explosive at the pre-determined depth and position, and back fill each hole.

A safety zone will be established, where all personnel, plant and equipment will be removed from this zone. The safety zone will be specified by the Roadstone Blasting Engineer and will be enforced by Roadstone. Typically, no other operations on the Site, within the blast zone, will occur during a planned blast event. Blasting will likely take place at a rate of one per week.

3.3.3.3 Crushing and Stockpiling of Aggregate

The rock is collected by either a front-end loader or dumper and transported to the mobile crushing and screening plant which is set up close to the blasted rock pile. This will break the rock into pre-selected sizes / grades, generating aggregate stockpiles of the graded rock. This is a mechanical process. The rock will then be collected by a dumper truck and transported to the fixed crushing and screening plant within the Quarry or directly offsite. This will break the rock into pre-selected sizes / grades, generating aggregate stockpiles of graded rock.

Plate 3-6: Examples of a Loading Shovel, HGV and Dump Truck

Plate 3-7: Fixed Screening and Crushing Plant

3.3.3.4 Export of Material

Aggregate will be exported from the Quarry by HGVs. Table 3-3 provides an overview of the existing maximum permitted daily trips from HGVs associated with the Quarry. The Proposed Development will operate within these numbers.

Table 3-3: Summary of Existing Daily Trips

Type of Traffic	Daily Trips		
	Arrivals	Departures	Total
Exported Quarried Material (HGVs)	250	250	500
Staff (LVs)	15	15	30

Miscellaneous	10	10	20
Total	275	275	550

3.3.4 Restoration Phase – Site Closure

Upon completion of extraction activities, the Site will be subject to a Restoration Plan.

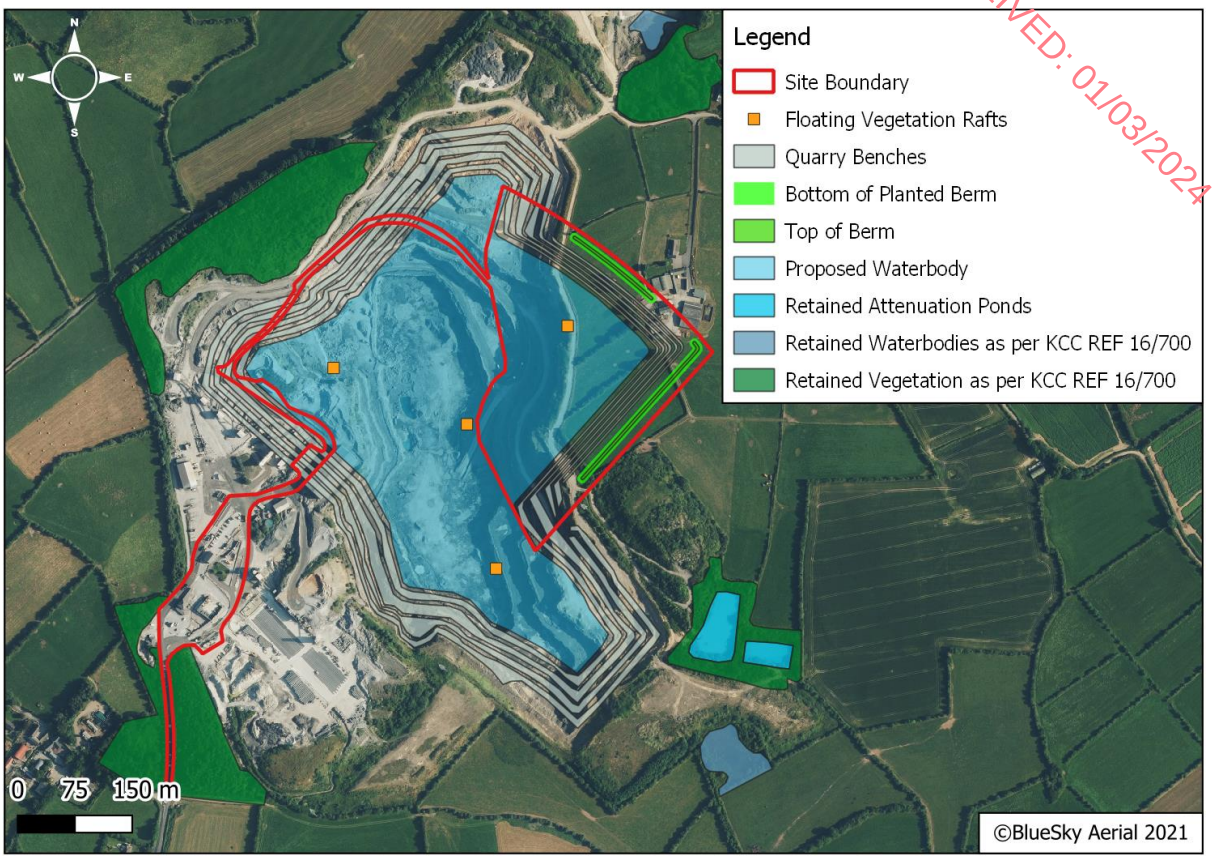
The restoration plan submitted under Planning Reference 16700 has been updated to include the Site. Therefore, the Restoration Plan submitted as part of this application supersedes the previous restoration plan for the Quarry.

The Site will be made safe and engineered to enable a biodiverse habitat to develop. This will involve the following works:

- Removal of all plant and equipment;
- Access to the haul ramp and upper benches will be made secure;
- Boundary fencing will be inspected and improved where necessary to prevent unauthorised access;
- Water will be allowed to recharge to normal levels creating a central surface waterbody;
- The lower sections of the haul ramps (where they enter the water) will be graded and planted with marginal and emergent vegetation appropriate to the environment;
- Floating vegetation rafts will be installed within the waterbody; and,
- It is proposed to maintain the hardstanding area adjacent to the Site offices for light industrial use. The use of this area will be subject to securing the necessary planning permission for a change of use when quarry works are complete.

The Restoration Plan will provide a mosaic of habitats onsite, refer to Figure 3-10 below for context.

Figure 3-10: Proposed Restoration Plan



3.3.5 Development Design and Management

3.3.5.1 Construction Hours

The main construction hours for the Proposed Development will be:

- 07:00 – 19:00 Monday – Friday;
- 07:00 – 13:00 Saturday; and,
- Closed Sundays and Bank Holidays.

No noisy works will be permitted outside these hours. However, light works such as screen planting can take place. Light works will be restricted to the operational hours listed below in Section 3.3.5.2.

3.3.5.2 Operational Hours and Staffing

The operational hours for the Proposed Development will reflect the current operational hours of Quarry which are:

- 07:00 – 20:00 Monday – Friday;
- 07:00 – 18:00 Saturday; and,
- Closed Sundays and Bank Holidays.

It should be noted that the bitumen plant in the Quarry may commence at 06:00 on occasion depending on market needs. The operational hours of the bitumen plant will not be affected by the Proposed Development.

The Quarry supports ca.15-20 full time employees arising from onsite personnel, hauliers and maintenance personnel. The Proposed Development will not result in a change to employment.

3.3.5.3 Car Park

Car parking facilities for onsite personnel will be maintained within the Quarry. No additional parking is proposed as part of the Proposed Development. Onsite parking is sufficient and will continue to be.

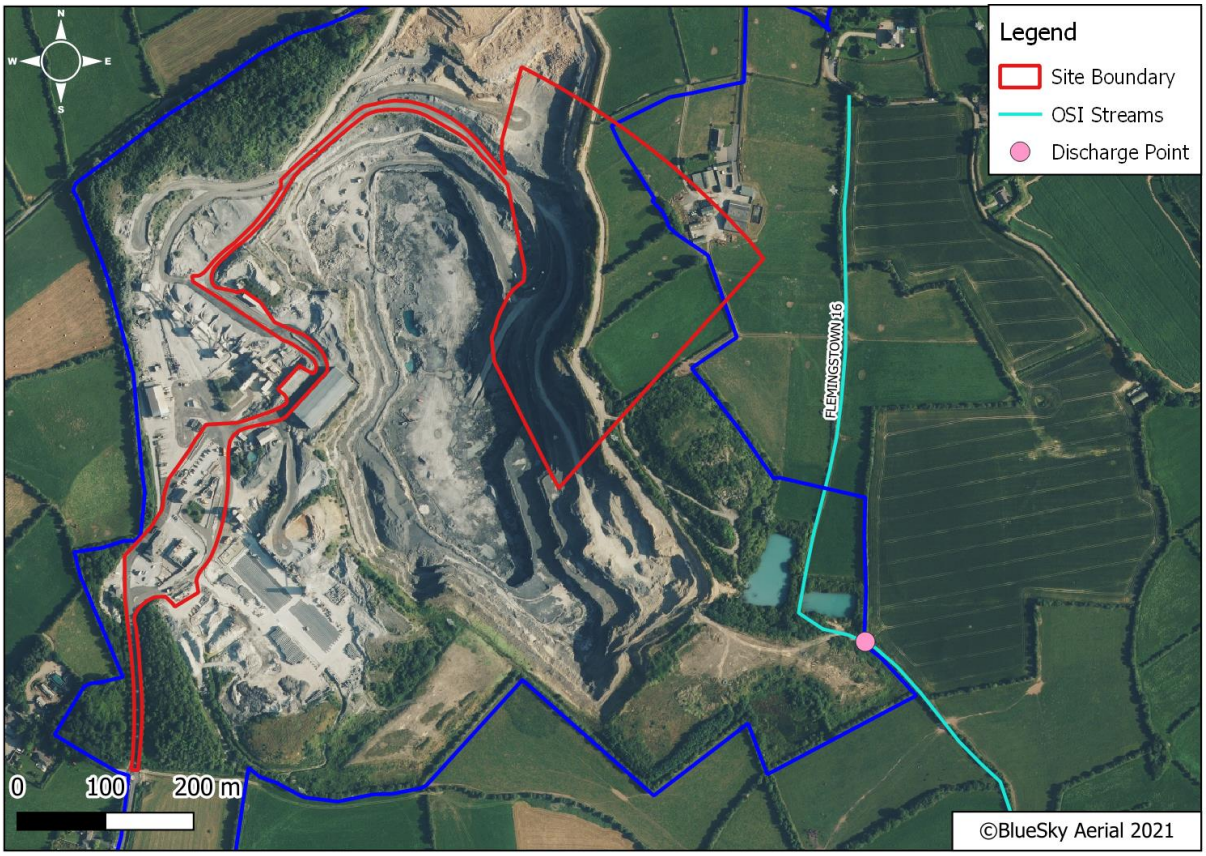
3.3.5.4 Welfare

The Quarry contains a main office and staff welfare facilities. These buildings are on mains water and are connected to two (2No.) septic tanks. No additional welfare facilities are proposed as part of the Proposed Development.

3.3.5.5 Drainage

Water arising within the existing quarry pit is currently pumped up the eastern face and directed through pipes into two (2No.) settlement ponds to the southeast of the Site. These ponds cover an area of ca.340m^2 and 250m^2 respectively. These ponds discharge to Flemingstown stream through an existing hydrocarbon interceptor. Flemingstown Stream drains into the Middle Suir Estuary ca.1.3km southeast of the Site. Refer to Figure 3-11 for context on the location of the discharge point.

Figure 3-11: Quarry Discharge Point



This process will not change as a result of the Proposed Development; however, the route of the pipes to the attenuation ponds will be altered to accommodate the proposed extraction area.

General surface water run-off within the wider Site will percolate to ground in line with the current drainage regime.

3.3.5.6 Wheel Wash

The existing wheel wash onsite will be utilised for the proposed works. The existing wheel wash is shown in Plate 3-8 below. The wheel wash is located in the southwest section of the Site near the Site entrance onto the L7434. The existing wheel wash runs on a closed-loop system and contains a gate, which prevents HGVs from driving through the wheel wash too quickly, allowing sufficient time for HGVs to be cleaned.

No upgrades to this wheel wash are proposed. The wheel wash will be cleaned out regularly, with sludge removed offsite in accordance with the requirements of relevant waste legislation.

Plate 3-8 Existing Wheel Wash

3.3.5.7 Fuel and Oil Storage

No fuel will be stored onsite. Any fuels/oils (and/or lubricants) used at the Site will continue to be stored in the existing bunded tanks in the Quarry. Re-fuelling of mobile plant will continue to take place on an existing hard-standing area immediately adjacent to the bunded fuel storage area.

Fixed crushing and screening plant will be utilised to provide secondary / tertiary processing of aggregate from the Site within the Quarry (Plate 3-7 above). This plant is located outside the Site and will continue to be refuelled as per the existing operational procedures of the Quarry.

It is important to note that all plant and machinery subject to refuelling procedures within the wider Landholding will be refuelled by a competent person utilising a drip tray. In addition, absorbent sands and a full spill kit system are stored within the Quarry.

3.3.5.8 Transportation, Roads and Infrastructure

The Proposed Development will utilise the existing access and internal haul routes within the Quarry. HGVs will travel via the N24 and L7434 to gain access to the Site. Return routes will utilise the same route.

The proposed operations onsite will follow the currently authorised average of ca.550 trips per day (250 HGV trips, 30 staff trips and 20 miscellaneous trips per day) under planning reference: 16700. The Proposed Development will operate at an average output of ca.700,000 to 1,000,000 tonnes per annum (tpa).

A Traffic Impact Assessment has been undertaken by PMCE, the findings of which are presented in the EIAR submitted as part of this planning application.

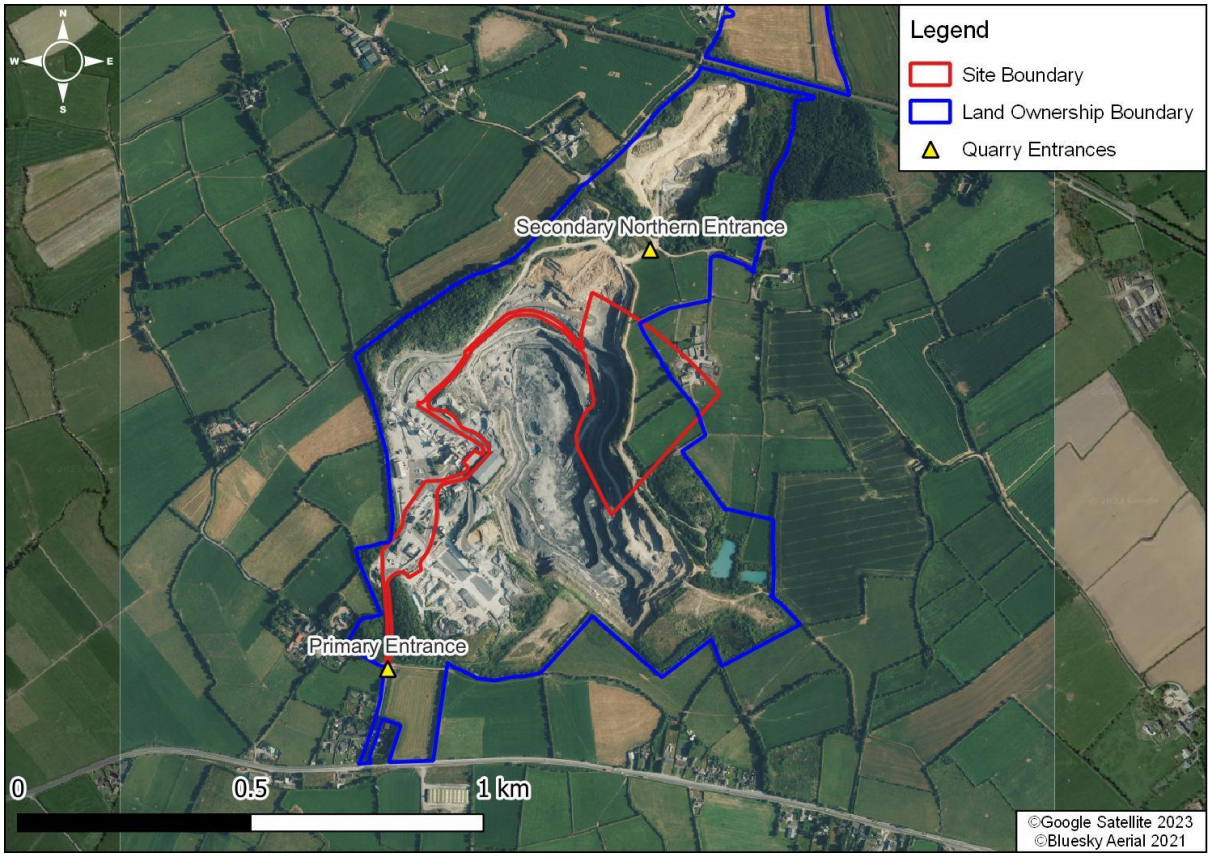
3.3.5.9 Security

The existing perimeter security fence will continue to be checked monthly and after any incident. The additional security fence to be installed as part of the Proposed Development will be subject to the same checks. Records of checking, maintenance and repairs of the fence will be maintained in the EMS. The Quarry has a remotely monitored CCTV system installed, with cameras monitoring the entrance gates on the southern and northern sides of the Quarry, the office and fuel storage area.

