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**DixonBrosnan**  
environmental consultants

## Report in Support of Appropriate Assessment (AA) Screening

Proposed continuation and extension of the limestone  
quarry at Carrigdownane Upper,  
Co. Cork

On Behalf of  
Denis O'Keefe

May 2023

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# DixonBrosnan

environmental consultants

Project	Report in Support of Appropriate Assessment (AA) Screening proposed continuation and extension of the limestone quarry at Carrigdownane Upper, Co. Cork	
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# 1. Introduction

## 1.1 Background

The information in this report has been compiled by DixonBrosnan Environmental Consultants, on behalf of the applicant. It provides information on and assesses the potential for the continuation and extension of an existing quarry, together with all ancillary site works and services, in the townland of Carrigdownane Upper, Co. Cork., on, to impact on any European sites within its likely Zone of Impact. The information in this report forms part of and should be read in conjunction with the planning application documentation being submitted to Cork County Council in connection with the proposed development.

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species across the EU. In Ireland, the Natura 2000 network of European sites comprises Special Areas of Conservation (SACs, including candidate SACs) and Special Protection Areas (SPAs, including proposed SPAs). SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats. The annexed habitats and species for which each site is selected correspond to the qualifying interests of the sites and from these the conservation objectives of the site are derived. The Birds and Habitats Directives set out various procedures and obligations in relation to nature conservation management in Member States in general, and of the European sites and their habitats and species in particular. A key protection mechanism is the requirement to consider the possible nature conservation implications of any plan or project on the Natura 2000 site network before any decision is made to allow that plan or project to proceed. Not only is every new plan or project captured by this requirement but each plan or project, when being considered for approval at any stage, must take into consideration the possible effects it may have in combination with other plans and projects when going through the process known as Appropriate Assessment (AA).

The obligation to undertake Appropriate Assessment (AA) derives from Article 6(3) and 6(4) of the Habitats Directive, and both involve a number of steps and tests that need to be applied in sequential order. Article 6(3) is concerned with the strict protection of sites, while Article 6(4) is the procedure for allowing derogation from this strict protection in certain restricted circumstances. As set out in Section 177U of the Planning and Development Act 2000 as amended, a screening for appropriate assessment of an application for consent for the proposed development must be carried out by the competent authority to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with another plan or project is likely to have a significant effect on any European site. Each step in the assessment process precedes and provides a basis for other steps. The results at each step must be documented and recorded carefully so there is full traceability and transparency of the decisions made.

## 1.2 Aim of Report

The purpose of this report is to inform the AA process as required under the Habitats Directive (92/43/EEC) in instances where a plan or project may give rise to significant impacts on a European site. This report aims to inform the Appropriate Assessment process in determining whether the development, both alone and in combination with other plans or projects, are likely

to have a significant impact on the European sites in the study area, in the context of their conservation objectives and specifically on the habitats and species for which the sites have been designated.

This report has been prepared with regard to the following guidance documents, where relevant.

- *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC (European Commission (EC), 2018);*
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodical Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission (EC), 2021);*
- *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC (European Commission, (EC) 2007);*
- *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010 revision);*
- *Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10 (Department of Environment, Heritage and Local Government, 2010);*
- *Guidelines for Good Practice Appropriate Assessment of Plans under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011);*
- *Commission notice Guidance document on wind energy developments and EU nature legislation, (EC 2020);*
- *Communication from the Commission on the precautionary principle. European Commission (2000)*
- *Assessment of plans & projects in relation to N2K sites – Methodological Guidance (EC 2021) and*
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC 2021).*

### **1.3 Authors of Report**

This report and survey work was completed by Carl Dixon MSc (Ecological Monitoring) and Dr. Sorcha Sheehy PhD (Ecology/ornithology).

Carl Dixon holds an Honours Degree (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC. He is a senior ecologist who has over 25 years' experience in ecological assessment. Prior to setting up DixonBrosnan Environmental Consultants in 2000, Carl set up and ran Core Environmental Services which included REPS planning for landowners and ecological assessments. Carl has particular experience in freshwater ecology, including electrofishing fish stock assessments and water quality assessments. He also has considerable experience in habitat mapping and mammal ecology including survey work and reporting in relation to Badgers and bats. Other competencies include surveys for invasive



species and bird surveys. Carl has extensive experience with regards to EIAR and NIS mitigation and impact assessment. He has experience in large-scale industrial developments with extensive experience in complex assessments as part of multi-disciplinary teams. Such projects include gas pipelines, incinerators, electrical cable routes, oil refineries and quarries.

Sorcha Sheehy PhD (Ecology/ornithology) is an ecologist and ornithologist who has worked for 15 years in environmental consultancy. She has worked on Screening/NISs for a range of small and large-scale projects with expertise in assessing impacts on birds. Sorcha's PhD research focused on bird behaviour at airports, where she studied bird avoidance behaviour and collision risk to aircraft. Her research involved field observations, post-mortem analysis and radar surveys. Sorcha has worked on bird collision risk assessments at airports throughout Ireland including Dublin airport, Cork airport, Shannon airport and Kerry airport. During her consultancy work Sorcha carried out field-based surveys and environmental reports including NIS, AA screening and EIARs. Notable projects include the Arklow Bank Wind Park, Indaver Ireland Waste Management Facility at Ringaskiddy, Irving Oil Whitegate Refinery (IOWR), Shannon LNG and Greenlink Interconnector.

## **2. Regulatory Context and Appropriate Assessment Procedure**

### **2.1 Regulatory Context**

The Habitats Directive (Council Directive 92/43/EEC on the *Conservation of Natural Habitats and of Wild Fauna and Flora*) aims to maintain or restore the favourable conservation status of habitats and species of community interest across Europe. The requirements of these directives are transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2012-2021).

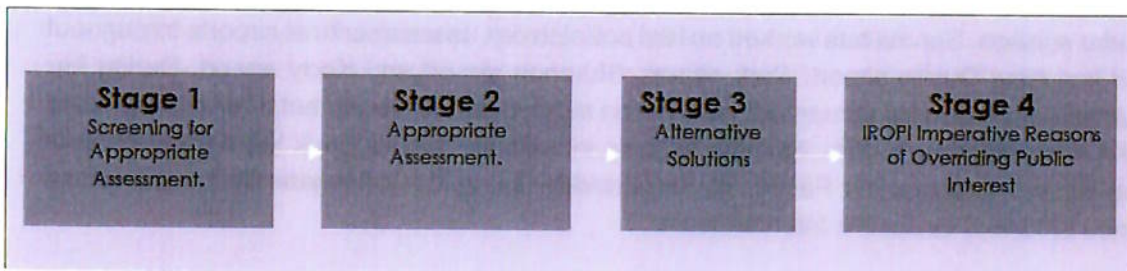
Under the Directive a network of sites of nature conservation importance have been identified by each Member State as containing specified habitats or species requiring to be maintained or returned to favourable conservation status. In Ireland the network consists of SACs and SPAs, and also candidate sites, which form the Natura 2000 network of European sites.

Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the *Conservation of Natural Habitats and of Wild Fauna and Flora* (as amended) (hereafter 'the Habitats Directive') requires that, any plan or project not directly connected with or necessary to the management of a designated site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. A competent authority (e.g. the EPA or Local Authority) can only agree to a plan or project after having determined that it will not adversely affect the integrity of the site concerned.

The possibility of a significant effect on a designated or "European" site has generated the need for an appropriate assessment to be carried out by the competent authority for the purposes of Article 6(3). A Stage Two Appropriate Assessment is required if it cannot be excluded, on the basis of objective information, that the proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site. The first (Screening) Stage for appropriate assessment operates merely to determine whether a (Stage Two) Appropriate Assessment must be undertaken on the implications of the plan or project for the conservation objectives of relevant European sites.

## 2.2 Appropriate Assessment Procedure

The assessment requirements of Article 6(3) establish a stage-by-stage approach. This assessment follows the stages outlined in the 2001 European Commission publications "Assessment of plans and projects significantly affecting European sites: methodological guidance on the provisions of Articles 6(3) and 6(4) of the Habitats Directive 92/43/EEC" (2001) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (Draft) Office for Official Publications of the European Communities, Luxembourg (EC, 2015);



The stages are as follows:

Stage One: Screening — the process which identifies any appreciable impacts upon a European site of a project or plan, either alone or in combination with other projects or plans, and considers whether these impacts are likely to be significant;

Stage Two: Appropriate assessment — the consideration of the impact on the integrity of the European site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse impacts, an assessment of the potential mitigation of those impacts;

Stage Three: Assessment of alternative solutions: The process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. It is confirmed that no reliance is placed by the developer on Stage Three in the context of this application for development consent;

Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed (it is important to note that this guidance does not deal with the assessment of imperative reasons of overriding public interest). Again, for the avoidance of doubt, it is confirmed that no reliance is placed by the developer on Stage Four in the context of this application for development consent.

It is the responsibility of the competent authority, in this instance Cork County Council, to make a decision on whether or not the proposed development should be approved, taking into consideration any potential impact upon any European site within its likely Zone of Impact.



### 3. Receiving Environment

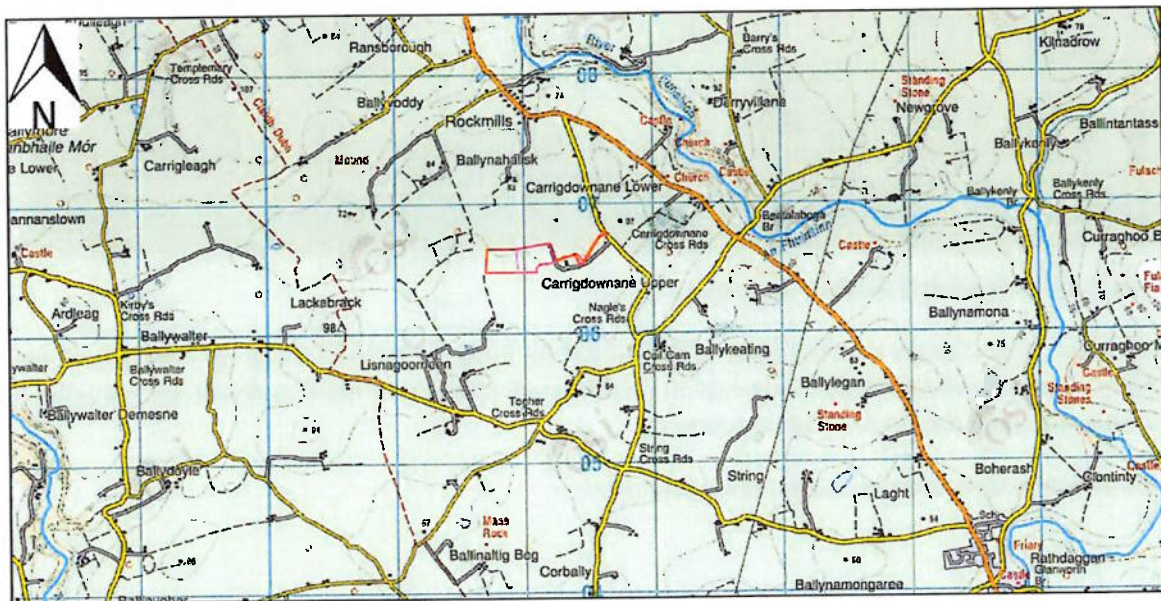
#### 3.1 Existing Site

Rockmills Quarry Ltd is a limestone quarrying and processing activity located within the townland of Carrigdownane Upper, Rockmills, Kildorrery, Co. Cork.

The approximate Irish National Grid (ING) reference for the site is E: 172106, N: 106599. The site is located approximately 1.2km south-southeast of the small rural village of Rockmills, 4km southeast of the village of Kildorrery, 4km northwest of the village of Glanworth. Mitchelstown and Fermoy are located approximately 12km to the northeast and southeast respectively.

The site is accessed via a private entrance and c.540m road from the L5612. The quarry extraction area boundary is located approximately 420m from the L5612 road. Goods vehicles accessing and exiting the site use the L5612 to connect to the R512, connecting Kildorrery to Glanworth through Rockmills village.

The site access is shared with an adjacent business, Crossmore Tyre Recycling Ireland, which is under the ownership of the extended family of the applicant. The businesses are operationally separate with no shared services, plant or equipment.



**Figure 1. Location of Existing (magenta) and Proposed Quarry (red)**

The site is located in a rural, farming area predominantly comprised of pastureland and hedgerows. Arable fields and small wooded areas can also be found scattered around the landscape.

Residential development in the area is predominantly linearly aligned along the existing road network. A number of large farm hubs are also located within the area.

#### 3.2 Existing Operations

##### 3.2.1 Existing Site Operation

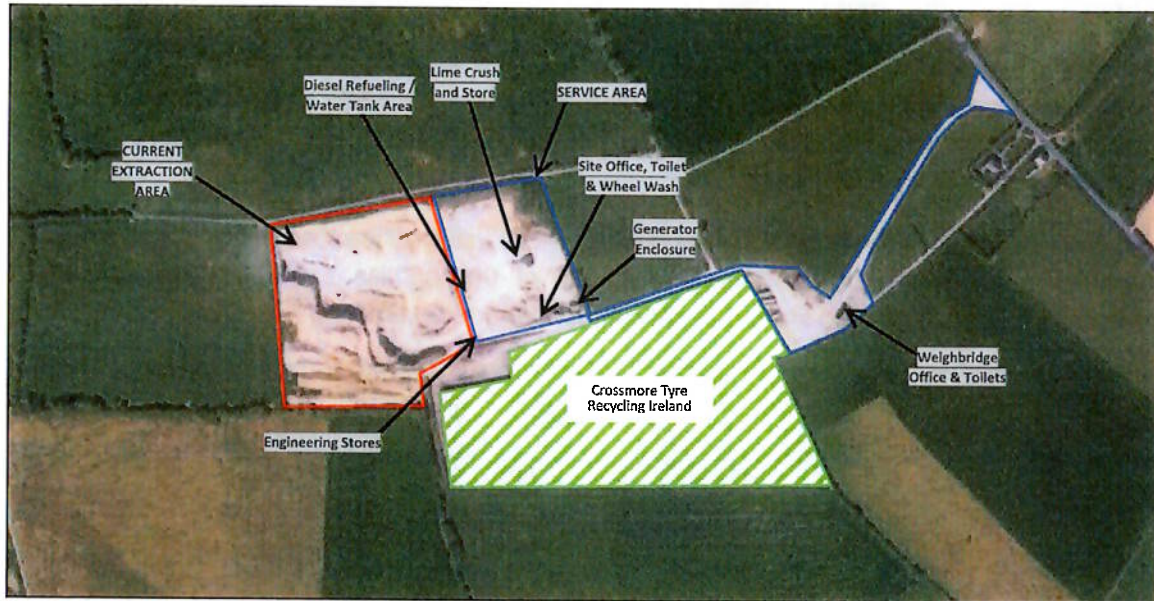
There would be no alteration to the existing infrastructure, management, or control systems as part of the proposed development.

The site provides employment for approximately 18 to 22 personnel, depending on demand (3 administrative staff, 3 to 4 operators and 12 to 15 drivers).

The hours of operation of the quarry are 07:30 hrs to 18:00 hrs, Monday to Friday and 07:30 hrs to 16:00 hrs on Saturdays.

The current permitted extraction area is approximately 2.923 ha, including berms. The extraction depth is to 64m above ordinance datum (mAOD).

The existing services area is approximately 1.795 ha including berms, wheel wash and office.



**Figure 2. Current Quarry Activity Layout**

As of June 2022, the quarry has fully extracted the stone to 64m AOD along the eastern and northern boundaries of the permitted quarry area. Extraction is continuing along the western boundary towards the southern boundary.

The extraction operation is carried out as follows:

1. Overburden is stripped as required ahead of the working face of the quarry using a tracked excavator. The depth of overburden encountered thus far is a maximum of c.500mm, consisting mainly of topsoil material. Those soils which have not been used in the erection of boundary earth berms are stockpiled onsite for eventual reinstatement. Earth berms have been planted to promote rapid stabilisation of soils.
2. Limestone is extracted from the working face using controlled blasting.
3. Blasting is carried out by a contracted blasting expert approximately every 3-4 months based on demand. Charge holes are drilled into the rockface over 1-2 days, whereupon charges are placed and detonated in-series to deposit rock onto the active quarry floor. Charge type and sizes are selected by the blasting expert to environmental and health and safety criteria.

4. Oversized blasted stone is broken further using a tracked excavator mounted with a hydraulic rock breaker.
5. Broken stone is processed further using a mobile crushing machine. Crushed stone is transferred via the output conveyor to a mobile screening machine which separates the crushed stone into the required grades.
6. Graded stone is stockpiled within the quarry pit floor and service yard. Stone products include stone, chips, blinding and clause 804 aggregates.

Stone is provided to customers for agricultural use, building development and road construction projects as requested.

An estimated 20,000 tonnes per annum of extracted stone undergoes further processing to produce agricultural lime. Processing to agricultural lime consists of:

- a) Crushed limestone is loaded into the milling machine hopper using a wheeled front loader.
- b) Stone from the hopper is transferred via conveyor to the enclosed milling machine to convert the stone into agricultural lime. The lime mill has been fitted with a dust filtration system.
- c) The agricultural lime is transferred via conveyor into an enclosed lime output shed.
- d) Lime is moved via front loader and stockpiled within roofed storage shed.
- e) Lime is loaded onto lorries using a front loader within the lime yard. A water sprinkler at the wheel wash area is used to dampen the lime for transport (prevent dust).

Aggregate washing is not carried out at the site, however, 804 fill material is sprinkled with water to improve its bonding capabilities under heavy loading (for use on roads, drive ways etc.).

There is no dewatering required onsite, as all extraction takes place at least 1 metre above the water table (maximum recorded groundwater level of 62.93 m AOD @ GW2 in January 2021).

Truck weighing is carried out at the weighbridge and recorded at the weighbridge offices.

### **3.2.2 Existing Mitigation Infrastructure**

Planting for dust and visual mitigation has been carried out. A double line of hawthorn whips has been planted at 1m spacing, however, this will not become fully effective until planting has become fully grown. Planting has occurred on the external bunds and existing hedgerow (blackthorn, elder, wild rose and mature ash) along the eastern boundary of the service yard / stockpile area.

Stone crushing and screening is carried out on the pit floor in order to avail of the noise and dust mitigation provided by the quarry walls. Stone stockpiles are also stored within the quarry floor in so far as is possible. Water sprinklers are in place for stockpiles in order to provide for additional dust suppression when required.

The lime mill has been installed with a dust filter and has been enclosed.



A concrete 4m wide access road from the main road to the weighbridge has been constructed, providing lower potential dust generation from unsurfaced trackways. Roads are wetted during dry conditions in order to aid in dust suppression via a water bowser.

A wheel wash is in place and provides for a minimum of one wheel revolution. All trucks are required to use the wheel wash when exiting the site.

Loads containing fines (i.e. agricultural lime) are required to be covered when exiting the site. A water sprinkling system has been installed at the wheel wash station for loads of agricultural lime.

Internal and public roads are swept when required (road sweeping / street cleaner).

An area of previously over-excavated ground within the existing quarry has been restored with new material to 64m O.D. in agreement with the county council. The area is surrounded by a gravel bund wall, to ensure no ingress of surface-water from the active quarry area.