Primary access to the Site will be via the existing entrance to the Quarry off the L7434 at the southern aspect of the Quarry. The existing entrance is gated and secured when activities are not occurring within the Quarry. The Quarry is bound by soil embankments, screening vegetation and stockproof fencing.

There is secondary northern entrance to the Quarry off the L7434, which is primarily used by Roadstone personnel only. No HGVs associated with the Proposed Development will utilise this entrance under any circumstance. Refer to Figure 3-12 below for further context.

Figure 3-12: Current Quarry Access Entrances



The contact details of the Location Manager are clearly displayed on a sign at the main (southern) entrance from the public road. Any complaints received will be logged in the complaint register which will be maintained onsite as part of the EMS.

Existing signage located at the Quarry entrance from the public road states the existence of the Quarry and includes contact details of the quarry operator. Separately, '*No Unauthorized Access*' and warning signs are located on the pillars at the Site entrances. Signs will continue to be maintained along the perimeter fence and access gates on the southern and northern side of the Quarry providing notice of the quarrying activities.

As part of the Proposed Development, the extension area will be developed with both soil embankments and additional fencing prior to activities commencing.

3.3.6 Monitoring Works

An Ecological Clerk of Works (ECoW) will inspect the Site in advance of works commencing and will undertake monthly Site inspections as required during the construction works to ensure that they are completed in line with the mitigation measures detailed within this NIS, the EIAR and the CEMP, and that the mitigation measures are effective.

The ECoW will also either deliver or provide the resident engineer with sufficient environmental information to deliver a Site induction to all personnel working onsite.

4 IDENTIFCATION OF EUROPEAN SITES

In accordance with the European Commission Methodological Guidance [4] a list of European sites that can potentially be affected by the Proposed Development has been compiled. Guidance for Planning Authorities prepared by the Department of Environment Heritage and Local Government [5] states that defining the likely zone of impact for the screening and the approach used will depend on the nature, size, location and the likely significant effects of the project. The key variables determining whether or not a particular European site is likely to be significantly affected by a project are:

- The physical distance from the project to the European site;
- The presence of impact pathways;
- The sensitivities of the ecological receptors; and,
- The potential for in-combination effects.

All SPAs and SACs within 15km have been considered to assess their ecological pathways and functional links. As acknowledged in the OPR guidelines [1], few projects have a zone of influence this large, however the identification of European sites within 15km has become widely accepted as the starting point for the screening process. For this reason, all SPAs and SACs in 15km have been identified for consideration as part of the screening.

There are five (5No.) European sites located within 15km of the Site - these are presented in Figure 4-1 and Table 4-1.

Figure 4-1: Site Location and European Sites within 15km

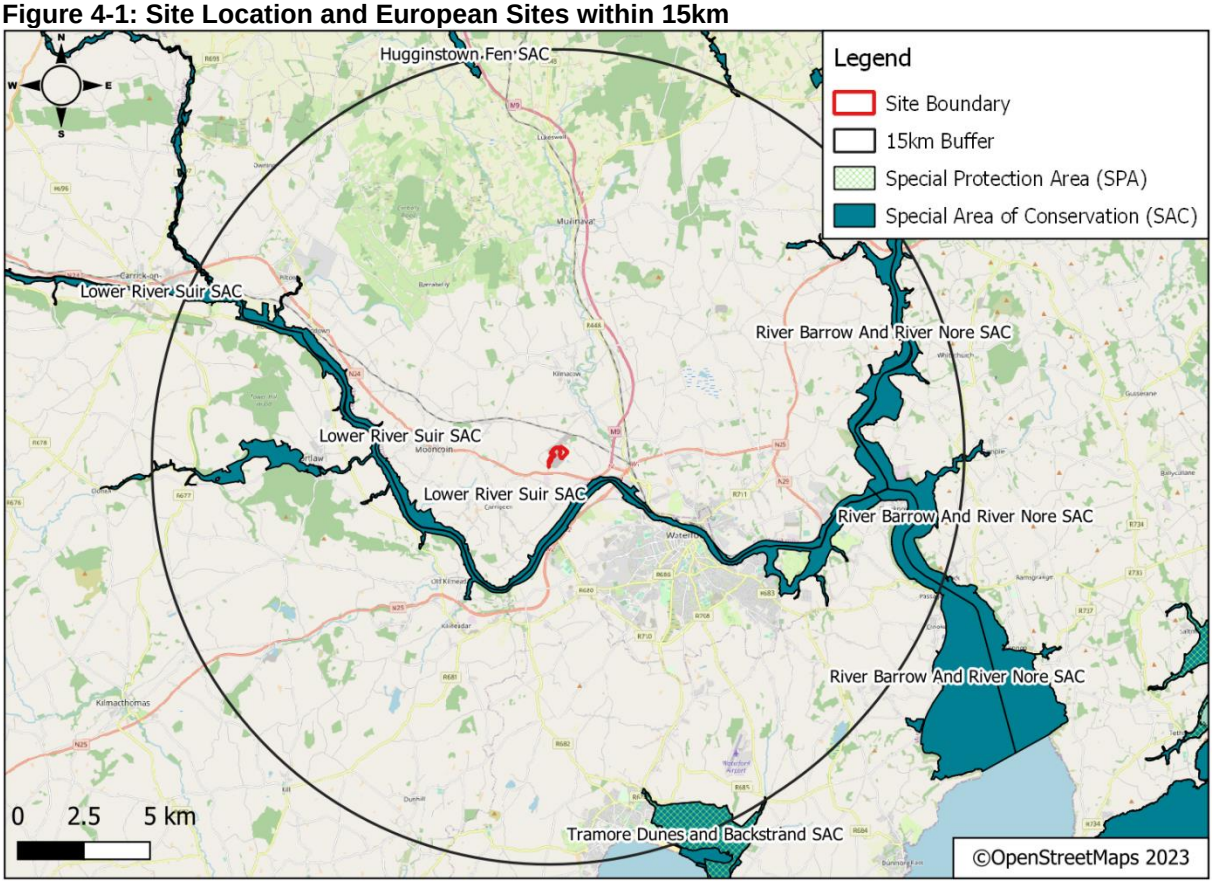
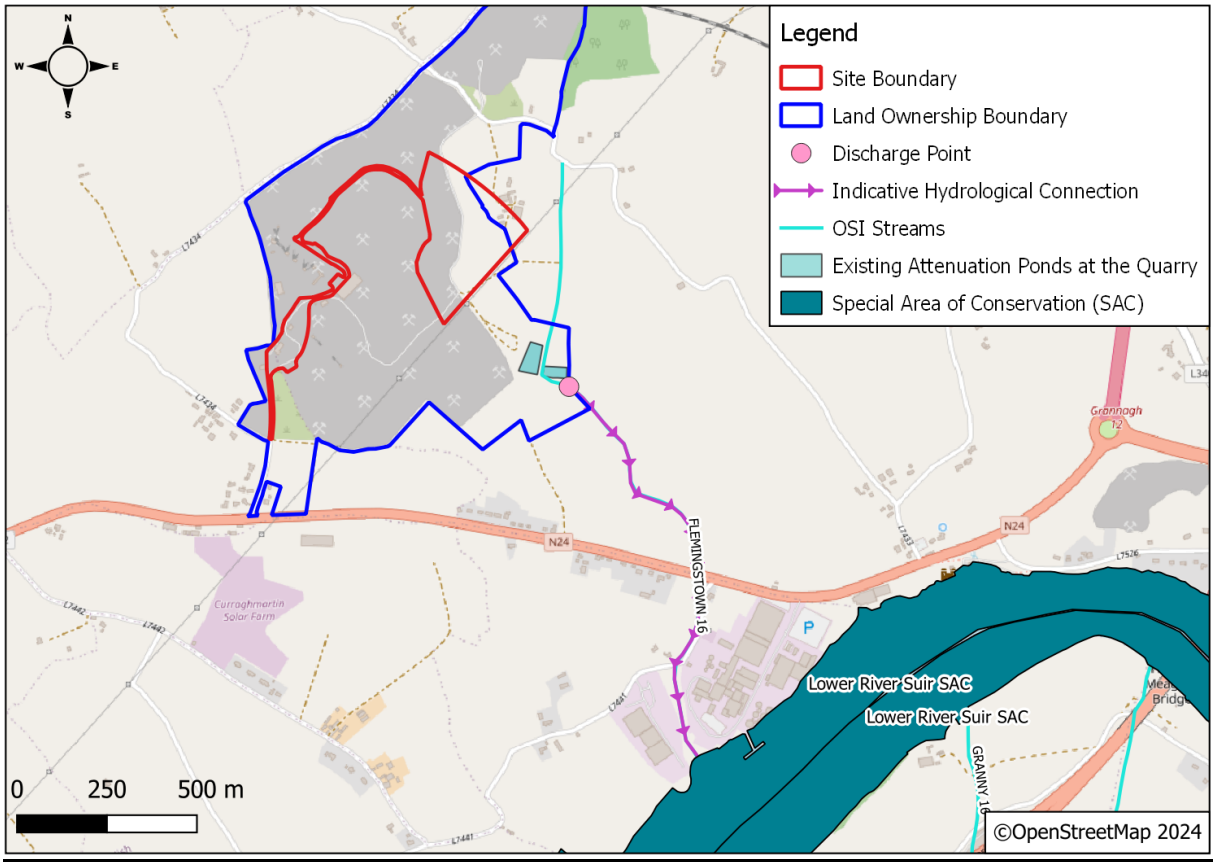


Table 4-1: European Designated Sites within 15km of the Site

Site Name	Code	Distance (km)	Direction from the Site
Special Areas of Conservation (SAC)			
Lower River Suir SAC	002137	1.4km	S
River Barrow and River Nore SAC	002162	11.5km	SE
Hugginstown Fen SAC	000404	14.5km	NW
Tramore Dunes and Backstrand SAC	000671	13km	SE
Special Protection Area (SPA)			
Tramore Back Strand SPA	004027	13.1km	SE

The Quarry has a discharge licence (ENV/W82) which permits the discharge of water from the quarry pit via attenuation ponds to Flemingstown Stream. As such, the Site shares a hydrological connection to the Lower River Suir SAC via Flemingstown Stream, refer to Figure 4-2 below for context.

Figure 4-2: Hydrological Connection between the Site and the Lower River Suir SAC



4.1 Identification of European Sites within ZoI

The Zone of Influence (ZoI) comprises the area in which the Proposed Development may potentially affect the conservation objectives (or qualifying interests) of a European site. The definition of ZoI for the proposed works evaluated multiple factors as outlined in Section 2.1

and discussed below. Please note that the extent of ZoI differs for different environmental aspects, e.g. air, water, etc.

Habitat Loss / Degradation

The Site is not located within any European sites and therefore, it can be stated that there will be no direct habitat loss as a result of the Proposed Development.

No impacts associated with indirect habitat loss / degradation as a result of the Proposed Development are expected within the River Barrow and River Nore SAC, the Hugginstown Fen SAC, the Tramore Dunes and Backstrand SAC and the Tramore Back Strand SPA given the intervening distance and the lack of a functional impact pathway between the Site and these European sites.

However, the Site is hydrologically connected to the Lower River Suir SAC via the Flemingstown Stream and existing drainage infrastructure. Therefore, further consideration will be given to potential indirect habitat loss and degradation as a result of the Proposed Development via this impact pathway on this European site. Further details are outlined below.

Water Quality Impairment

Potential water quality impacts would typically be associated with the release of sediment and other pollutants to surface water during the construction phase of the Proposed Development, therefore the ZoI would be considered to include the receiving waterbodies adjacent to and downstream of the Site within 5km of the proposed works.

The construction phase will involve soil stripping and berm construction within the greenfield areas onsite. These works have the potential to result in a release of suspended sediments to Flemingstown Stream which is located ca.90m from the Site at its closest point. As outlined in Section 3.2, the Flemingstown Stream is hydrologically connected to the Lower River Suir SAC. As such, further consideration will be given to the potential for water quality impairment arising from the Proposed Development during the construction phase on this European site.

In addition, water is currently pumped from the quarry pit and directed through pipes into two (2No.) existing attenuation ponds within the Landholding. These ponds discharge to Flemingstown stream under a water discharge licence (ENV/W82). Flemingstown Stream drains into the Middle Suir Estuary ca.1.3km downstream. This process will not change as a result of the Proposed Development. Nonetheless, given the presence of this existing impact pathway, further consideration will be given to the potential for water quality impairment during the operational phase of the Proposed Development on the Lower River Suir SAC.

The River Barrow and River Nore SAC is also hydrologically connected to the Site via the Flemingstown Stream and the Middle Suir Estuary. However, this SAC is located ca.13.8km downstream and is outside of the 5km ZoI for water quality impacts. It is considered that the distance downstream would ensure that any potential pollutants arising from the Proposed Development would dilute or settle out of the river network prior to reaching this SAC. As such, indirect habitat loss or degradation to designated habitats within the River Barrow and River Nore SAC a result of water quality impairment can be discounted.

No other European sites were identified with a hydrological connection to the Site. However, it should be noted that water quality protection measures implemented to protect the Lower River Suir SAC will similarly protect European sites within the wider river network.

Air Quality Impairment

According to the Institute of Air Quality Management (IAQM) Guidelines, the potential adverse effects from dust arising from construction to ecological receptors occurs within 50m of a construction site [23]. However, potential adverse effects from mineral dust to ecological receptors from hard rock quarries can occur within 400m of dust generating activities [24].

No European sites were located within 400m of the Site and therefore, potential air quality impacts to European sites as a result of construction or mineral dust can be dismissed.

It should be noted that general mitigation measures for the suppression and control of dust onsite have been incorporated into the EIAR. However, this report is not reliant on these mitigation measures in order to avoid impacts on any European sites.

In addition, the Quarry currently operates under an air pollution licence (ENV/APL13). The conditions of this licence will not change as a result of the Proposed Development. Therefore, it is not considered that the Proposed Development will result in any air quality impacts to any European sites.

Noise / Disturbance

Noise from construction and operational activity has the potential to cause disturbance to resting, foraging and commuting qualifying species of the European sites. Individual species will provoke different behavioural responses to disturbances at different distances from the source of disturbance.

- Transport Infrastructure Ireland (formally the National Roads Authority) has produced a series of best practice planning and construction guidelines for the treatment of certain protected mammal species (i.e. otter), which indicate that disturbance to terrestrial mammals would not extend beyond 150m [25]; and,
- Studies have noted that different types of disturbance stimuli are characterized by different avifaunal reactions, however, in general a distance of 300m can be used to represent the maximum likely disturbance distance for waterfowl [26].

The ZoI for noise / disturbance is therefore established as the Site with a 300m buffer.

The Site is hydrologically connected to the Lower River Suir SAC via Flemingstown Stream. This SAC supports otters which are predominantly found in aquatic habitats along rivers and estuaries and have the ability to disperse from the water. However, the Flemingstown Stream is not considered suitable for this species, and it is not expected that otters will migrate into the 300m buffer for noise disturbance. Taking this into account, direct noise disturbance on otters can be dismissed.

The Lower River Suir SAC is also designated for a variety of aquatic species. However, there will be no in-river works required for the Proposed Development. Therefore, there is no potential for underwater noise impacts and noise disturbance effects on aquatic species can be dismissed.

Tramore Back Strand SPA is located ca.13.1km southeast of the Site. This SPA is located outside of the ZoI for noise / disturbance and no species designated under this SPA were recorded interacting with the Site during the 2023 bird surveys. It is considered that should any designated bird species utilize the Site; they will move away from disturbance. Therefore, direct noise disturbance on designated bird species can be dismissed.