### **3.2.3 Existing Services**

There is no general stormwater pipework or management system at the site. All rainfall that falls within the footprint of the quarry infiltrates into the services area floor or the quarry floor and migrates vertically down to the water table. There is no discharge to surface-water from the quarry.

The re-fuelling area is paved, with all drainage directed to an oil-water interceptor. The oil-water interceptor is cleaned and inspected regularly. The oil-water inceptor discharges to a soakaway. Vehicle diesel is stored in three double-skinned Carbery Plastics 6m<sup>3</sup> tanks, stored on a concrete plinth draining to the interceptor. A plan to install a crash barrier in front of the tanks to avoid accidental damage is in progress.

There is no connection to the mains water supply for the quarry activity. All water for the site is sourced from groundwater wells, GW1 and GW2. Water is stored in a single 30 m<sup>3</sup> stainless steel buffer tank. There is no water treatment carried out at the site, but wells undergo regular testing. GW1 is the primary groundwater supply, while GW2 provides back up supply. Water is used for dust suppression, 806 grade fill wetting, quarry office drinking water and quarry office toilets.

The quarry office toilets discharge to a settlement tank located within the service area boundary, east of the office and south of the diesel generator. The tank contents are regularly pumped out and removed by a licenced operator to a licenced facility.

There is no mains connection to the electrical grid for site operations. Electricity for the quarry office and lime production is supplied from an onsite 200kW diesel generator. The generator is fuelled from an adjacent 1,000 litre double skinned steel diesel tank.

### **3.3.4 Environmental Management**

Environmental Management at the site is carried out in compliance with legal requirements and under the conditions of previous planning applications 15/5484 and 21/5792. These planning decisions provide general obligations for the site to maintain various aspects of the environment and amenity of the site and surrounding area, as well as specific requirements for the monitoring of potential impacts from the quarrying activity.

### **3.3 Proposed Development**

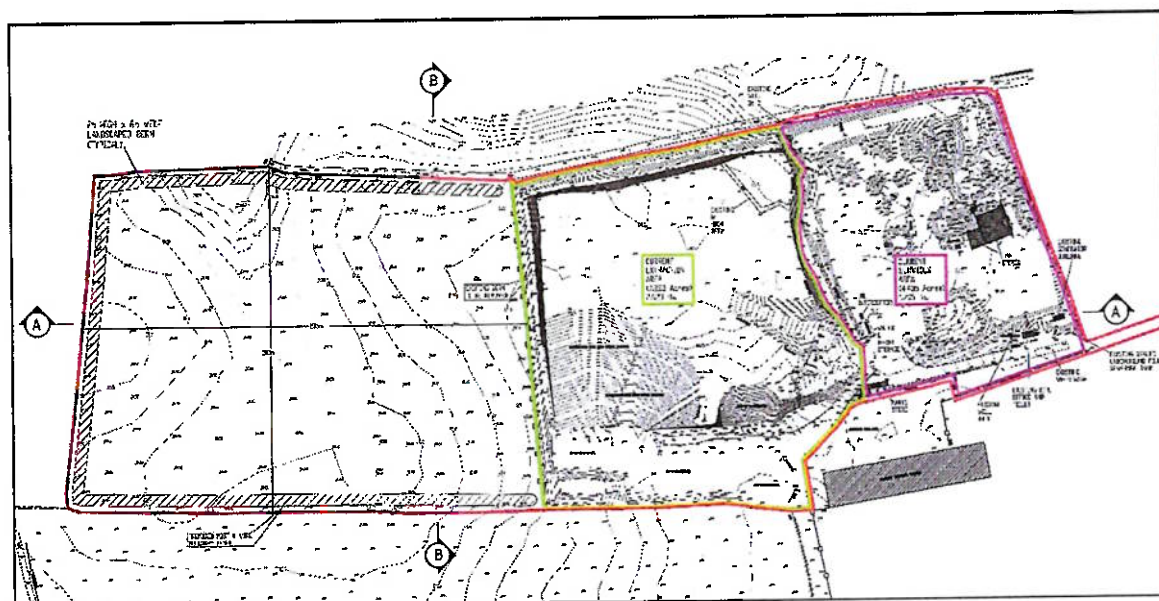
### 3.3.1 Overview of Proposed Development

The applicant, Denis O'Keeffe, is requesting a 10 year planning permission for continuation of an existing quarrying operation, a 4.21 hectare extension and all ancillary site works in the townland of Carrigdownane Upper, Co. Cork.

There are no proposed amendments to the current buildings, facilities, inputs, processes or outputs at the existing quarrying activity as part of this application, other than the proposed extension of the activity boundary and extraction areas.

The proposed development would be a continuation of the current quarrying activity and there will be no intensification of the existing operations.

The proposed extension would continue to extract stone to a depth of 64m AOD.



**Figure 3. Proposed Quarry Extension Area.**

The total proposed extension area is 4.21 ha, which includes proposed earth berms and boundaries.

The volume of stone within the proposed 3.84ha extraction area, excluding boundary earth berm areas, have been estimated to be 660,726 m<sup>3</sup>. At an estimated density of 1.6 tonnes / m<sup>3</sup>, this would equate to an estimated reserve of 1.05 million tonnes.

The quarrying excavation operation would progress in a westerly direction from the existing quarry boundary.

**Table 2. Proposed project phasing within Rockmills Quarry extension**

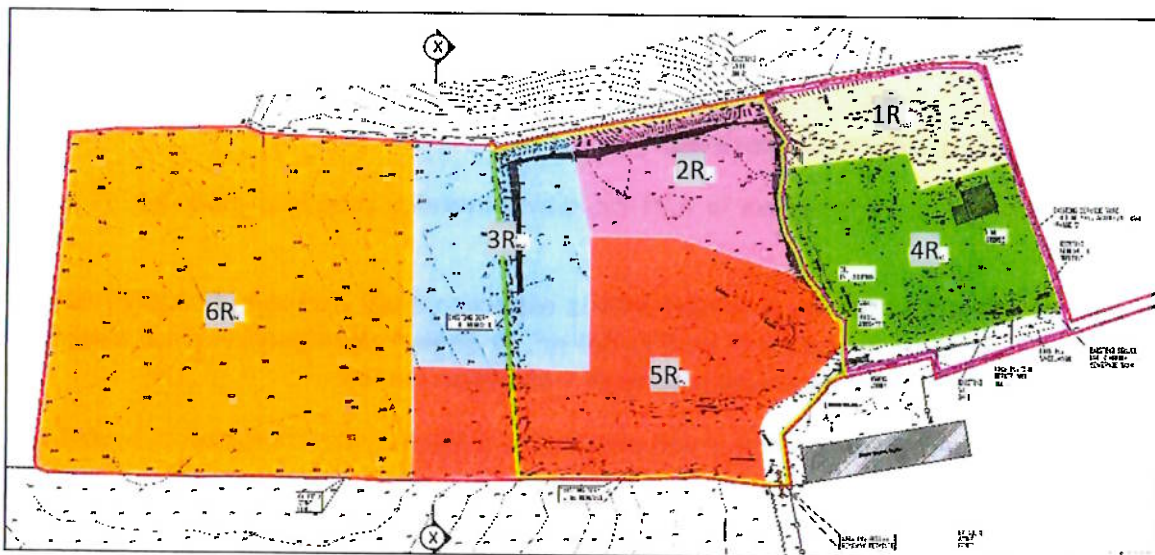
Description	Timeframe (Low demand – 120,000 tpa)	Timeframe (High demand – 150,000 tpa)
Retain all existing hedgerows.	8.81 yr	7.05 yr
Strip topsoil/overburden within Phase 1 and create earth berms around Phase 1 working area.		

Stockpile any excess topsoil/overburden within quarry floor.  Plant berms with grass for soil stabilisation.  Plant berms or supplementary plant existing hedgerows with native tree species.  Continue existing western working face to proposed site boundary.  Implement phased restoration of extracted areas.		
Complete Restoration plan  See sub-section 2.4.2 below for details.	1 yr	1 yr
Total	10 years	8 years

### 3.3.2 Closure, Restoration & Aftercare (CRA)

#### *CRA for the Existing Quarry Area*

The Restoration Plan, submitted as requested further information (RFI) on planning application 15/5484, has been updated to accommodate the proposed development. This updated Restoration Plan has been submitted with the current planning application, as shown in **figure 4** below.



**Figure 4. Site Restoration Plan (221099-P06).**

Previous and current trial digging has found overburden depths of 500mm to 1000mm across the proposed excavation areas. Assuming an average overburden depth of 750mm, the following estimated quantities of overburden would be available for reinstatement:



**Table 2. Estimated stockpiled overburden volumes**

Phase	Area (ha)	Overburden Volume (m3)
Existing Areas	4.718	35,385
Proposed Extraction	3.84	28,800
Total	8.558	64,185

It is noted that, in addition to the above stored overburden, some of the extracted stone is not of a sufficient commercial grade. This material is also stored onsite and would be used in the restoration of the site. It is also noted that some of the existing removed overburden has been used to create berms on the boundaries of the extraction area, which would remain in place.

The area designated as 1R would be restored to pasture. The restored area would be seeded with perennial ryegrass and clover as soon as conditions allow. There would be a minimum 1m depth of topsoil and subsoil over the floor of the quarry. A new 450mm high earth berm would be established on the boundary of the restored pasture area to prevent runoff to exposed rock on the floor of the quarry.

The area designated as 2R, within the existing extracted floor of the quarry, would be restored to promote the development of mixed habitats through natural regeneration. Areas of restored soil cover (minimum 1m depth) and rock rubble would be created and sectioned off from the operating quarry area. A tracked excavator would be used to compress an area of the restored soil habitat to provide an area of wetland / periodic wetland habitat.

For the proposed new extraction application, the area designated as 3R would also be restored to mixed habitats. The area designated as 6R would be retained as bare stone habitat. If material is available onsite (i.e. excess waste stone or soil) the maximum area possible would be restored with a minimum 1m of soil with sloped stone rubble verges. Therefore, 3R mixed habitats would extend into the 6R area along the northern boundary, in so far as available materials allow.

The approach would allow for the establishment of pioneering flora of local provenance and would provide some open spaces required for foraging, whilst providing some cover for a variety of species.

**Table 3. Restoration Timetable and Details**

Year	Restoration Phase	Restoration Area (ha)	Quarry Area (ha)	% Total Restored Area	Notes
2024	1R	0.516	2.923	17.65%	Restored to pasture
2024-2025	2R	0.713	2.923	42.06%	Restored mixed habitats
2031	3R	1.036	6.763	33.50%	Restored mixed habitats
2031	6R	3.322	6.763	82.62%	Bare stone habitat retained

The current restoration plan reserves the areas designated 4R (services yard) and 5R (ramp, quarry equipment and stockpile) areas for potential future extension planning permission.

In the event that the operator does not apply for any future quarry extensions, or future planning permissions are unsuccessful, the following would be carried out on final cessation of quarrying activities;

1. Removal of all plant and machinery.
2. Ripping up of any hardcore or concrete surfaces to a depth of 300mm,
3. Fill in with clean stone or remove any sub surface tanks,
4. Grade back working faces of the quarry if space allows and distribute material at the foot of the quarry face,
5. Re-spreading and grading of any remaining stone / overburden / topsoil materials available on site.

All the work would be carried out by front loaders and excavator, including soil / stone movement and soil preparation. No separate planning permission or waste permit would be required to complete the site restoration plan as no soils or other material will be imported.

#### *Potential Future Development effecting CRA*

It is planned that, assuming approval of the current planning application and on approaching the end of the 10-year permission, the applicant would apply for a further quarry extraction area extension on the southern boundary of the site. Any such extension would be subject to negotiation and agreement with this third-party landowner prior to the planning application.

While the exact area and geographical extents of this potential future extension application cannot be defined at this stage, some site management and restoration principals can be outlined. The existing services area and stockpiles area would be retained for continuation of the new extension, with all current management and mitigation measures in place. Waste stone and stockpiled overburden from the new extraction area would be used for the creation of natural habitats within the 6R area, combining with existing restored areas.

The applicant has previously investigated the possibility of carrying out the infill of inert construction and demolition material within the excavated areas of the quarry. Following review of this option, it was considered that space and storage area constraints would not make this a practical option while the quarrying operation is active at this site. At this time, the applicant is not considering any infilling operations at the permanent closure stage of the quarry.

## **4. Screening**

### **4.1 Introduction**

This section contains the information required for the competent authority to undertake screening for AA for the proposed development.

The aims of this section are to:

- Determine whether the proposed development is directly connected with, or necessary to, the conservation management of any European Sites;

- Provide information on, and assess the potential for the proposed development to significantly effect on European Sites (also known as Natura 2000 sites); and
- Determine whether the proposed development, alone or in combination with other projects, is likely to have significant effects on European sites in view of their conservation objectives.

The proposed development is not directly connected with, or necessary to the conservation management of any European sites.