Identification of European Sites

The Site is not located within or directly adjacent to any European sites, however, the boundaries of five (5No.) are located within 15km from the Site.

Based on the principles outlined above, the intervening distance and the absence of impact pathways between the Site and the River Barrow and River Nore SAC, Hugginstown Fen SAC, Tramore Dunes and Backstrand SAC, Tramore Back Strand SPA, it is considered that the Proposed Development will not result in adverse effects to these European Sites. Therefore, these European sites have been screened out from further consideration.

However, as outlined above, the Lower River Suir SAC is hydrologically connected to the Site via the Flemingstown Stream. This SAC is also only 1.4km southeast of the Site. Accordingly, this European site has been screened in for further consideration to assess potential adverse effects resulting from the Proposed Development with a specific focus on water quality impairment.

The screening assessment for individual designated habitats and species for this screened in European site and the potential for them to be significantly affected by the Proposed Development is presented in Section 6. Further information on the Lower River Suir SAC is provided below.

4.2 Lower River Suir SAC (Site Code: 002137)

The Lower River Suir SAC, is an extensive site, which covers the freshwater stretches of the River Suir from south of Thurles, Co. Tipperary, to the Barrow-Suir confluence east of Cheekpoint, Co. Waterford. The SAC has eight (8No.) tributaries and flows through the counties of Tipperary, Kilkenny and Waterford.

The SAC is comprised of a number of Annex I habitats, including the priority habitats alluvial forest and Yew woodland (Tables 4-2 below). Other habitats within the SAC include wet and dry grassland, marsh, reed swamp, improved grassland, tidal river, deciduous woodland and mudflats.

The SAC is of conservation interest for the presence of a number of Annex II species including freshwater pearl mussel, otter, white-clawed crayfish, Atlantic salmon, twaite shad and three (3No.) species of lamprey - sea, brook and river lamprey (Table 4-3 below). This European site is one of only three (3No.) known spawning grounds in the country for twaite shad. The site is also of ornithological importance for a number of Annex I bird species, including Golden Plover, Whooper Swan and Kingfisher.

Intensive agriculture is the primary land use along the banks of the river. The widespread use of fertiliser and slurry pose the greatest threats to the conservation status of the SAC due to the related impairment to water quality. Furthermore, there are multiple industrial developments, which border the SAC, and discharge into the river. Fishing is the primary tourism attraction along the stretches of the Suir, including both commercial and leisure fishing with numerous Angler Associations [27].

Table 4-2: Qualifying Annex I Habitats for the Lower River Suir SAC

Qualifying Habitats (* denotes priority habitats)	Code	Site Specific Conservation Objective
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	1330	Restore favourable conditions
Mediterranean salt meadows (*Juncetalia maritime*)	1410	Restore favourable conditions
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	3260	Maintain favourable conditions
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	6430	Maintain favourable conditions
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	91A0	Restore favourable conditions
Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae)*	91E0	Restore favourable conditions
Taxus baccata woods of the British Isles*	91J0	Restore favourable conditions

Table 4-3: Qualifying Annex II Species for the Lower River Suir SAC

Species	Species Name	Code	Site Specific Conservation Objectives
Molluscs listed on Annex II of the Habitats Directive	Freshwater pearl mussel (*Margaritifera margaritifera*)	1029	Restore favourable conditions
Crustaceans listed on Annex II of the Habitats Directive	White-clawed crayfish (*Austropotamobius pallipes*)	1092	Maintain favourable conditions
Fish listed on Annex II of the Habitats Directive	Atlantic salmon (*Salmo salar*)	1106	Restore favourable conditions
	Sea lamprey (*Petromyzon marinus*)	1095	Restore favourable conditions
	Brook lamprey (*Lampetra planeri*)	1096	Restore favourable conditions
	River lamprey (*Lampetra fluviatilis*)	1099	Restore favourable conditions
	Twait Shade (Alosa fallax fallax)	1103	Restore favourable conditions
Mammals listed on Annex II of the Habitats Directive	Otter (*Lutra lutra*)	1355	Maintain favourable conditions

4.3 Conservation Objectives

European and national legislation places a collective obligation on Ireland and its citizens to maintain a favourable conservation status at areas designated as candidate Special Areas of Conservation. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

According to the Habitats Directive, favourable conservation status of a habitat is achieved when:

- Its natural range, and area it covers within that range, is stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and,
- The conservation status of its typical species is favourable as defined below.

The favourable conservation status of a species is achieved when:

- Population data on the species concerned indicate that it is maintaining itself;
- The natural range of the species is neither being reduced or likely to be reduced for the foreseeable future; and,
- There is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Conservation objectives for all identified Natura 2000 SAC Sites are as follows:

> *'To maintain or restore the favourable conservation condition of the Annex I habitat(s) and the Annex II species for which the SAC has been selected.'*

The full reports for the conservation objectives for the Lover River Suir SAC[1] can be found on the NPWS website [11].

[1] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002137.pdf

5 STUDY RESULTS

5.1 Desk Based Study Results

The NBDC does not hold any records of designated species within 2km of the Site over the last 10 years [17]. The parameter of 10 years was chosen to allow for habitat adaption and modification, it is considered that any records over 10 years old are not representative of the current distribution of species populations.

5.2 Field Based Study Results

5.2.1 Habitat Survey

The following section provides details of the habitat survey that was undertaken on the 12th July 2022 and the updated habitat assessment conducted on 29th September 2023. A description of the habitats and features of ecological significance are outlined below and illustrated in Figure 5-1.

Habitats within the Site Boundary

Improved Agricultural Grassland (GA1)

Three (3No.) improved agricultural grassland fields are present within the eastern portion of the Site. These fields were species poor, comprising of typical grassland species such as perennial ryegrass (*Lolium perenne*), meadow grass (*Poa annua*) and clover (*Trifolium spp*.). During the 2022 habitat survey, these fields were utilised as pastures for cattle. During the updated survey in 2023, these fields had recently been cut for silage.

The field margins comprised mainly of hedgerows / treelines and their associated understory which are detailed below. However, the western boundary of the northern and central field was delineated by a fence. The following species were recorded along the fence line: cow parsley (*Anthriscus sylvestris*), creeping buttercup (*Ranunculus repens*), stinging nettle (*Urtica dioica*), ragwort (*Jacobaea vulgaris*), common daisy (*Bellis perennis*), common velvet grass (*Holcus lanatus*), cocksfoot (*Dactylis glomerata*), hairy willowherb (*Epilobium hirsutum*), and ribwort plantain (*Plantago lanceolata*).

Hedgerows (WL1) /Treelines (WL1/WL2)

Treelines form the principal field boundaries within the eastern portion of the Site. The upper field contains a north-south running treeline along its eastern boundary. This treeline separates the agricultural fields from the farmyard. A treeline running from east to west divides the northern field from the central field. In addition, treelines were present in between the central field and the southern field and in between the southern field and the quarry habitats to the west. Sections of stone walls were present underneath the roots of these treelines. A small section of hedgerow / treeline extends into the Site at the existing farmyard. Refer to Figure 5-1 for indicative locations.

The treelines within the Site comprised of common species found throughout Ireland. The dominant species recorded were ash (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*), elder (*Sambucus nigra*) and sycamore (*Acer pseudoplatanus*). Ivy (*Hedera helix*), dog rose (*Rosa canina*), and brambles (*Rubus fruticosus*) were commonplace within these treelines. The small section of hedgerow / treeline adjacent to the farmyard also contained holly (*Ilex aquifolium*).

A hedgerow is present to the north of the Site. The majority of this hedgerow lies outside the Site boundary; however, the western end extends into the Site. This hedgerow bounds the upper field to the north. Another hedgerow is present within the southeast portion of the Site. This is a managed hedgerow which separates the lower field from the access track into the

farmyard. The hedgerows onsite comprised of dense hawthorn trees with wild privet (*Lingustrum vulgare*) identified in sections.

The following species were recorded within the understory of the hedgerows and treelines onsite: bull thistles (*Cirsium vulgare*), bush vetch (*Vicia sepium*), hairy willowherb, cleavers (*Galium aparine*), hearts tongue fern (*Asplenium scolopendrium*), shield fern (*Polystichum setiferum*), gooseberry (*Phyllanthus emblica*), stinging nettles (*Urtica dioica*) and primrose (*Primula vulgaris*).

Scrub (WS1)

An area of scrub was located along the western boundary of the southern field, in between the greenfield lands and the Quarry. As outlined above and in Figure 5-1, a treeline borders this scrub habitat. This narrow section of scrub links into a wider area of scrub within the Study Area.

Species recorded in this scrub habitat include nettle, bramble, shield fern, willowherb, elder, willow (Salix spp.), meadow buttercup, dock (*Rumex obtusifolius*), gorse (*Ulex europaeus*), ground ivy (*Glechoma hederacea*), hawthorn, cleavers, ragwort, horsetail (*Epuisteum arvense*), dog rose, dandelion (*Taraxacum vulgaria)* and rushes (*Juncus spp*.).

Patches of scrub were identified growing on berms in between the existing extraction area and the existing upper access track within the Quarry. These berms were dominated by brambles and gorse.

Buildings and Artificial Surfaces (BL3)

Three (3No.) agricultural sheds and the edge of a fourth agricultural shed were located within the eastern portion of the Site. A pump house was also located within the eastern portion of the Site. These buildings form part of an existing farmyard which extends outside the Site boundary.

The two (2No.) agricultural sheds and pumphouse to be removed are shown in Plate 5-1 below. These structures all have rendered walls and corrugated iron roofs. At the time of survey, these sheds formed part of an active farmyard and were subject to regular disturbance.

Plate 5-1: Structures Onsite to be Removed

The ground within this section of the Site is covered by concrete slabs. However, patches of grass and recolonising bare ground have established in the gaps between slabs. Delicate fern moss (*Thuidium delicatulum*) was recorded in this area.

The southeastern portion of the Site also contains artificial surfaces and buildings. This area contained the Site office, carpark, weighbridge, wheel wash, secure entrance and access road into the Site. This area was covered in hardstanding and was devoid of vegetation.

Spoil and Bare Ground (ED2)

Access tracks leading to and from the existing farmyard comprised of spoil and bare ground. These areas were species poor.

Active Quarries and Mines (ED4)

The western section of the Site is comprised of active quarry habitat. Given the level of disturbance from ongoing rock extraction, this habitat was mostly devoid of vegetation. Steep quarry faces, exposed rock, spoil and bare ground were key features of this habitat.

An access road runs along the top of the eastern quarry face within the Quarry. Vegetation has recolonised some of the road margins, however no species of note were recorded along the road.

Habitats within the Wider Study Area

The Study Area encompasses both active quarry habitats and greenfield lands. The following habitats were identified within the wider Study Area, outside the Site boundary:

- Improved Agricultural Grassland (GA1);
- Amenity Grassland (GA2);
- Hedgerows / treelines (WL1 / WL2);
- Scrub (WS1);
- Buildings and Artificial Surfaces (BL3);
- Flemingstown Stream;
- Other Artificial Lakes and Ponds (FL8);
- Active Quarry and Mines (ED4);
- Recolonising Bare Ground (ED3); and,
- Spoil and Bare Ground (ED2).

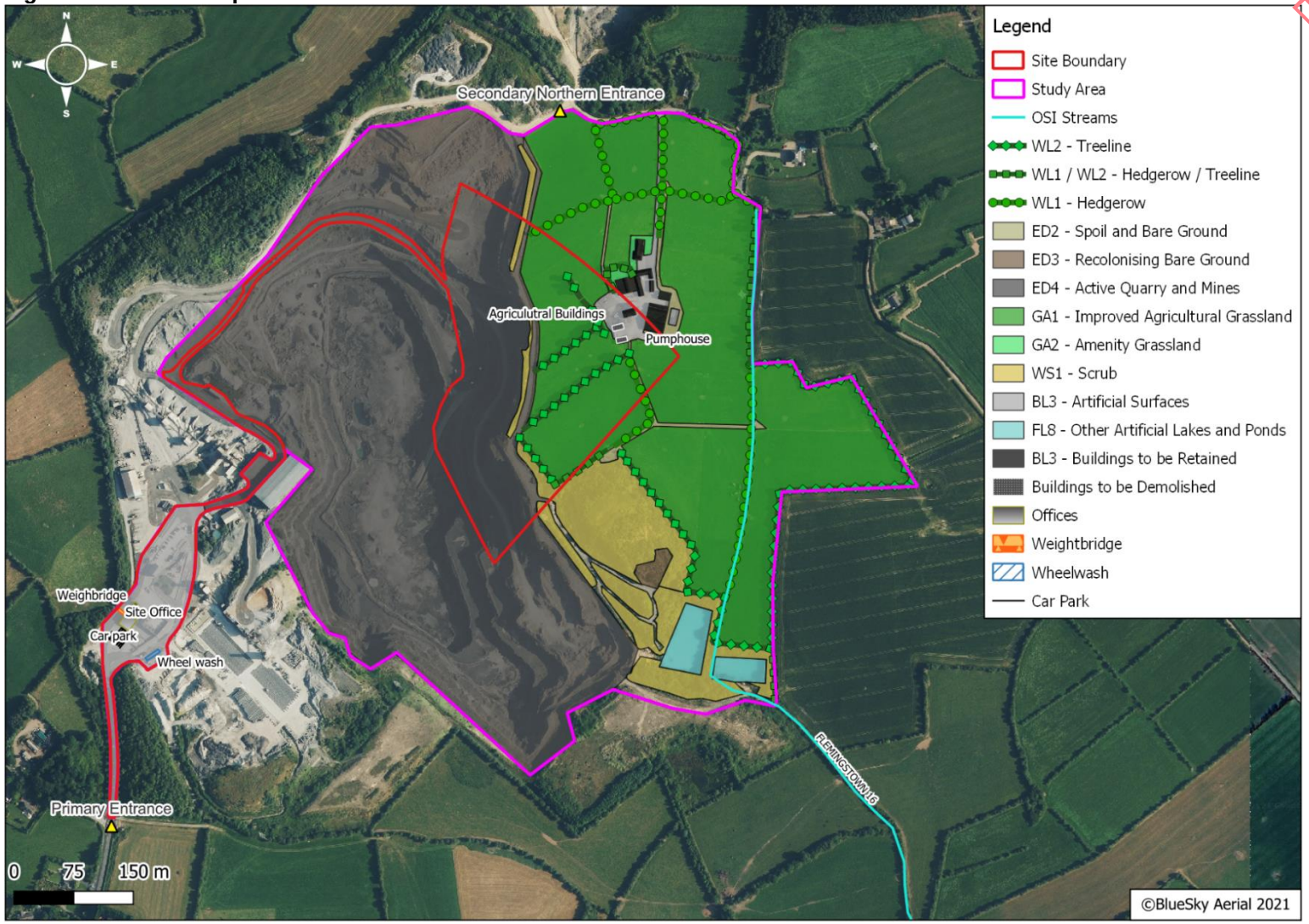
As per the habitats identified onsite, the greenfield lands within the Study Area were bound by a combination of fencing, managed hedgerows (WL1) and hedgerow / treelines (WL1 / WL2). The majority of greenfield lands within the Study Area comprised of improved agricultural grassland (GA1) in the form of cattle pastures.

An area of scrub (WS1) was present within the southeast portion of the Study Area. This scrub habitat surrounded two (2No.) attenuation ponds (FL8) and an area of recolonising bare ground (ED3). These attenuation ponds collect water from the quarry pit and discharge it under licence (ENV/W82) to the Flemingstown stream. The Flemingstown stream runs through the eastern portion of the Study Area and is located ca.88m from the Site boundary at its closest point.

The Study Area encompasses the aforementioned farmyard. This farmyard lies atop concrete slabs and contains agricultural sheds, storage areas and outbuildings (BL3). A residential dwelling (BL3) is located to the north of the farmyard. Two (2No.) areas of amenity grassland / garden habitats (GA2) surround the residential dwelling onsite. A road leads through the Study Area to the farmyard and residential dwelling. Refer to Figure 5-1 for context.

The active quarry habitat (ED4) within the Study Area is largely devoid of vegetation due to ongoing disturbance; however, patches of recolonising vegetation were observed atop the quarry benches to the west.

Figure 5-1 Habitat Map



5.2.2 Protected / Notable Species

Designated Species

No species designated under the Lower River Suir SAC were identified onsite or within the wider Study Area. No evidence of designated species was identified during the field surveys and the section of the Flemingstown stream within the Study Area was not considered suitable for otter, crayfish, freshwater pearl mussel or fish species.

However, the Flemingstown stream discharges into the Middle Suir Estuary. The River Suir is known to support designated species and therefore, a hydrological impact pathway was identified.

One (1No.) lesser black-backed gull was observed flying over the Study Area during the June 2023 breeding bird survey. This individual did not interact with the Study Area. Lesser-black backed gulls fall into the wetland and waterbirds [A999] designation and therefore, fall under the protection of the Tramore Back Strand SPA.

Invasive Species

No high impact invasive species or plant species listed on the Third Schedule of the 2011 European Communities (Birds and Natural Habitats) Regulations (i.e., species of which it is an offense to disperse, spread or otherwise cause to grow in any space) were identified within the Study Area.

5.2.3 Hydrological Assessment

5.2.3.1 Quarry Discharge Water Quality

The quality of quarry discharge water is monitored on a quarterly basis in accordance with the discharge licence.

A summary of discharge water quality monitoring data (2021 to 2023) along with the discharge limits was compiled by Hydro Environmental Services Ltd. as shown in Table 5-1 below. Total petroleum hydrocarbons (TPH) are included in the Table 5-1, but TPH testing is not a requirement of the discharge licence.

During the twelve (12No.) rounds of sampling conducted over the period 2021 to 2023, there was only one (1No.) confirmed** exceedance each for ammonia and orthophosphate as well as three (3No.) for nitrate.

The Discharge Limit (DL) limit for Nitrate N is 5.65mgL (25mg/L NO_3). However, the monitoring well sampling shows that the baseline concentration of nitrate in the local groundwater can be in excess of 5.65mgL at times and therefore the exceedances are likely not as result of the quarry operation, but most likely from surrounding agricultural activities.

Levels of nitrate in the local groundwater are likely to be variable both temporarily and spatially depending on what land-use activities are taking place in the catchment.

The singular exceedance for ammonia and orthophosphate is also likely to be baseline groundwater quality related. Suspended solids were consistently under the DL which is noteworthy. There were also no detections of TPH over that period.

Suspended solids and TPH are the primary potential contaminants in quarry discharge waters.

Table 5-1: Summary of Quarterly Discharge Monitoring Data (2021-2023)

Parameter	Min	Max	Average*	Confirmed No. of Samples with DL exceedance**	DL
pH (pH units)	7.18	8.17	7.7	0	6.5-8.5

Parameter	Min	Max	Average*	Confirmed No. of Samples with DL exceedance**	DL
Suspended solids (mg/L)	<5	24	7.36	0	25
BOD (mg/L)	<0.1	1.3	0.36	0	10
Total Ammonia as N (mg/L)	<0.1	3	0.4	1	1
Nitrite as N (mg/L)	<0.016	<0.35	0.05	0**	0.05
Nitrate as N (mg/L)	2.5	9.5	5.13	3	5.65
Total Phosphorous as P (mg/L)	<0.1	<0.5	0.43	0**	0.05
Ortho-phosphate as P (mg/L)	<0.01	0.073	0.06	1	0.03
Fats / Oils / Grease (mg/L)	<0.6	<3	1.5	0**	1.0 or better
Total Petroleum Hydrocarbons (mg/L)	<0.01	<0.01	0.01	0	N/A

*The average was calculated using the laboratory detection limit, therefore is very conservative.

**Where the laboratory detection limit is above the DL, the exceedance is not considered to be confirmed.

In addition to the regular quarterly sampling, the quarry discharge water was sampled by HES in November 2022. The samples were sent to the laboratory and tested for a more extensive range of water quality parameters which included metals and hydrocarbons. The results show that the quarry discharge satisfies a '*good*' to '*high*' water quality status.

With regard the Surface Water Regulations (S.I. 77/2019) threshold values, results for ammonia (<0.06mg/L), BOD (<1mg/L) and orthophosphate (<0.05mg/L) were all at least below the '*good*' status threshold. This is noteworthy given that the WFD status of the Flemingstown Stream is '*poor*.'

The majority of metals analysed for, including heavy metals cadmium, chromium, mercury and lead were below the laboratory detection limits.

Total suspended solids were reported at <5mg/L and there was no detection of hydrocarbons.

Nitrate N was reported as 6.3mg/L which exceeds the discharge licence limit of 5.65mg/L. However, analysis of groundwater samples from the monitoring wells (sampled the same day as the discharge), show Nitrate N levels ranging between <1 and 5.97mg/L. This shows that baseline nitrate levels in groundwater inflows to the quarry void can exceed the discharge limit of 5.65mg/L. As discussed above, the most likely source of elevated nitrates is from surrounding agricultural activities rather than as a direct result of quarry operations.

6 STAGE 1 SCREENING: IDENTIFICATION OF POTENTIAL SIGNIFICANT IMPACTS

6.1 Potential Significant Impacts

The potential for significant effects on the Lower River Suir SAC were considered further in this section. The key output of this stage of the assessment is the identification of likely significant effects of the Proposed Development alone and in combination with other plans and projects on relevant European sites without the implementation of mitigation measures.

Table 6-1 and Table 6-2 present further details and rationale of the screening assessment undertaken for the Lower River Suir SAC which was identified as having the potential to be significantly affected by the Proposed Development, in light of its site conservation objectives and best available scientific knowledge.

Table 6-1: Screening Assessment: Annex I Habitats – Lower River Suir SAC

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae)*	According to the Conservation Objectives Report, salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along tidal stretches of some of the in-flowing rivers below Litle Island [28]. There are also very narrow non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballyankil, the east side of Little Island, and in three (3No.) large salt meadows between Ballynakill and Cheekpoint [28]. The closest confirmed Atlantic salt meadow is ca.9.5km downstream of the attenuation ponds. However, the nearest potential Atlantic salt meadows are ca.3.5km downstream of the Study Area.	Effects associated with pollution during the proposed works i.e. a decrease in water quality	It is considered highly unlikely that the works will have any significant direct or indirect negative effects on this habitat during either the construction or operational phase of the Proposed Development. This conclusion is based on the absence of this habitat within the Study Area. It is also considered that should silt, sediments or pollutants enter the Flemingstown Stream, these pollutants will disperse or dilute within the regular flow and large expanse of the Middle Suir Estuary prior to reaching this habitat. However, taking a precautionary approach, this habitat has been brought forward for further consideration and mitigation measures will be put in place to ensure that this habitat is not affected through water quality impairment, refer to Section 7.1 below.	**Screened In**
Mediterranean salt meadows *(Juncetalia maritime)*	According to the Conservation Objectives Report, the extent and location of this habitat within the Lower River Suir SAC is unknown [28]. However, the boundary of the SAC is considered to be the nearest potential point of occurrence. Therefore, there is potential for this habitat to be located ca.1.3km downstream of the Study Area.	As above	As per Atlantic salt meadows.	**Screened In**
Water courses of plain to montane levels with *the Ranunculion fluitantis* and *Callitricho - Batrachion* vegetation	This habitat was not identified onsite or within the wider Study Area during the habitat survey. The distribution of this habitat throughout this SAC is currently unknown [28]. The boundary of the SAC is considered to be the nearest potential point of occurrence. This habitat type has been found in both freshwater and weakly saline conditions and therefore, there is potential for this habitat to occur within the	As above	As per Atlantic salt meadows.	**Screened In**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
	brackish section of the River Suir (i.e. the Middle Suir Estuary) into which the Flemingstown Stream discharges. Therefore, there is potential for this habitat to be located ca.1.3km downstream of the Study Area.			
Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels	According to the Conservation Objectives Report, the distribution of this habitat within the SAC is currently unknown [28]. However, this habitat type occurs in association with alluvial forests within the SAC, other woodland types in the fringe areas along the River Suir and areas of open marsh or wet grassland. This habitat type has also been found on coastal habitats and therefore, is not limited to freshwater channels. This habitat is not present within the Study Area. The nearest potential point of occurrence is taken to be the SAC boundary which is ca.1.3km downstream.	As above	As per Atlantic salt meadows.	**Screened In**
Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles	This habitat was not identified within the Study Area. According to the Conservation Objectives, the nearest known example of old oak woodland within the SAC is Portlaw Wood, which is located over 9km west of the Study Area [28].	N/A	This terrestrial habitat is not located onsite or within the wider Study Area. There are no impact pathways connecting the Site to this habitat given its terrestrial nature and therefore, there are no potential adverse effects anticipated that could affect this habitat.	**Screened Out**
Alluvial forests with *Alnus glutinosa and Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)*	The Conservation Objectives show that this habitat is present at upstream and downstream locations from the Site [28]. This habitat has been recorded ca.8.9km northeast and ca.11.2km southeast of the Study Area [28]. This habitat was not identified within the Study Area during the habitat survey.	N/A	As per old sessile woods.	**Screened Out**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
Taxus baccata woods of the British Isles*	The distribution of this habitat throughout this SAC is currently unknown [28]. The only known location of this habitat within the SAC is in Cahir Park which is over 50km west of the Study Area [28]. This habitat was not identified within the Study Area during the habitat survey.	N/A	As per old sessile woods.	**Screened Out**

Table 6-2: Screening Assessment – Annex II Species for the Lower River Suir SAC

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
Otter *(Lutra lutra)*	Large river catchments including, the River Suir, are considered to be among the more important SACs for otter. Although there are no records of otter within 2km of the site over the last 10 years, the NBDC holds multiple records of otter within the Suir catchment [17]. The habitat survey did not identify any signs of otter within the Study Area and the Flemingstown Stream was not considered suitable for this species. However, it is considered likely that otters utilise the Middle Suir Estuary ca.1.3km downstream of the Study Area.	Disturbance during construction / operation i.e. noise disturbance. Effects associated with pollution during the proposed works i.e. a decrease in water quality	Although otters are known to occur within the area, the Site itself is not considered to be suitable for otter and no evidence of this species was identified within the Study Area. Therefore, noise and disturbance effects on otters have been discounted. However, due to the hydrological connection to the SAC via Flemingstown Stream, further consideration will be given to this species in relation to potential water quality impairment. In addition to the standard pollution prevention guidance, Site-specific mitigation will be incorporated into the proposed works to ensure no significant effects occur to this species and its prey resources.	**Screened In**
Atlantic salmon (*Salmo salar)*	The Flemingstown Stream is not considered suitable for Atlantic salmon. However, the presence of Atlantic salmon within the River Suir catchment is well documented [28] [29] [30]. According to the Status of EU Protected Habitats and Species in Ireland from	Effects associated with pollution during the proposed works i.e. a decrease in water quality	Although there are no suitable habitats for this species within the Study Area, there is a hydrological connection from the Site to the Lower River Suir SAC via the Flemingstown Stream.	**Screened In**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
	2019, this species has been recorded in the Middle Suir Estuary [31].		Therefore, as this species is known to be present within the catchment during parts of its life cycle further consideration will be given to this species and in addition to the standard pollution prevention guidance, Site-specific mitigation will be incorporated into the proposed works to ensure no significant adverse effects occur to this species through water quality impairment.	
Sea Lamprey (*Petromyzon marinus*)	Sea lamprey are known to occur within the River Suir catchment [28] [29] [30]. However, there are no records held by the NBDC for this species within 2km of the Site [17].	As above	As per Atlantic salmon.	**Screened In**
River Lamprey *(Lampetra fluviatilis)*	River lamprey are known to occur within the River Suir catchment [28] [29] [30]. However, there are no records held by the NBDC for this species within 2km of the Site [17].	As above	As per Atlantic salmon.	**Screened In**
Twaite Shad *(Alosa fallax)*	The NBDC holds no records of twaite shad within 2km of the Site [17]. However, according to the Status of EU Protected Habitats and Species in Ireland from 2019, this species has been recorded in the River Suir [31]	As above	As per Atlantic salmon.	**Screened In**
Freshwater pearl mussel (*Margaritifera margaritifera*)	Freshwater pearl mussels are not considered to be abundant in any area of the SAC. According to the Conservation Objectives Report, this species is confined to the Clodiagh River where it has been recorded in low numbers from Clonea to Portlaw, Co. Waterford [32]. The NBDC holds records for freshwater pearl mussel within the Lower River Suir SAC [17]. However, there are no records held by the NBDC for this species within 2km of the Study Area. The Clodiagh River, where this	As above	This species is limited to the freshwater sections of the Lower River Suir SAC. The Flemingstown Stream, which flows through the Site, discharges into the estuarine section of the River Suir i.e. the Middle Suir Estuary. Therefore, there are no impact pathways by which this species could be directly impacted during either the construction or operational phase of the Proposed Development. However, this species is reliant on migratory fish such as Atlantic salmon which have the potential to be	**Screened In**

Qualifying Feature of Interest	Baseline	Potential Significant Effects	Screening Rationale	Screening Conclusion
	species is known to occur, is ca.6.5km west of the Site and there is no functional impact pathway between the Site and this tributary.		impacted by the Proposed Development. Therefore, this species will require further consideration due to the potential indirect effects on Atlantic salmon.	
Brook Lamprey (*Lampetra planeri*)	The NBDC does not hold any records of this species within 2km of the Site [17]. In addition, this species is restricted to freshwater and therefore, there is no potential for this species to be within the stretch of the River Suir into which the Flemingstown Stream discharges i.e. the Middle Suir Estuary.	As above	There are no impact pathways between the Site and freshwater stretches of the River Suir. Therefore, this species has been screened out from further consideration.	**Screened Out**
White-clawed crayfish (*Austropotamobius pallipes)*	White-clawed crayfish have been recorded along almost the entire length of non-tidal water within the River Suir from the most upstream point at Cabragh, near Thurles, to downstream of Kilsheelan [28]. This species does not occur in tidal waters. The NBDC holds no records of this species within 2km of the Site [17] and the Flemingstown Stream is not considered suitable for white-clawed crayfish. In addition, this species does not occur in the section of the River Suir i.e. the Middle Suir Estuary into which the Flemingstown Stream discharges given its tidal nature. Therefore, no impact pathways to habitats supporting this species were identified.	None	This species is limited to the freshwater sections of the Lower River Suir SAC. The Flemingstown Stream, which flows through the Site, discharges into the estuarine section of the River Suir i.e. the Middle Suir Estuary. Therefore, there are no impact pathways by which this species could be significantly negatively impacted during either the construction or operational phase of the Proposed Development. Moreover, there are no records of this species occurring within 2km of the Site. This species can therefore be screened out and no further assessment is required.	**Screened Out**

6.2 Stage 1 – Analysis of 'In-Combination' Effects

The Habitats Directive requires competent authorities to make an appropriate assessment of any plan or project which is likely to have a significant effect alone or in-combination with other plans and projects.

Due to the large size of the Lower River Suir SAC, there are numerous projects and activities with the potential to affect the conservation interests of these sites. The Proposed Development consists of an extension to an existing quarry, therefore, cumulative or in-combination impacts of the Proposed Development in combination with the existing extraction within the Quarry have been considered throughout this assessment.

A desk-top review of the information sources listed in Section 2.2 did not identify any current or previous granted plans or projects in the immediate vicinity of the Site that are considered likely to result in significant in-combination impacts with the Proposed Development on the Lower River Suir SAC. The majority of proposed and existing developments within 2km of the Site are residential dwellings, farm buildings or small-scale projects as outlined in Table 6-3 below.