## **4.2 Zone of Impact**

The likely Zone of Impact (Zol) comprises the area within which the proposed development may potentially affect the conservation objectives or qualifying interests (QI) of a European site. There is no recommended likely Zone of Impact, and guidance from the National Parks and Wildlife Service (NPWS) and CIEEM (2018) 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).

In ecological and environmental impact assessment, for an effect to occur there must be a risk enabled by having a source (e.g., construction works at a proposed development site), a 'receptor' (e.g. SAC or other ecologically sensitive feature), and a pathway between the source and the receptor (e.g. a watercourse which connects the proposed development site to the SAC). A 'receptor' is defined as the Special Conservation Interest (SCI) of SPAs or Qualifying Interest (QI) of SACs for which conservation objectives have been set for the European sites being screened.

Consideration is therefore given to the source-pathway-receptor linkage and associated risks between the proposed development and European sites. For a significant effect to occur there needs to be an identified risk whereby a source (e.g. contaminant or pollutant arising from construction activities) affects a particular receptor (i.e. European site) through a particular pathway (e.g. a watercourse which connects the proposed development with the European site).

The identification of risk does not automatically mean that an effect will occur, nor that it will be significant. The identification of these risks means that there is a possibility of environmental or ecological damage occurring. The level and significance of the effect depends upon the nature of the consequence, likelihood of the risk and characteristics of the receptor.

The precautionary principle is applied for the purposes of screening to ensure that consideration and pre-emptive action is undertaken where there is a lack of scientific evidence. It is noted that mitigation measures are not taken into account in the AA screening assessment process.

## **4.3 Field Study**

A site survey of the extension area was carried out on the 8<sup>th</sup> June 2022, 10<sup>th</sup> June 2022, 6<sup>th</sup> April 2023 and 26<sup>th</sup> April 2023. Surveys were previously carried out on 1<sup>st</sup> November 2020 on the existing active quarry. The surveys assessed the potential for all Qualifying Interests (QIs)/ Special Conservation Interests (SCIs) of European sites and third schedule invasive species to occur within the proposed site.



#### 4.4 Source-Pathway-Receptor Model

The likely effects of the proposed development on any European site has been assessed using a source-pathway-receptor model, where:

- A 'source' is defined as the individual element of the proposed works that has the potential to impact on a European site, its qualifying features and its conservation objectives.
- A 'pathway' is defined as the means or route by which a source can affect the ecological receptor.
- A 'receptor' is defined as the SCI of SPAs or QI of SACs for which conservation objectives have been set for the European sites being screened.

A source-pathway-receptor model is a standard tool used in environmental assessment. In order for an effect to be likely, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the mechanism results in no likelihood for the effect to occur. The source-pathway-receptor model was used to identify a list of European sites, and their QIs/SCIs, with potential links to European sites. These are termed as 'relevant' European sites/QIs/SCIs throughout this report.

#### 4.5 Likely Significant Effect

The threshold for a Likely Significant Effect (LSE) is treated in the screening exercise as being above a de minimis level. The opinion of the Advocate General in CJEU case C-258/11 outlines:

*"the requirement that the effect in question be 'significant' exists in order to lay down a de minimis threshold. Plans or projects that have no appreciable effect on a European site are thereby excluded.*

*If all plans or projects capable of having any effect whatsoever on the site were to be caught by Article 6(3), activities on or near the site would risk being impossible by reason of legislative overkill."*

In this report, therefore, 'relevant' European sites are those within the potential ZOI of activities associated with the construction and operation of the proposed development, where LSE pathways to European sites were identified through the source-pathway-receptor model.

#### 4.6 Screening Process

The Screening for Appropriate Assessment will incorporate the following steps:

Definition of the likely Zone of Impact for the proposed works;

- Identification of the European sites that are situated (in their entirety or partially or downstream) within the likely Zone of Impact of the proposed works;
- Identification of the most up-to-date QIs and SCIs for each European site within the likely Zone of Impact;
- Identification of the environmental conditions that maintain the QIs/SCIs at the desired target of Favourable Conservation Status;
- Identification of the threats/impacts – actual or potential that could negatively impact the environmental conditions of the QIs/SCIs within the European sites;

- Highlighting the activities of the proposed works that could give rise to significant negative impacts; and
- Identification of other plans or projects, for which in-combination impacts would likely have significant effects.

#### 4.7 Desktop Review

A desktop review facilitates the identification of the baseline ecological conditions and key ecological issues relating to European sites and facilitates an evaluation assessment of potential in-combination impacts. Sources of information used for this report include reports prepared for the Carrigdownane Upper area and information from statutory and non-statutory bodies. The following sources of information and relevant documentation were utilised:

- National Parks & Wildlife Service (NPWS) - [www.npws.ie](http://www.npws.ie)
- Environmental Protection Agency (EPA) – [www.epa.ie](http://www.epa.ie)
- National Biodiversity Data Centre (NBDC) – [www.biodiversityireland.ie](http://www.biodiversityireland.ie)
- *Cork County Development Plan 2022*;
- Birdwatch Ireland - <http://www.birdwatchireland.ie/>
- Invasive Species Ireland - <http://www.invasivespeciesireland.com/>
- *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011)
- *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority, 2009) and
- *Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU)* European Union, 2017.

## 5. European Sites

### 5.1 Designated sites within Likely Zone of Impact

In accordance with the European Commission Methodological Guidance (EC 2018), a list of European sites that can be potentially affected by the proposed development has been compiled. All candidate SAC's (cSAC) and SPAs sites within the likely Zone of Impact of the proposed development have been identified in **Table 3** and shown in **Figure 5**.

The proposed development site does not overlap with any European site i.e., SAC/SPA. The nearest European site to the quarry is the Blackwater River (Cork/Waterford) SAC located approximately 4km west at its closest point. Groundwater and surface water flow towards the northeast in the direction of the River Funshion (1.2km northeast of the proposed development site). The nearest point by hydrological connectivity to the Blackwater River (Cork/Waterford) SAC is approximately 17.7km downstream, near Fermoy via the River Funshion. This is also the connection to the Blackwaters Callows SPA, which is located approximately 17.7km downstream. The River Funshion is a tributary of the River Blackwater but it is not included within the boundary of the Blackwater River (Cork/Waterford) SAC or the Blackwaters Callows SPA. Therefore, although unlikely, a potential impact pathway has been identified via impacts on

surface water and or groundwater. Habitats within the proposed development site could potentially be used by QI species (i.e., Otter) for the Blackwater River (Cork/Waterford) SAC.

Therefore, a source-pathway-receptor link has been identified between the source (proposed development) and the receptors (Blackwater River (Cork/Waterford) SAC and Blackwater Callows SPA) via a number of potential pathways (impacts of water quality, the spread of invasive species, disturbance to/ loss of *ex situ* habitat for QI species). Further information on these Natura 2000 sites is provided below and full site synopses included **Appendix 1**.