Table 6-3: Small-Scale Planning Applications within the Vicinity of the Site

Application Ref	Decision	Development Description	Appropriate Assessment
23/60128	Granted – 23/06/2023	*Five-year permission to install a new wastewater treatment system and to de-commission the existing wastewater treatment system and all associated site works at Hillview, Ballygriffin, Kilmacow, Co. Kilkenny X91V3FR.*	The Planners Report states that *"a screening exercise was completed, which showed that no significant environmental impact is likely having regard to the distance of the subject site from any Natura 2000 site. It is therefore concluded that an NIS is not required".*
23/16	Granted – 20/03/2023	*Five-year planning permission for a single Storey extension to industrial premises to form a corridor linking existing Production Areas at the Main Yard of the Building, together with associated Site Works within the existing industrial facility.*	A Habitat Directive Screening Report was submitted which concluded "t*he proposal can be screened out: Appropriate assessment not required".*
22/70	Granted – 03/04/2022	*Five-year permission to retain indefinitely the existing storage/cold-room building to the rear of the property and all associated works.*	A Habitat Directive Screening Report was submitted which concluded "t*he proposal can be screened out: Appropriate assessment not required".*
21/532	Granted – 04/02/2022	*Five-year planning permission for A) Change of use of existing industrial buildings from chemicals manufacture to use for the processing of animal hides and storage of materials and packaging and B) installation of external canopy over existing goods entrance, together with associated site works within the existing industrial facility. A Natura Impact Statement will be submitted with the Application.*	Stage 2 Appropriate Assessment (NIS) was submitted and concluded that *"the proposal is not likely to have any measurable effects on any of the European sites within its potential zone of influence including Lower River Suir SAC".*

Application Ref	Decision	Development Description	Appropriate Assessment
21/114	Granted – 02/06/2021	*Five-year planning permission for the following: Proposed two storey extension to the existing production facility at the front of site with all ancillary services and associated works along with a proposed water tank to the existing Car Park area.*	The Planners Report states that *"a screening exercise was complete, which showed that no significant environmental impact is likely".*
21/1048	Granted – 17/02/2022	*Five-year planning permission for development at this site. The development will consist of the installation of a photovoltaic solar panel array approximately 2125m^2 on the roof of existing buildings and all ancillary site works*	The Planners Report states that "*a screening exercise was completed, which showed that no significant impact is likely having regard to the distance of the subject site from any Natura 2000 site."*

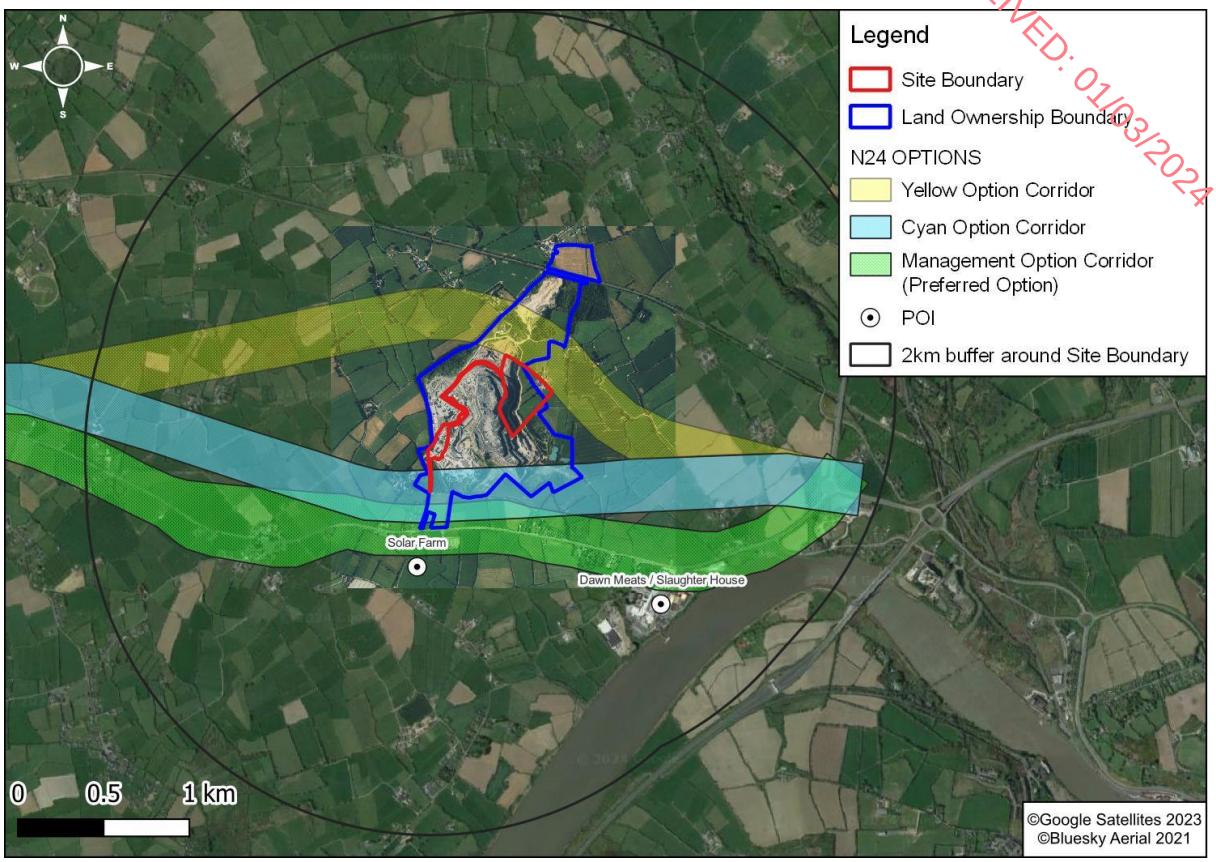
All the developments listed in Table 6-3, were subject to either a Stage 1 Appropriate Assessment Screening Report (AA) or a Stage 2 Natura Impact Statement (NIS) as part of planning. Therefore, these developments were assessed for potential adverse effects to European sites and the accompanying reports concluded that these developments will not have a significant effect on any habitats or species designated as conservation interests for any European sites. Subsequently, it can be concluded that there will be no in-combination effects from these developments with the Proposed Development.

In addition, to the once-off smaller scale developments, the following larger projects were identified within the vicinity of the Site:

- Wexford Solar Farm,
- N24 Waterford to Cahir Road Improvement Scheme; and,
- Granagh Business Complex.

Refer to Figure 6-1 for context.

Figure 6-1: Notable Developments within 2km of the Site



Wexford Solar Farm is present ca.250m south of the Site entrance, across the N24. This solar site is ca.6ha in size and was granted under planning reference: 16193, amended under planning reference: 1861 and an extension of duration was granted in 2020 under planning reference: 20893. It is not envisaged that the operational phase of the solar farm will lead to significant in-combination effects with the Proposed Development given the inert nature of solar farms.

The Waterford to Cahir section of the proposed Road Improvement Scheme extends from the N24/M9 at Waterford to the N24/M8 junction at Cahir, North Tipperary. There were three (3No.) option corridors for the section immediately outside Waterford. All three (3No.) option corridors are located within close proximity to the Site i.e. the Yellow Option Corridor borders the Site to the north, the Cyan Option Corridor passes directly through the Quarry and Site entrance and the Management Option Corridor passes through the Landholding, refer to Figure 6-1 below. However, the preferred transport option was presented to the public on the 23rd January 2024. The preferred option is to upgrade to the existing N24 corridor to the south of the Quarry (presented as the management option corridor in Figure 6-1). This option does not pass through or immediately border the Site and therefore, it is not considered that this option will affect the Site or lead to in-combination effects with the Proposed Development.

In addition, Granagh Business Complex is located ca.1.3km southeast of the Site and is accessed via a junction off the N24. This complex contains a production facility owned by Queally Pig Slaughtering Ltd and a production, material storage and packaging facility owned by Dawn Meats Ireland. Both of these facilities operate under an Integrated Pollution Prevention and Control Licence; reference no. P0175-02 and P0179-01 respectively. Therefore, emissions to the environment such as surface water discharge, the spreading of organic matter, emissions to air and waste disposal are controlled and monitored. Due to the distance between the Site and the aforementioned IEL/IPC facility, it is considered unlikely

that a cumulative effect would exist between these facilities and the Proposed Development on the Lower River Suir SAC.

Taking the above into account, it is considered that the Proposed Development is unlikely to have any significant in-combination contribution to possible significant effects on the Lower River Suir SAC or any other European site. However, as identified in Section 6.1, a number of qualifying features require further consideration and appropriate mitigation measures to ensure that the Proposed Development alone will not lead to in-combination effects with any proposed future developments.

6.3 Stage 1 – AA Screening Conclusion

A detailed assessment of the Proposed Development and the overall activities that will occur onsite during the construction, operational and restoration phases of the Proposed Development have been carried out and the potential for significant effects on European sites and qualifying features of interest within the zone of influence of the Site has been examined in detail.

River Barrow and River Nore SAC, Hugginstown SAC, Tramore Dunes and Backstrand SAC and Tramore Backstrand SPA, were screened out given the distances separating the Site from these European sites and lack of functional impact pathways. It can be concluded that the Proposed Development will not, either alone or in combination with other plans or projects, have any significant effects on these sites.

However, the Lower River Suir SAC was taken forward for further consideration due to the identification of a hydrological connection via Flemingstown Stream between the Site and this European site. Using professional experience, guidance and judgement, the following factors have been taken into account on identifying potential significant effects on the Lower River Suir SAC:

- Qualifying interests;
- Special conservation interests;
- Conservation objectives;
- The nature of the onsite habitats; and,
- The location of the Site.

The screening process has examined the potential for the Proposed Development to cause significant effects on the Lower River Suir and its qualifying features of interest as per the screening determination in Section 4.

Based on the above factors and taking a precautionary approach, the screening exercise has identified the following designated habitats and species as potential receptors of significant likely effects as a result of the proposed works in the absence of appropriate mitigation:

<u>Habitats</u>

- Atlantic salt meadows;
- Mediterranean salt meadows;
- Watercourses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho - Batrachion* vegetation; and,
- Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels

<u>Species</u>

- Otter;

- Salmon;
- Sea lamprey;
- River lamprey;
- Twaite shad; and,
- White-clawed crayfish.

The European site associated with these qualifying features of interest has been brought forward for further consideration. Therefore, progression to Stage 2 of the Appropriate Assessment process is required in the light of current case law on mitigation measures.

Section 7 below further addresses potential issues arising from the Proposed Development and the mitigation measures required to negate any potential significant likely effects on this European site.

7 STAGE 2 NIS: ASSESSMENT OF POTENTIAL SIGNIFICANT EFFECTS

7.1 Potential Significant Effects

This section provides recommendations for measures which will mitigate against any adverse effects on the integrity of the identified European site as a result of the Proposed Development. The following effect with the potential to adversely affect the conservation objectives of the Lower River Suir SAC was considered:

- Potential impairment of water quality.

The screening exercise did not identify any other factors that will result in any likely significant effects.

7.1.1 Potential Impairment of Water Quality

The River Suir is considered to be 'at risk' and according to the NPWS, this catchment is subject to chemical and biological water quality pressures [28]. Should potential pollutants from the Site enter the Middle Suir Estuary via Flemingstown Stream, this could have an adverse effect on water quality within the Lower River Suir SAC. Potential pollutants resulting from the proposed works include suspended solids, silt and hydrocarbons.

Sediment and silt have the potential to clog fish gills, degrade spawning habitats and cover / smother aquatic vegetation. Therefore, these pollutants could directly affect aquatic species or indirectly affect riparian species such as otter by changing the populations of their food supply. In addition, hydrocarbons have the potential to change the chemical balance of a waterbody and are persistent in the environment which can prove toxic to fish and other wildlife such as otters. Hydrocarbon is also a nutrient supply for adapted micro-organisms, which can rapidly deplete dissolved oxygen in waters, resulting in the death of aquatic organisms.

It should be noted that it is considered highly unlikely that any potential pollutants from the Site will have a significant effect on any habitats or species within the Lower River Suir. This is due to the intervening downstream distance and the large body of water associated with this SAC. It is considered that any potential pollutants arising from the Proposed Development would be dispersed, diluted or would settle out of the river network before any adverse effects on qualifying features of the SAC could occur.

However, a precautionary approach has been taken given the hydrological connection to the Lower River Suir via Flemingstown Stream. Therefore, mitigation measures will be implemented to during the construction and operational phases of the Proposed Development to ensure that there will be no potential release of pollutants from the Site to Flemingstown Stream and subsequently the Lower River Suir SAC.

7.1.1.1 Release of Suspended Sediments during the Construction Phase

During the construction phase, vegetation will be cleared, and overburden will be stripped from the proposed extraction area. These works will be intermittent and will not be completed all at once. Approximately 8,500m^3 of soil removed during these works will be used to create two (2No.) soil embankments. Two (2No.) agricultural sheds and a pump house will also be demolished during this phase. These works have the potential to result in the release of suspended sediments to downstream watercourses including Flemingstown Stream and the Middle Suir Estuary (which forms part of the Lower River Suir SAC).

To prevent the release of suspended sediments to the Flemingstown Stream and subsequently, the Lower River Suir SAC, the following mitigation measures supplied by Hydro Environmental Services Ltd. will be implemented:

- *"All surface water arising during the soil stripping works in the extension area will be captured and directed to the existing quarry floor where it will be pumped to the existing settlement ponds for treatment;*
- *Prior to the commencement of overburden stripping works silt fencing will be placed down-slope of the excavation area along the eastern boundary of the Site. These will be embedded into the local soils to ensure all site water is captured and filtered;*
- *Surface water will be collected at low points across the soil stripping works area;*
- *Discharge into the Quarry will occur following settlement treatment in local temporary settlement ponds if required, and any water discharge from these ponds to the quarry floor will be routed through silt bags which will filter any remaining sediment from the pumped water. The entire soil stripping and landscaping works area will be enclosed by a perimeter of double silt fencing;*
- *Daily monitoring of the overburden stripping / landscaping earthworks will be completed by a suitably qualified person. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter will enter the downstream receiving waters;*
- *Overburden stripping and landscaping works will be scheduled for periods of low rainfall (summer months) to reduce run-off and potential siltation;*
- *Landscaped areas and the perimeter berms will be planted with trees and grasses as soon as possible after formation to reduce the potential of surface water erosion;*
- *Good construction practices such as wheel wash and dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites* [33]*, which provides information on these issues. This will ensure that surface water arising during the course of overburden stripping and landscaping activities will contain minimum sediment; and,*
- *All water discharged during the construction phase will be subject to the monitoring and discharge requirements of the Discharge License (ENV/W82)."*

It can therefore be concluded that with the implementation of the above mitigation measures, the Proposed Development will not have any adverse effects on the water quality within the Middle Suir Estuary as a result of suspended sediments. Subsequently, there will be no significant likely effects to qualifying features of interest within the Lower River Suir SAC.

7.1.1.2 Potential Release of Hydrocarbons / Chemicals during Operations

Accidental spillage during refuelling of excavation plant with petroleum hydrocarbons is a significant contamination risk to surface water. The accumulation of small spills of fuels and lubricants during routine plant use can also be a contamination risk. As described in Section 3.3.5.4, the Quarry currently pumps all surface water runoff from the quarry pit through pipes into two (2No.) attenuation ponds. The water from these attenuation ponds is then discharged under licence through a hydrocarbon interceptor to the Flemingstown Stream. Therefore, a pathway exists between the Site and the Lower River Suir SAC via the existing site drainage network.

The current discharge from the Quarry has a '*good*' to '*high*' water quality status and hydrocarbons are consistently below laboratory detection limits as discussed in Section 5.2.3. Therefore, it is likely that the discharge from the Quarry has a positive impact on the WFD status of Flemingstown Stream. Nonetheless, the following mitigation measures supplied Hydro Environmental Services Ltd. will be implemented as part of the Proposed Development

to control hydrocarbons and chemical usage onsite and to minimise as far as possible the risk of accidental release of these pollutants to surface water:

- "*Continued operation and maintenance of the existing bunds and hydrocarbon interceptor will occur;*
- *The discharge quality will be monitored on a quarterly basis and the volume of discharge will be limited to 13,000m^3/day (as per the current discharge licence);*
- *Regular maintenance and emptying of the hydrocarbon interceptor as per manufacturer's recommendations will be implemented;*
- *All plant and machinery will continue to be regularly serviced before being used on site;*
- *Refuelling will continue to be completed in a controlled manner using drip trays at all times;*
- *Mobile bowsers, tanks and drums will be stored in secure, impermeable storage areas away from open water;*
- *Fuel and oil containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores;*
- *Containers and bunding for storage of hydrocarbons and chemicals will have a holding capacity of 110% of the volume to be stored. This is the case for the existing on-site bunds;*
- *Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage;*
- *Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills;*
- *Only designated trained operators will be authorised to refuel mobile plant on site;*
- *Procedures and contingency plans will be set up to deal with emergency accidents or spills;*
- *An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill in the quarry floor; and,*
- *All water discharged during the operational phase will be subject to the monitoring and discharge requirements of the Discharge License (ENV/W82)."*

The highest standards of site management will continue to be maintained and the utmost care and vigilance will be followed to prevent accidental contamination or unnecessary disturbance to the Site and surrounding environment during the operation of the Proposed Development.

It can therefore be concluded that with the implementation of the above mitigation measures, the Proposed Development will not have any adverse effects on the water quality within the Middle Suir Estuary as a result of hydrocarbon or chemical release. Subsequently, there will be no significant likely effects to qualifying features of interest within the Lower River Suir SAC.

7.2 Stage 2 - Analysis of 'In-Combination' Effects

The Proposed Development involves the extension of the Quarry. Therefore, the ongoing extraction and ancillary activities within the Quarry have been considered throughout this assessment. Based on the mitigation measures described in Section 7.1, the re-use of existing

infrastructure and HGVs and the best practice guidance that will be implemented during each phase of the Proposed Development, it can be concluded that the Proposed Development will not have any direct or indirect adverse effects on the integrity of any European Sites alone or in-combination with other developments within the Quarry.

A review of the information sources listed in Section 2.1 did not identify any other notable plans or projects in the immediate vicinity that have the potential to result in any significant in-combination contribution to adverse effects on the Lower River Suir SAC or any other European sites. This is discussed in detail in Section 6.2.

Taking the above into account, it can be concluded that there will not be any significant in-combination contribution by the Proposed Development to potential adverse effects on any European sites provided that best practice guidelines and the mitigation measures outlined in Section 7.1 are implemented throughout the proposed works.

8 NIS CONCLUSIONS AND STATEMENT

A detailed assessment of the layout and nature of the Proposed Development, the construction methods to be employed and the overall activities that will occur at the Site during the construction, operational and restoration phases have been carried out and the potential for significant effects on European sites and qualifying features of interest within the zone of influence of the Site has been examined in detail.

As detailed in Section 6.3, the Stage 1 AA Screening conclusion states that the following four (4No.) European sites; the River Barrow and River Nore SAC, Hugginstown SAC, Tramore Dunes and Backstrand SAC and Tramore Backstrand SPA, were screened out. It can be concluded that the Proposed Development will not, either alone or in combination with other plans or projects, have significant effects on these European sites.

However, a hydrological connection was identified between the Lower River Suir SAC and the Site, via the Flemingstown Stream. Therefore, this European site was taken forward for further detailed consideration.

Following an examination, analysis and evaluation of the relevant information, including the nature of the predicted impacts from the Proposed Development and all associated works, it has been objectively concluded that with the implementation of the proposed mitigation measures, the Proposed Development will not, either alone or in combination with other plans or projects, adversely affect the integrity or conservation status of any of the qualifying features of interest of the Lower River Suir SAC or any other European site in light of best scientific knowledge. No reasonable scientific doubt exists in relation to this conclusion.

Accordingly, progression to Stage 3 of the Appropriate Assessment process (i.e., Assessment of Alternatives Solutions) is not considered necessary.

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APPENDICES

APPENDIX A

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WATER FRAMEWORK DIRECTIVE ASSESSMENT
KILMACOW QUARRY EXTENSION, CO. KILKENNY

FINAL REPORT

Prepared for:

ROADSTONE LTD

Prepared by:

HYDRO-ENVIRONMENTAL SERVICES

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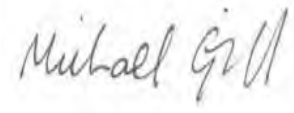
Signed:	 Michael Gill B.A., B.A.I., M.Sc., MIEI Managing Director – Hydro-Environmental Services

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1. INTRODUCTION

1.1 BACKGROUND

Hydro-Environmental Services (HES) were requested by Roadstone Ltd, to complete a Water Framework Directive (WFD) Compliance Assessment for a planning application for a proposed quarry extension at Kilmacow, Co. Kilkenny.

The proposed development site "the Site" is located within the townlands of Granny and Aglish North, in the south of County Kilkenny, approximately 5.5km north-west of Waterford City and 3km south of Kilmacow Village. The Site is part of a Roadstone Ltd operated quarry.

The total area of the existing quarry landholding area is ca. 84ha while the Site is 10.3ha.

The purpose of this WFD assessment is to determine if any specific components or activities associated with the proposed development will compromise WFD objectives or cause a deterioration in the status of any surface water or groundwater body and/or jeopardise the attainment of good surface water or groundwater status. This assessment will determine the water bodies with the potential to be impacted, describe the proposed mitigation measures and determine if the project is in compliance with the objectives of the WFD.

This WFD Assessment is intended to supplement the EIAR submitted as part of the planning application.

1.2 STATEMENT OF AUTHORITY

Hydro-Environmental Services (HES) are a specialist hydrological, hydrogeological and environmental practice that delivers a range of water and environmental management consultancy services to the private and public sectors across Ireland and Northern Ireland. HES was established in 2005, and our office is located in Dungarvan, County Waterford. We routinely complete impact assessments for hydrology and hydrogeology for a large variety of project types including the aggregate industry.

This WFD assessment was prepared by Michael Gill and David Broderick.

Michael Gill (P. Geo., B.A.I., MSc, Dip. Geol., MIEI) is an Environmental Engineer with over 22 years' environmental consultancy experience in Ireland. Michael has completed numerous hydrological and hydrogeological impact assessments of wind farms in Ireland. He has also managed EIAR assessments for infrastructure projects and private residential and commercial developments. In addition, he has substantial experience in wastewater engineering and site suitability assessments, contaminated land investigation and assessment, wetland hydrology/hydrogeology, water resource assessments, surface water drainage design and SUDs design, and surface water/groundwater interactions.

David Broderick P.Geo (BSc, H. Dip Env Eng, MSc) is a Hydrogeologist with 17 years environmental consultancy experience in Ireland. David has completed numerous hydrological and hydrogeological assessments for various developments across Ireland. David has significant experience in surface water drainage issues, SUDs design, flood risk assessment and modelling.

John Twomey (BSc) is a recent graduate of Earth and Ocean Science from UG and is in the process of training to become an Environmental Scientist. He has recently helped in the completion of hydrogeological and hydrological impact assessments on quarries, windfarms and industrial developments.

1.3 WATER FRAMEWORK DIRECTIVE

The EU Water Framework Directive (2000/60/EC), as amended by Directives 2008/105/EC, 2013/39/EU and 2014/101/EU ("WFD"), was established to ensure the protection of the water environment. The Directive was transposed in Ireland by the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003).

The WFD requires that all member states protect and improve water quality in all waters, with the aim of achieving good status by 2027 at the latest. Any new development must ensure that this fundamental requirement of the WFD is not compromised.

The WFD is implemented through the River Basin Management Plans (RBMP) which comprises a six-yearly cycle of planning, action and review. RBMPs include identifying river basin districts, water bodies, protected areas and any pressures or risks, monitoring and setting environmental objectives. In Ireland the first RBMP covered the period from 2010 to 2015 with the second cycle plan covering the period from 2018 to 2021.

The River Basin Management Plan (2018 - 2021) objectives include:

- Ensure full compliance with relevant EU legislation;
- Prevent deterioration and maintain a 'high' status where it already exists;
- Protect, enhance and restore all waters with aim to achieve at least good status by 2027;
- Ensure waters in protected areas meet requirements; and,
- Implement targeted actions and pilot schemes in focused sub-catchments aimed at (1) targeting water bodies close to meeting their objectives and (2) addressing more complex issues that will build knowledge for the third cycle.

Our understanding of these objectives is that water bodies, regardless of whether they have 'Poor' or 'High' status, should be treated the same in terms of the level of protection and mitigation measures employed.

The Department of Housing, Local Government and Heritage are currently reviewing the submissions made on the Draft River Basin Management Plan (2022 - 2027) which was out for public consultation in Q4 of 2021 and Q1 of 2022. The draft plan was to be updated with a view to finalisation and publication in Q3/Q4 of 2022. As of February 2024, the plan has not been published while.

2. WATERBODY IDENTIFICATION & CLASSIFICATION

2.1 INTRODUCTION

This section identifies those surface water, groundwater bodies and protected areas with potential to be affected by the Proposed Development and reviews any available WFD information.

2.2 SURFACE WATERBODY IDENTIFICATION

On a regional scale the quarry landholding is located in the River Suir surface water catchment within Hydrometric Area 16 of the South Eastern River Basin District.

On a more local scale, the Site is located within 2 no. WFD Sub-catchments: the Pil_SC_010 and the Blackwater[Kilmacow]_SC_010. The majority of the Site is located within the Pil_SC_010.

Locally, the Site is located within 3 no. WFD river sub basins: the Flemingstown (Kilkenny)_010, Blackwater (Kilmacow)_040 and the Ullid_010. The majority of the Site is located within the Flemingstown (Kilkenny)_010 (east and centre of the Site). To the north of the Site, the Blackwater (Kilmacow)_040 occupies a very small part of the Site, while the Ullid_010 to the west also occupies a very small part of the Site.

Within the Flemingstown (Kilkenny)_010, the Flemingstown_16 surface waterbody (SWB) runs in a southerly direction 90m to the east of the Site. This watercourse, which the quarry currently discharges into, flows into the Middle Suir Estuary approximately 1.3km downstream of the Site.

Within the Blackwater (Kilmacow)_040, the closest SWB to the Site is the Narrabaun_south, located 650m to the northeast. This SWB is a tributary of the Blackwater (Kilmacow), which flows southeast to discharge into the Middle Suir Estuary (IE_SE_100_0550).

Within the Ullid_010, the closest surface waterbody to the Site is the Ullid_16, located 740m to the west. The Ullid_16 SWB flows south and discharges into the Upper Suir Estuary (IE_SE_100_0600).

Downstream of the Site, the Middle Suir Estuary (IE_SE_100_0550) continues to flow east, passing Waterford City, to then feeds into the Lower Suir Estuary (IE_SE_100_0500), which in turn transitions into the Barrow Suir Nore Estuary (IE_SE_100_0100) near Cheekpoint village. Further downstream, this transitional waterbody discharges into the Waterford Harbour coastal waterbody (IE_SE_100_0000) and then into the Eastern Celtic Sea (HAs 13;17).

Error! Reference source not found. below is a local hydrology map of the area.

2.3 SURFACE WATER BODY CLASSIFICATION

A summary of the WFD status and risk result for Surface Water Bodies (SWBs) downstream of the Site are shown in Table A. The overall status of SWBs is based on the ecological, chemical and quantitative status of each SWB.

Local Groundwater Body (GWB) and Surface water Body (SWB) status information is available from (www.catchments.ie).

As stated above the majority of the Site is located in the Flemingstown (Kilkenny)_010, with smaller sections located in the Ullid_010 and Blackwater (Kilmacow)_040 river sub-basins. The

Flemingstown (Kilkenny)_010 SWB deteriorated in status from the 2013-2018 WFD cycle, when it achieved "Moderate" status, to the 2016-2021 WFD cycle where it has been assigned "Poor" status. The Ullid_010 SWB has also deteriorated in status from the 2013-2018 WFD cycle when it achieved "Good" status, to the 2016-2021 WFD cycle where it has been assigned "Moderate" status. The Blackwater (Kilmacow)_040 and Blackwater (Kilmacow)_050 SWB's both achieved "Moderate" status in the latest 2016-2021 WFD cycle.

In terms of transitional waterbodies downstream of the Site, the Upper Suir Estuary and the Middle Suir Estuary achieved "Bad" and "Moderate" status from the 2016-2021 WFD cycle, respectively. Further downstream, both the Lower Suir Estuary and the Barrow Nore Suir Estuary achieved "Moderate" status. For the coastal waters, the Waterford Harbour and the Eastern Celtic Sea (HAs 13;17) coastal waterbodies achieved "Moderate" and "High" status respectively.

The Blackwater (Kilmacow)_040 has been deemed to be "at risk" by the Risk 3rd Cycle, with agriculture & domestic wastewater acting as significant pressures. The remaining river sub basins in the vicinity of the Site (Flemingstown (Kilkenny)_010, Ullid_010 and Blackwater (Kilmacow)_050) are all under review with regards their risk status.

All transitional waterbodies downstream of the Site are deemed to be "at risk" of failing to meet their WFD objectives by 2027. Agricultural activities are impacting negatively on these transitional waterbodies. The Waterford Harbour coastal waterbody is also "at risk" with agricultural activities and urban runoff listed as being the significant pressures on the SWB. The Eastern Celtic Sea (HAs 13;17) is deemed to be "Not at risk".

According to the 3rd Cycle Draft Suir Catchment Report (EPA, 2021), the main impacts and pressures driving the change between Cycle 2 and Cycle 3 are increases in nutrient pollution particularly from agricultural sources. There has also been a notable increase in organic and sediment issues. All four transitional waterbodies in the catchment are "At Risk" and are impacted by eutrophication. Agriculture is the significant pressure. The SWB status for the 2016-2021 WFD cycle are shown on

Figure B.

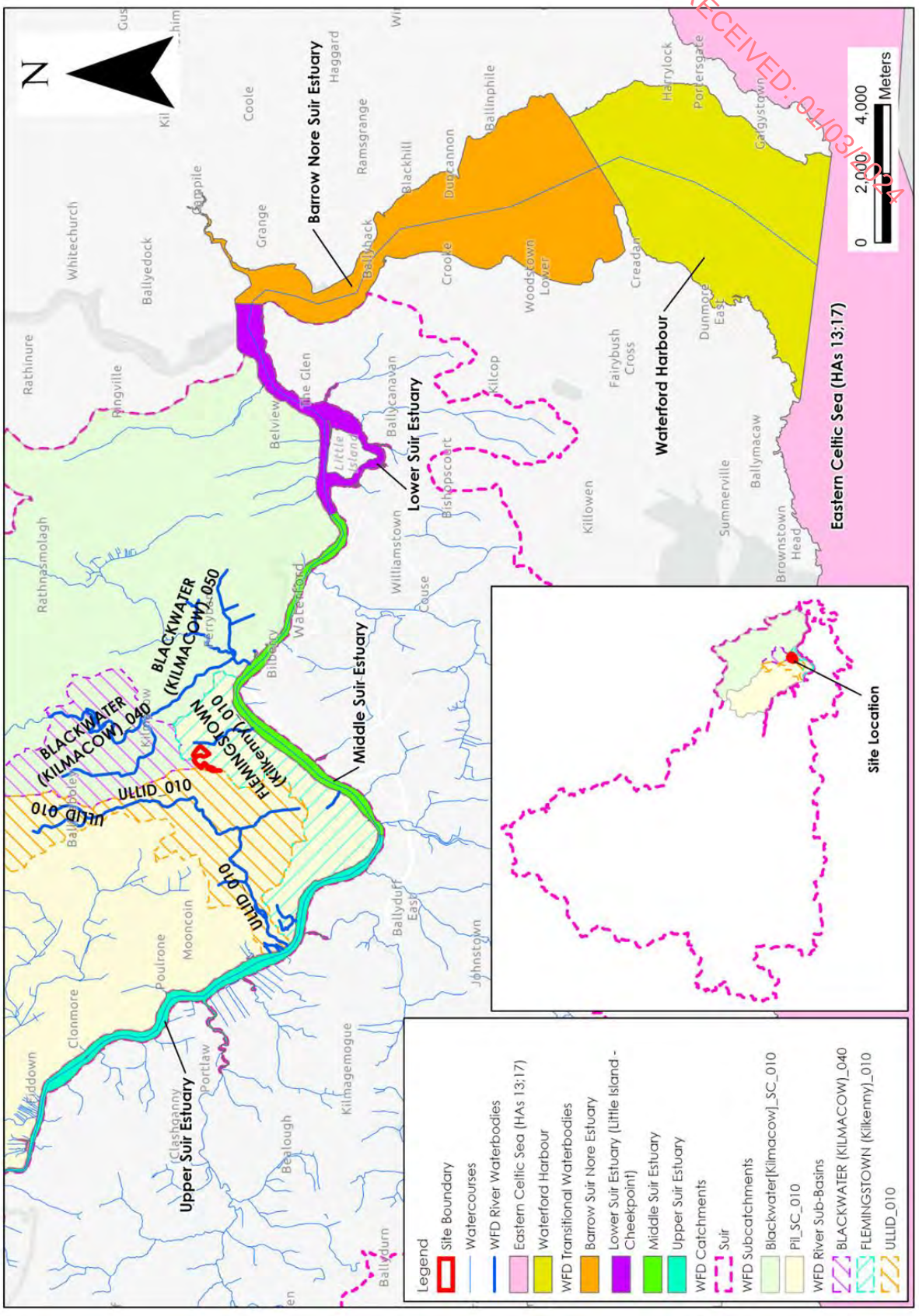

Figure A: Local Hydrology Map

Table A: Summary WFD Information for Surface Water Bodies

SWB	Overall Status (2010-2015)	Risk Status (2010-2015)	Overall Status (2013-2018)	Overall Status (2016-2021)	Risk Status (2013-2018)	Pressures
Flemingstown (Kilkenny)_010	Unassigned	Under Review	Moderate	Poor	Under Review	
Ullid_010	Unassigned	Under Review	Good	Moderate	Under Review	-
Blackwater (Kilmacow)_040	Good	Not at risk	Moderate	Moderate	At risk	Agriculture & domestic wastewater
Blackwater (Kilmacow)_050	Unassigned	Under review	Moderate	Moderate	Under Review	-
	Transitional Waterbodies					
Upper Suir Estuary	Moderate	At risk	Poor	Bad	At risk	Agriculture
Middle Suir Estuary	Poor	At risk	Poor	Moderate	At risk	Agriculture
Lower Suir Estuary	Moderate	At risk	Good	Moderate	At risk	Agriculture
Barrow Nore Suir Estuary	Good	Not at risk	Moderate	Moderate	At risk	Agriculture
	Coastal Waterbodies					
Waterford Harbour	Good	Under Review	Moderate	Moderate	At risk	Agriculture and Urban Runoff
Eastern Celtic Sea (HAs 13;17)	Unassigned	Not at risk	Good	High	Not at risk	-

2.4 GROUNDWATER BODY IDENTIFICATION

The Site is underlain by the Clonmel Groundwater Body (GWB) (IE_SE_G_040). It is reported that most of the groundwater in this area moves relatively rapidly along short flow paths and discharges into the streams which cross the aquifers (GSI, 2004). However, due to the lack of significant streams in the area of the Site, the overall flow direction is expected to be in a south-easterly direction towards the Middle Suir Estuary.