The Ballyhoura Mountains SAC, which is designated on the basis of heath/bog habitats is not hydrologically connected to the site and no potential impact on this site has been identified. The Kilcolman Bog SPA is not hydrological connected and there is no potential for noise disturbance given the distances involved. Therefore, no potential impact on this site has been identified.

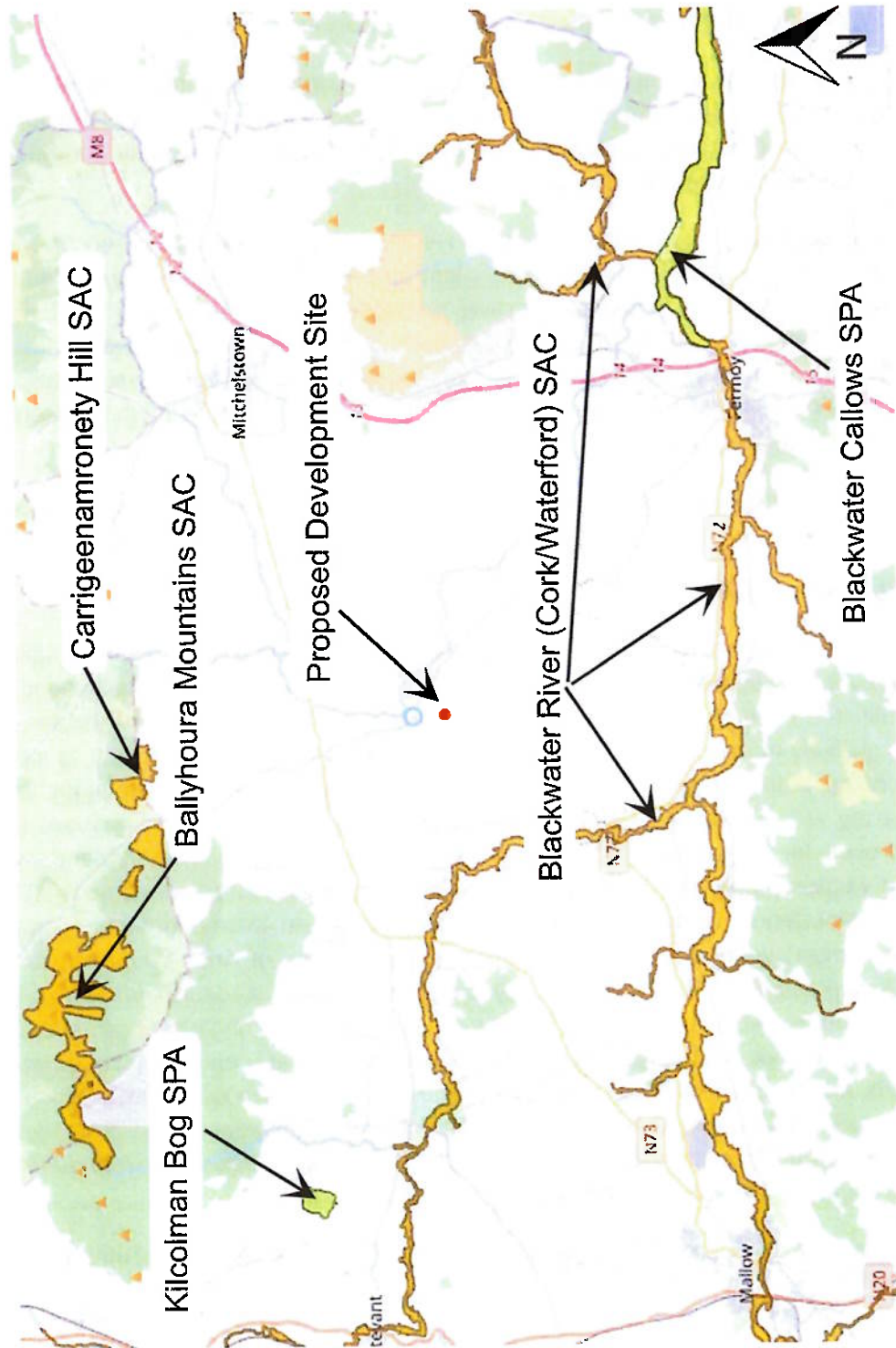


Table 3. European sites and their location relative to the proposed development site

European sites within the Likely Zone of Impact (Zoi)	Code	Qualifying Interests/Special Conservation Interests	Distance at the closest point (as the crow flies)
<b>Special Area of Conservation (SAC)</b>			
Blackwater River (Cork/Waterford) SAC	002170	<p><b>Habitats</b></p> <p>1130 Estuaries</p> <p>1140 Mudflats and sandflats not covered by seawater at low tide</p> <p>1220 Perennial vegetation of stony banks</p> <p>1310 Salicornia and other annuals colonising mud and sand</p> <p>1330 Atlantic salt meadows (Glauco-Puccinellietalia maritima)</p> <p>1410 Mediterranean salt meadows (Juncetalia maritimi)</p> <p>3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation</p> <p>91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles</p> <p>91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)*</p> <p><b>Species</b></p> <p>1421 Killarney Fern (<i>Trichomanes speciosum</i>)</p> <p>1103 Shad (<i>Alosa fallax fallax</i>)</p> <p>1099 River Lamprey (<i>Lampetra fluviatilis</i>)</p> <p>1096 Brook Lamprey (<i>Lampetra planeri</i>)</p> <p>1095 Sea Lamprey (<i>Petromyzon marinus</i>)</p> <p>1106 Salmon (<i>Salmo salar</i>)</p> <p>1092 White-clawed Crayfish (<i>Austropotamobius pallipes</i>)</p> <p>1029 Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)</p> <p>1355 Otter (<i>Lutra lutra</i>)</p>	<p>4.0km west (17.7km downstream).</p> <p>Although unlikely, a source-pathway-receptor link has been identified between the source (proposed development site) and the receptor (Blackwater River (Cork/Waterford) SAC) via a potential pathway (Impacts on water quality, loss of or disturbance to <i>ex situ</i> habitats and/or spread of invasive species).</p>
Carrigeenamronety Hill SAC	002037	<p><b>Habitats</b></p> <p>4030 heaths</p> <p>European dry</p>	8.7km north. No viable pathway exists