The majority of the Site is underlain by the Bullockpark Bay Member, which is of Dinantian Pure Bedded Limestone (DPBLs). The GSI (www.gsi.ie) maps that the aquifer under the Site is a "Locally Important Aquifer – bedrock which is generally moderately productive" (Lm).

2.5 GROUNDWATER BODY CLASSIFICATION

The Clonmel GWB (IE_SE_G_040) that underlies the Site achieved "Good" status in all 3 no. WFD cycles (2010-2015, 2013-2018 and 2016-2021) which is defined based on the quantitative status and chemical status of the GWB. In terms of risk status, the Clonmel GWB is currently "under review".

The GWB status for the 2016 - 2021 WFD cycles are shown on Figure B.

Table B: Summary WFD Information for Groundwater Bodies

GWB	Overall Status (2010-2015)	Risk Status (2010-2015)	Overall Status (2013-2018)	Overall Status (2016-2021)	Risk Status (2013-2018)	Pressures
Clonmel	Good	Under review	Good	Good	Under review	-

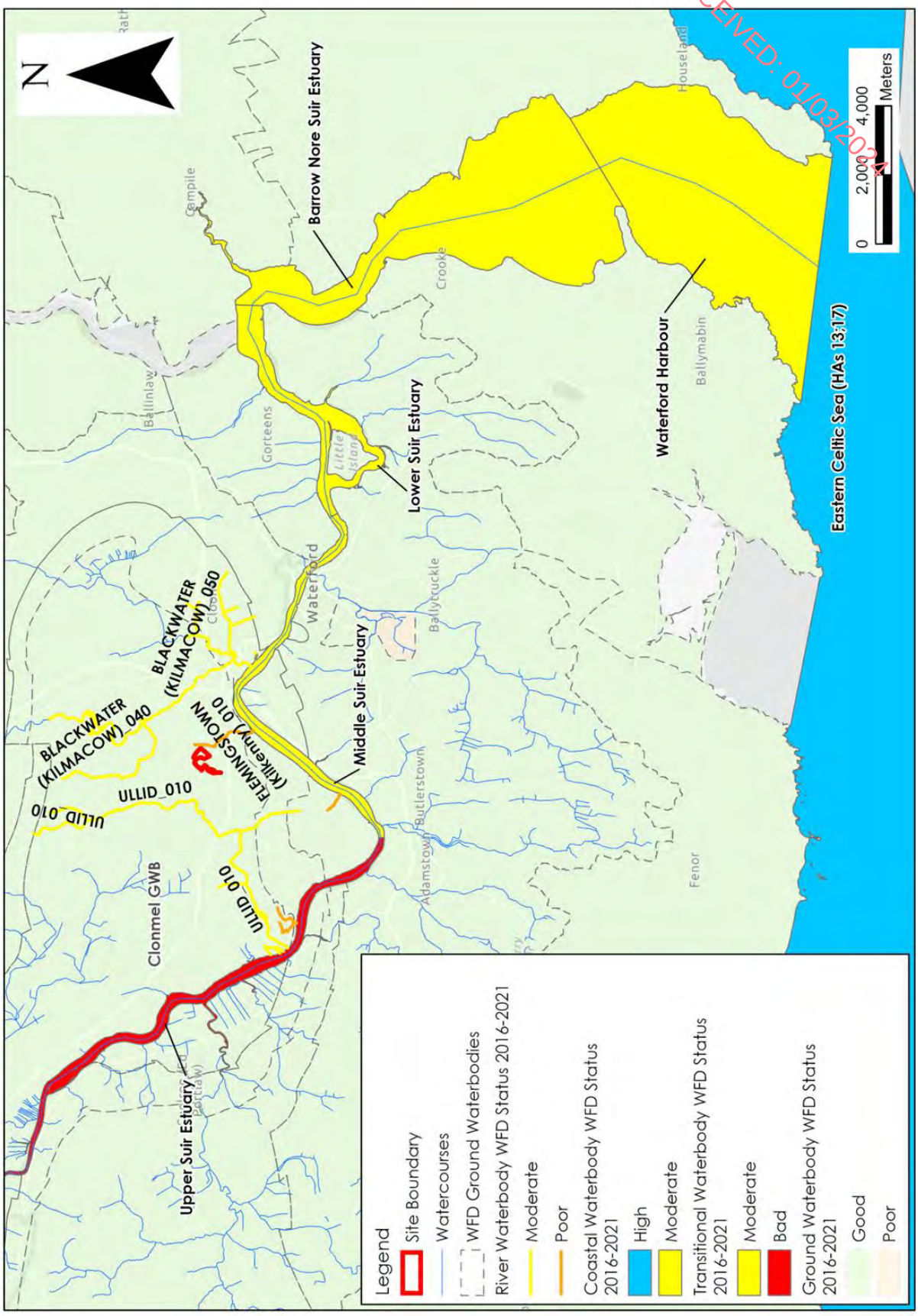

Figure B: WFD Groundwater and Surface Waterbody Status (2016 - 2021)

2.6 PROTECTED AREA IDENTIFICATION

The WFD requires that activities are also in compliance with other relevant legislation, as considered below. Nature conservation designations, bathing waters, nutrient Sensitive areas (NSA), shellfish areas and drinking water protected area's (DWPA) are looked at as part of the assessment.

2.6.1 Nature Conservation Designations

Within the Republic of Ireland designated sites include Natural Heritage Areas (NHAs), Proposed Natural Heritage Areas (pNHAs), Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSAC) and Special Protection Areas (SPAs).

Ramsar sites are wetlands of international importance designated under the Ramsar Convention (adopted in 1971 and came into force in 1975), providing a framework for the conservation and wise use of wetlands and their resources.

The Site is not located within any designated site. The nearest designated site to the Site is the Lower River Suir SAC (002137), located 1.3km downstream of the Site and hydrologically connected to the Site as this is the SWB that the quarry discharges into via the Flemingstown Stream.

The Kings Channel pNHA (001702) is located within the Lower River Suir, downstream of the Site.

The River Barrow and River Nore SAC (002162) lies downstream of the Site and is mapped within the lower reach of the Lower Suir Estuary and the Barrow Suir Nore Estuary.

2.6.2 Bathing Waters

Bathing waters are those designated under the Bathing Water Directive (76/160/EEC) or the later revised Bathing Water Directive (2006/7/EC).

There are no bathing water sites located in the vicinity of the Site.

Duncannon Beach (IESEBWT100_0100_0100) is located 23km downstream of the Site.

The Site is ~15km north of Tramore Beach (IESEBWC110_0000_0100), the nearest coastline/ bathing water site (as the crow flies).

2.6.3 Nutrient Sensitive Areas

Nutrient Sensitive Areas (NSA) comprise Nitrate Vulnerable Zones and polluted waters designated under the Nitrates Directive (91/676/EEC) and areas designated as sensitive areas under the Urban Wastewater Treatment Directive (UWWTD)(91/271/EEC). Sensitive areas under the UWWTD are water bodies affected by eutrophication associated with elevated nitrate concentrations and act as an indication that action is required to prevent further pollution caused by nutrients.

There are no NSAs downstream of the Site or within the vicinity of the Site.

2.6.4 Shellfish Area

The Shellfish Waters Directive (2006/113/EC) aims to protect or improve shellfish waters in order to support shellfish life and growth.

The Waterford Harbour (Cheekpoint/Arthurstown/Creadan)(IE_SE_100_0100) shellfish area is located ~14km downstream of the Site within the Lower Suir Estuary (Little Island – Cheekpoint) (IE_SE_100_0500).

2.6.5 Drinking Water

According to the 3rd Cycle Draft Catchment Report (EPA, 2021) there are 21 no. surface waterbodies in the catchment identified as Drinking Water Protected Areas (DWPA).

There are no DWPAs within the vicinity of the Site or downstream of the Site.

All GWBs are deemed to be DWPAs.

3. WFD SCREENING

As discussed in Section 2, there are a total of 4 no. river water bodies that are located in the vicinity or downstream of the Site. In addition, there are 4 no. transitional waterbodies and 2 no. coastal waterbody located downstream of the Site. Furthermore, the Site is underlain by 1 no. groundwater body. In addition, there are protected areas downstream from the Site.

3.1 SURFACE WATER BODIES

As shown in Error! Reference source not found. above, there are 4 no. SWBs located in the vicinity or downstream of the proposed development site.

With consideration for the proposed extension works at the Site, it is considered that the Flemingstown (Kilkenny)_010, Ullid_010 and Blackwater (Kilmacow)_040 be screened into the WFD Impact Assessment due to the Site being located in these river sub basins. The Ullid_010 and the Blackwater (Kilmacow)_040 are not hydrologically connected to the Site, but they will be included for precautionary measures. The Flemingstown_16 SWB situated within the Flemingstown (Kilkenny)_010 is hydrologically connected to the Site. The Blackwater (Kilmacow)_050 will not be screened in due to its distant location from the Site and the fact that it is not hydrologically connected to the Site.

The Middle Suir Estuary (IE_SE_100_0550) will be screened into the WFD Impact Assessment due to its proximal location to the Site and the fact that it is hydrologically connected to the Site. It is very unlikely that the quality of the Middle Suir Estuary will deteriorate as a result of the works at the Site, but it will be included for precautionary measures.

Nothing downstream of the Middle Suir Estuary will be included into the WFD Impact Assessment as the large volume of saline water and large tidal movements will dilute possible contaminants from the Site. There is no potential for the deterioration of quality in any SWBs downstream of the Middle Suir Estuary as a result from the Site.

3.2 GROUNDWATER BODIES

With respect to groundwater bodies, the Clonmel GWB has been screened into the WFD Impact Assessment due to its location directly underlying the Site. The Proposed Development works must not in any way result in a deterioration in the status of these GWB and/or prevent them from meeting their required characteristics in order to achieve good status in the future.

3.3 PROTECTED AREAS

The Lower River Suir SAC (002137) will be brought through to the WFD Impact Assessment as it is hydrologically connected to and located in proximity to the Site. This protected site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (both Margaritifera margaritifera and M. margaritifera subsp. durrovensis occur), White-clawed Crayfish, Salmon, Twaite Shad (Alosa fallax fallax), three species of Lampreys - Sea Lamprey, Brook Lamprey and River Lamprey, and Otter.

Further downstream the Kings Channel pNHA (001702) and the River Barrow And River Nore SAC (002162) have been screened out due to their distal location from the Site. The Site has no potential to cause a deterioration in status of these protected areas.

The bathing waters of Tramore Beach and Duncannon Beach will not be screened in as they are located distally from the Site where there is no potential for deterioration of the bathing waters, as they are located too far downstream from the Site.

The shellfish area of Waterford Harbour (Cheekpoint/Arthurstown/Creadan) is located ~15km downstream of the Site within the Lower Suir Estuary and the Barrow Suir Nore Estuary transitional waterbodies. The shellfish area has been screened out due to its distal location from the Site. The Site has no potential to cause a deterioration in status of this protected area due to the large amounts of saline water and strong tidal currents.

3.4 WFD SCREENING SUMMARY

A summary of WFD Screening discussed above is shown in Table C.

Table C: Screening of WFD water bodies located within the study area

Type	WFD Classification	Waterbody Name/ID	Inclusion in Assessment	Justification
Surface Water Body	River	Flemingstown (Kilkenny)_010	Yes	The Site is located within the Flemingstown (Kilkenny)_010 river sub-basin. The Flemingstown Stream receives discharge from the Site. Therefore, an assessment is required to consider the potential impacts of the Proposed Development on this SWB.
	River	Ullid_010	Yes	The Site is located within the Ullid_010 river sub-basin. Therefore, an assessment is required to consider the potential impacts of the Proposed Development on this SWB.
	River	Blackwater (Kilmacow)_040	Yes	The Site is located within the Blackwater (Kilmacow)_040 river sub-basin. Therefore, an assessment is required to consider the potential impacts of the Proposed Development on this SWB.
	River	Blackwater (Kilmacow)_050	No	There are no direct drainage pathways that exist between the site and any mapped surface watercourses within the Blackwater (Kilmacow)_040 SWB and the downstream Blackwater (Kilmacow)_050 SWB. Therefore, the Site has no potential to impact the status of this SWB.
	Transitional			
	Transitional	Upper Suir Estuary	No	There are no direct drainage pathways that exist between the Site and any mapped surface watercourses within the Ullid_010 SWB and the downstream Upper Suir Estuary. Therefore, the Site has no potential to impact the status of this SWB.
	Transitional	Middle Suir Estuary	Yes	The Middle Suir Estuary SWB has been screened in due to its proximity immediately downstream of the Flemingstown_16 SWB that receives direct discharge from the Site. An assessment is required to consider the potential impacts of the Proposed Development on this SWB.
	Transitional	Lower Suir Estuary	No	The Lower Suir Estuary SWB has been screened out due to its distant location from the Site, the saline nature of its waters and the large volumes of water within this SWB. The Site has no potential to impact the status of this SWB.
	Transitional	Barrow Nore Suir Estuary	No	The Barrow Nore Suir Estuary SWB has been screened out due to its distant location from the Site, the saline nature of its waters and the large volumes of water within this SWB. The Site has no potential to impact the status of this SWB.
	Coastal			
	Coastal	Waterford Harbour	No	The Waterford Harbour coastal waterbody has been screened out due to the saline nature of its waters and the large volumes of water within this SWB. The Site has no potential to impact the status of this SWB.
	Coastal	Eastern Celtic Sea (HAs 13;17)	No	The Eastern Celtic Sea coastal waterbody has been screened out due to the saline nature of its waters and the large volumes of water within this SWB. The Site has no potential to impact the status of this SWB.

Groundwater Body	Groundwater	Clonmel	Yes	The proposed development site overlies the Clonmel GWB. An assessment is required to consider potential impacts of the proposed development on this GWB.
	Protected Areas			
Protected Areas	Nature Conservation Designations	Lower River Suir SAC	Yes	The Lower River Suir SAC is within 2km of the existing Site and hydrologically linked to the Site via the Flemingstown_16 SWB. An assessment is required to consider the potential impacts of the Site on this protected area.
		Kings Channel pNHA	No	The Kings Channel pNHA has been screened out due to its distant location from the Site. The Site has no potential to impact the status of this pNHA.
		River Barrow And River Nore SAC	No	The River Barrow And River Nore SAC has been screened out due to its distant location from the Site. The Site has no potential to impact the status of this SAC.
	Bathing Waters	Tramore Beach	No	Tramore Beach bathing waters have been screened out due to its distal location from the Site (>15km). The Site has no potential to impact these Bathing Waters.
		Duncannon Beach	No	Duncannon Beach bathing waters have been screened out due to its distal location from the Site (>15km). The Site has no potential to impact these Bathing Waters.
	Shellfish Areas	Waterford Harbour (Cheekpoint/Arthurstown/Creadan)	No	The Waterford Harbour (Cheekpoint/Arthurstown/Creadan) shellfish protected area has been screened out due to its distant location from the Site. The Site has no potential to impact the status of this protected area.

4. WFD COMPLIANCE ASSESSMENT

4.1 PROPOSALS

The proposed development comprises the lateral extension of existing extraction activities to the east of the current permitted extraction area at Kilmacow Quarry. The estimated reserve is 2,920,000m^3 (7,592,000 tonnes).

The proposed extraction lands (~6ha), which contain ca.2.6ha of greenfield lands, will be reduced from a current level of ca. 28 - 32m OD down to -45m OD which is the permitted depth of the current extraction area. The extraction will be completed over 5 x 15m high benches.

The Proposed Development will also seek to use the existing quarry facilities for access, welfare, aggregate processing and water management.

The existing water management (i.e. quarry dewatering pumps and water treatment) infrastructure will also be used. There is no requirement to review the current discharge licence (ENV/W82) which permits discharge (surface water and groundwater) to the Flemingstown Stream.

The primary risk to surface waters will be entrained suspended sediments and pollutants such as oils and fuels in licenced quarry discharge water and contamination of groundwater by oils and fuels during the operational phase of the Proposed Development. Groundwater quantity affects (i.e. levels and flows) may also arise due to increased quarry dewatering requirements.

4.2 POTENTIAL EFFECTS

4.2.1 Construction Phase (Unmitigated)

4.2.1.1 Surface Water Quality Effects due to Construction/Site Preparation Works

Construction phase activities including vegetation removal and soil/subsoil removal will require earthworks. A total of 2.2ha of agricultural land will be stripped of all vegetation, soils and subsoils.

The main risk is earthworks and the stripping of soil/subsoil and the stockpiling of such material which will be a potential source of sediment laden water. Such activities can result in the release of suspended solids to surface waters which could affect the water quality of downstream receptors including the Flemingstown Stream and the Middle Suir Estuary and their associated aquatic ecosystems.

Removal of vegetation and soil/subsoil stripping will be completed using machinery. Such machinery are powered by diesel engines and operate using hydraulics. Unless carefully managed such plant and machinery have the potential to leak hydraulic oils or cause fuel leaks. The accidental release of these compounds into the environment have the potential to negatively impact the groundwater quality in the underlying bedrock aquifer and the downstream surface watercourse which are linked to the proposed extraction area via groundwater flowpaths.

There is no direct hydraulic connection between the Site and the Ullid_010 and Blackwater (Kilmacow)_040. Due to the bowl-shaped nature of the quarry site, overland flow will be in the direction of the lowest ground within the quarry void, not in the direction of the SWBs. As stated above water accumulating in the quarry void will be discharged to the Flemingstown_10 SWB.

A summary of potential status change to SWBs arising from surface water quality impacts from earthworks during the construction phase of the Proposed Development in the unmitigated scenario are outlined in Table D.

Table D: Surface Water Quality Impacts during Construction Phase (Unmitigated)

SWB	WFD Code	Current Status	Assessed Potential Status Change
Flemingstown(Kilkenny)_010	IE_SE_16F170700	Poor	Bad*
Ullid_010	IE_SE_16U010850	Moderate	Moderate
Blackwater (Kilmacow)_040	IE_SE_16B020450	Moderate	Moderate
Middle Suir Estuary	IE_SE_15N012200	Moderate	Moderate

*Worst case scenario

4.2.1.2 Potential Protected Area Impacts

There is no potential for the deterioration of the protected areas downstream of the Site. Due to the large volume of saline water in the River Suir and the strong tidal currents within the estuary, the dilution factors are very high, meaning that any possible contaminants that flow downstream from the Site will be diluted in the estuary. The Lower River Suir SAC is brought through to the Site for precautionary measures, as the Flemingstown_010 is connected to the SAC. There will be no potential for the deterioration of the Lower River Suir SAC due to the Flemingstown_010.

4.2.2 Operational Phase (Unmitigated)

4.2.2.1 Increased Quarry Discharge Volumes and Downstream Surface Water Quality Effects

There is likely to be a small increase in quarry pumping rates due to a slightly larger surface water catchment to the void (i.e. direct rainfall input and runoff) and additional groundwater seepages due increased quarry surface area below the groundwater table. However, the additional volumes will not result in an exceedance of the existing discharge licence limit of 13,000m^3/day.

Therefore, the small increased pumping rate will not have the potential to significantly affect the surface water quality in the Flemingstown Stream or River Suir.

The scheduled quarterly discharge water quality monitoring shows that the quality is generally compliant with the discharge licence threshold values. Any confirmed exceedances (i.e. nitrate, ammonia and orthophosphate) appear to be related to background groundwater quality in the GWB itself and not quarry activities.

The more extensive water quality analysis completed in November 2022 shows the discharge water satisfies Good to High Status quality and therefore will have no negative effects on downstream water quality. The discharge quality is likely to improve the WFD status of the Flemingstown Stream which is Poor.

A summary of potential status change to SWBs arising from increased runoff during the operation stage of the proposed development in the unmitigated scenario are outlined in Table E.

Table E: Increased Quarry Discharge Volumes and Downstream Surface Water Quality Effects

SWB	WFD Code	Current Status	Assessed Potential Status Change
Flemingstown(Kilkenny)_010	IE_SE_16F170700	Poor	Poor
Ullid_010	IE_SE_16U010850	Moderate	Moderate
Blackwater (Kilmacow)_040	IE_SE_16B020450	Moderate	Moderate
Middle Suir Estuary	IE_SE_15N012200	Moderate	Moderate

4.2.2.2 Groundwater Quantity/Level Effects (Increase in the Groundwater Zone of Contribution)

The Proposed Development will extend the quarry laterally by approximately 2.6ha with a final floor level of -45m OD which is the same level as currently permitted.

The quarry has been operating below the local groundwater table for several years and dewatering is ongoing to facilitate this. There is likely to be some small increase in groundwater inflows/seepages as the surface area of the extraction area below the groundwater table increases.

However, the quarry is already operating at its deepest permitted level (-45m OD) and the water level effects in the internal monitoring wells has not been significant as shown by the long-term monitoring. There have also been no observed significant effects on the groundwater levels in the external monitoring wells either.

The existing gradient towards the quarry void means the rock in the proposed extension area is already being dewatering to some extent. Therefore, no significant additional groundwater inflows are expected during the proposed extension.

Table F: Groundwater Quantity Effects During Operational Phase (Unmitigated)

GWB	WFD Code	Current Status	Assessed Potential Status Change
Clonmel	IE_SE_G_040	Good	Good

4.2.2.3 Groundwater Quality and Surface Water Effects from Oils and Fuels

The removal of the protective layer of soil and subsoil will increase the vulnerability of the underlying bedrock to contamination. During the operational stage of the Proposed Development, groundwater vulnerability in the extraction areas will be 'Extreme' with exposed bedrock at the surface.

Once quarrying extends below the groundwater table, the risk of contamination is reduced, as groundwater surrounding the quarry drains into the excavation footprint, acting as a hydraulic trap.

The greatest risk to surface quality is the risk of oils and fuels in discharge waters following a contamination incident such as a spill or leak on the quarry floor.

No hydrocarbons have been detected in the quarry groundwater monitoring wells to-date.

Table G: Groundwater Quantity Effects During Operational Phase (Unmitigated)

GWB	WFD Code	Current Status	Assessed Potential Status Change
Clonmel	IE_SE_G_040	Good	Good

4.2.2.4 Potential Protected Area Impacts

There is no potential for the deterioration of the protected areas downstream of the Site. Due to the large volume of saline water in the River Suir and the strong tidal currents within the estuary, the dilution factors are very high, meaning that any possible contaminants that flow downstream from the Site will be diluted in the estuary. The Lower River Suir SAC is brought through to the Site for precautionary measures, as the Flemingstown_010 is connected to the SAC. There will be no potential for the deterioration of the Lower River Suir SAC due to the Flemingstown_010.

4.3 MITIGATION MEASURES

In order to mitigate against the potential negative effects on surface and groundwater quality, quantity and flow patterns, mitigation measures will be implemented during the construction and operational phases of the Proposed Development. These are outlined below.

4.3.1 Construction Phase

4.3.1.1 Surface Water Quality Effects due to Construction/Site Preparation Works

Proposed mitigation measures will be implemented as follows:

- All surface water arising during the soil stripping works in the extension area will be captured and directed to the existing quarry floor where it will be pumped to the existing settlement ponds for treatment;
- Prior to the commencement of overburden stripping works silt fencing will be placed down-slope of the excavation area along the eastern boundary of the Site; These will be embedded into the local soils to ensure all site water is captured and filtered;
- Surface water will be collected at low points across the soil stripping works area;
- Discharge into the existing quarry will occur following settlement treatment in local temporary settlement ponds if required, and any water discharge from these ponds to the quarry floor will be routed through silt bags which will filter any remaining sediment from the pumped water. The entire soil stripping and landscaping works area will be enclosed by a perimeter of double silt fencing;
- Daily monitoring of the overburden stripping/landscaping earthworks will be completed by a suitably qualified person. All necessary preventative measures will be implemented to ensure no entrained sediment, or deleterious matter will enter the downstream receiving waters;
- Overburden stripping and landscaping works will be scheduled for periods of low rainfall (dry weather) to reduce run-off and potential siltation;
- Landscaped areas and perimeter berms will be planted with trees and grasses as soon as possible after formation to reduce the potential of surface water erosion;
- Good construction practices such as wheel wash and dust suppression on site roads, and regular plant maintenance will ensure minimal risk. The Construction Industry Research and Information Association (CIRIA) provide guidance on the control and management of water pollution from construction sites ('Control of Water Pollution from Construction Sites, guidance for consultants and contractors', CIRIA, 2001), which provides information on these issues. This will ensure that surface water arising during

the course of overburden stripping and landscaping activities will contain minimum sediment; and,
- All water discharged during the construction phase will be subject to the monitoring and discharge requirements of the Discharge License (ENV/W82).

4.3.2 Operational Phase

4.3.2.1 Increased Quarry Discharge Volumes and Downstream Surface Water Quality Effects

No additional mitigation proposed as the current discharge limit will not be exceeded. Also, the discharge quality is largely compliant with the discharge licence and will not affect WFD status of receiving waters.

Discharge from the quarry is and will continue to be passed through an adequately sized settlement ponds and hydrocarbon interceptor. The discharge quality is monitored on a quarterly basis, and this is to continue at the quarry. Discharge volumes are continuously monitored at the discharge point location.

4.3.2.2 Groundwater Quantity/Level Effects (Increase in the Groundwater Zone of Contribution)

Due to the non-significant, localised groundwater level effects which are contained with the quarry landholding, no additional mitigation other than on-going groundwater level monitoring of the internal and external monitoring wells is proposed.

4.3.2.3 Groundwater Quality and Surface Water Effects from Oils and Fuels

The operation of the existing quarry and yard includes existing management for the control of hydrocarbons and chemical and these already minimise as far as possible the risk of spillage that could lead to surface and groundwater contamination.

Proposed mitigation measures are outlined as follows (much of these are already implemented at the existing quarry site):

- Continued operation and maintenance of the existing bunds and hydrocarbon interceptor will occur;
- Regular maintenance and emptying of the hydrocarbon interceptor as per manufacturer's recommendations will be implemented;
- All plant and machinery will continue to be regularly serviced before being used on site;
- Refuelling will continue to be completed in a controlled manner using drip trays at all times;
- Mobile bowsers, tanks and drums will be stored in secure, impermeable storage areas away from open water;
- Fuel and oil containers will be stored within a secondary containment system, e.g. bunds for static tanks or a drip tray for mobile stores;
- Containers and bunding for storage of hydrocarbons and chemicals will have a holding capacity of 110% of the volume to be stored. This is the case for the existing on site bunds;
- Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage;
- Drip-trays will be used for fixed or mobile plant such as pumps and generators in order to retain oil leaks and spills;
- Only designated trained operators will be authorised to refuel mobile plant on site;
- Procedures and contingency plans will be set up to deal with emergency accidents or spills;

- An emergency spill kit with oil boom, absorbers etc. will be kept on-site for use in the event of an accidental spill in the quarry floor; and,
- All water discharged during the operational phase will be subject to the monitoring and discharge requirements of the Discharge License (ENV/W82).

Highest standards of site management will continue to be maintained and utmost care and vigilance followed to prevent accidental contamination or unnecessary disturbance to the site and surrounding environment during operation of the quarry development.

4.3.2.4 Mitigation Measures to Protect Protected Areas

No additional mitigation proposed as the current discharge limit will not be exceeded and measures are outlined above in relation to suspended sediments and the potential release of hydrocarbons which will protect the Lower River Suir SAC and the adjoining river network from any potential impact. Also, the discharge quality is largely compliant with the discharge licence and will not affect WFD status of receiving waters.

Discharge from the quarry is and will continue to be passed through an adequately sized settlement ponds and hydrocarbon interceptor. The discharge quality is monitored on a quarterly basis, and this is to continue at the quarry. Discharge volumes are continuously monitored at the discharge point location.

4.3.3 Potential Effects with the Implementation of Mitigation

In all instances, the mitigation measures described in Section 0 are sufficient to meet the WFD Objectives. The assessment of WFD elements for the WFD waterbodies is summarised in Table H below.

Table H: Summary of WFD Status for Unmitigated and Mitigated Scenarios

SWB	WFD Code	Current Status	Assessed Potential Status Change- Unmitigated	Assessed Potential Status Change
Flemingstown(Kilkenny)_010	IE_SE_16F170700	Poor	Bad	Poor
Ullid_010	IE_SE_16U010850	Moderate	Moderate	Moderate
Blackwater (Kilmacow)_040	IE_SE_16B020450	Moderate	Moderate	Moderate
Middle Suir Estuary	IE_SE_15N012200	Moderate	Moderate	Moderate
Clonmel	IE_SE_G_040	Good	Good	Good

5. WFD ASSESSMENT CONCLUSION

WFD status for SWBs (Surface Water Bodies), GWBs (Groundwater Bodies) and Protected Areas hydraulically linked to the Proposed Development Site are defined in Section 2 above.

The existing water management (i.e. quarry dewatering pumps and water treatment) infrastructure will be used during the construction and operational phase of the proposed extension. There is no requirement to review the current discharge licence (ENV/W82) which permits discharge (surface water and groundwater) to the Flemingstown Stream.

Discharge from the quarry is and will continue to be passed through an adequately sized settlement ponds and hydrocarbon interceptor. The discharge quality is monitored on a quarterly basis, and this is to continue at the quarry. Discharge volumes are continuously monitored at the discharge point location.

There will be no change in GWB or SWB status in the underlying GWB or downstream SWBs resulting from the Site. There will be no change in quantitative (volume) or qualitative (chemical) status, and the underlying GWB and downstream SWBs are protected from any potential deterioration.

As the Flemingstown_010 and the Middle Suir Estuary transitional waterbody are of "Poor" and "Moderate" status respectively, the proposed development will not prevent this waterbody from achieving 'Good' Status in the future as demonstrated by the quarry discharge water quality monitoring.

As such, the Proposed Development:

- will not cause a deterioration in the status of all surface and groundwater bodies assessed;
- will not jeopardise the objectives to achieve 'Good' surface water/groundwater status;
- does not jeopardise the attainment of 'Good' surface water/groundwater chemical status;
- does not jeopardise the attainment of 'Good' surface water/groundwater quantity status;
- does not permanently exclude or compromise the achievement of the objectives of the WFD in other waterbodies within the same river basin district;
- is compliant with the requirements of the Water Framework Directive (2000/60/EC); and,
- is consistent with other Community Environmental Legislation including the EIA Directive (2014/52/EU), the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC).

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