European sites within the Likely Zone of Impact (Zol)	Code	Qualifying Interests/Special Conservation Interests	Distance at the closest point (as the crow flies)
<b>Special Area of Conservation (SAC)</b>			
		Species 1421 Killarney Fern ( <i>Trichomanes speciosum</i> )	
Ballyhoura Mountains SAC	002036	Habitats 4010 Northern Atlantic wet heaths with Erica tetralix 4030 European dry heaths 7130 Blanket bogs (* if active bog)	9.1km north. No viable pathway exists
<b>Special Protection Area (SPA)</b>			
Blackwater Callows SPA	004094	Birds A050 Wigeon ( <i>Anas penelope</i> ) A052 Teal ( <i>Anas crecca</i> ) A038 Swan ( <i>Cygnus cygnus</i> ) A156 Godwit ( <i>Limosa limosa</i> ) Habitats Wetlands	12.4 km southeast (17.7km downstream). Although unlikely, a source-pathway-receptor link has been identified between the source (proposed development site) and the receptor (Blackwater Callows SPA) via a potential pathway (impacts on water quality, loss of or disturbance to <i>ex situ</i> habitats).
Kilcolman Bog SPA	004095	Birds A052 Teal ( <i>Anas crecca</i> ) A038 Swan ( <i>Cygnus cygnus</i> ) A056 Shoveler ( <i>Anas clypeata</i> ) Habitats Wetlands	14.2km northwest. No viable pathway exists





**Figure 5. European sites within likely Zone of Impact of the proposed development site | Source EPA Envision Mapping | Not to scale**



## 5.2 Blackwater River (Cork/Waterford) SAC

The Blackwater River (Cork/Waterford) SAC is a very large site drains a major part of County Cork and five mountain ranges. The site supports a high diversity of Annex I habitats and Annex II species of the E.U. Habitats Directive, including Atlantic salmon and Otter. The site designated as the Blackwater River cSAC consists of the freshwater stretches of the River Blackwater as far upstream as Ballydesmond and as far downstream as the tidal stretches into Youghal Harbour as well as the many tributaries along the way, the larger of which include the Licky, Bride, Flesk, Chimneyfield, Finisk, Araglin, Awbeg (Buttevant), Clyda, Glen, Allow, Dalua, Brogeen, Rathcool, Finnow, Owentaraglin and Awnaskirtaun. The extent of the Blackwater and its tributaries in this site flows through the counties of Kerry, Cork, Limerick, Tipperary and Waterford. The designated site covers a total area of 15,048 ha.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, dredging of the upper reaches of the Awbeg, over-grazing within the woodland areas, and invasion by non-native species, for example Rhododendron and Cherry Laurel.

Overall, the River Blackwater is of considerable conservation significance for the occurrence of good examples of habitats and populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive respectively. Furthermore, it is of high conservation value for the populations of bird species that use it. Two Special Protection Areas, designated under the E.U. Birds Directive, are also located within the site - Blackwater Callows and Blackwater Estuary. Additionally, the importance of the site is enhanced by the presence of a suite of uncommon plant species.

A full site synopsis for the River Blackwater (Cork/Waterford) SAC is included as **Appendix 1** of this report.

## 5.3 Blackwater Callows SPA

The site comprises a 23 km stretch of the River Blackwater, running in a west to east direction between Fermoy and Lismore. It includes the river channel and strips of seasonally flooded grassland within the flood plain. Sandstone ridges parallel to the river confine the area of flooding to a relatively narrow corridor. The lower stretch, from Ballyduff to Lismore, is more subject to flooding than the upper part. The river channel has a well-developed aquatic community, along with emergent swamp vegetation in places. Most of the land above the banks is improved for agriculture, with only occasional areas of fringing marshland, wet grassland and wet woodland (mostly *Salix* spp.) still present. Some arable areas occur. The site is of high importance for wintering waterfowl. It supports an internationally important population of *Cygnus cygnus* and nationally important populations of *Anas penelope*, *Anas crecca* and *Limosa limosa*. The population of *Limosa limosa* has exceeded the threshold for international importance at times. Formerly it had a regular population of *Cygnus columbarius bewickii* but this no longer occurs, reflecting a contraction of range at a national level. *Egretta garzetta* breeds locally and this species is now a regular visitor to the site. The Blackwater system is an important salmonid fishery and is of high conservation value for *Salmo salar*. It also supports important populations of *Lampetra planeri*, *L. fluviatilis*, *Petromyzon marinus* and *Alosa fallax fallax*. *Lutra lutra* is widespread throughout the site.

A full site synopsis for the Blackwater Callows SPA is included as **Appendix 1** of this report.

## 5.4 European sites – Features of interests and conservation objectives.

The EU Habitats Directive contains a list of habitats (Annex I) and species (Annex II) for which SACs must be established by Member States. Similarly, the EU Birds Directive contains lists of important bird species (Annex I) and other migratory bird species for which SPAs must be established. Those that are known to occur at a site are referred to as 'qualifying interests' and are listed in the Natura 2000 forms which are lodged with the EU Commission by each Member State. A 'qualifying interest' is one of the factors (such as the species or habitat that is present) for which the site merits designation. The National Parks and Wildlife Service (NPWS) are responsible for the designation of SACs and SPAs in Ireland.

The current conservation objectives for the relevant European sites are detailed in:

- NPWS (2012) *Conservation Objectives: Blackwater River (Cork/Waterford) SAC 002170. Version 1.0.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- NPWS (2022) *Conservation objectives for Blackwater Callows SPA [004094]. First Order Site- specific Conservation Objectives Version 1.0. Department of Housing, Local Government and Heritage.*

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network. European and national legislation places a collective obligation on Ireland and its citizens to maintain at favourable conservation status sites designated as Special Areas of Conservation and Special Protection Areas. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within European sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Favourable conservation status of a habitat is achieved when its natural range, and area it covers within that range, is stable or increasing, and the ecological factors that 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.

The favourable conservation status of a species is achieved when population data on the species concerned indicate that it is maintaining itself, and 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. The species and habitats listed as qualifying interests for the Blackwater River (Cork/Waterford) SAC, and Blackwater Callows SPA are of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive and Annex I of the E.U. Birds Directive.

The species and habitats listed as qualifying interests for the Blackwater River (Cork/Waterford) SAC, and Blackwater Callows SPA is provided below, and specific conservation objectives are included in Table 4 to Table 6.

**Table 4. Qualifying Species for the Blackwater River (Cork/Waterford) SAC**

Species code	Species		Conservation objective
1029	Freshwater Pearl Mussel	<i>Margaritifera margaritifera</i>	Restore
1092	White-clawed crayfish	<i>Austropotamobius pallipes</i>	Maintain
1095	Sea Lamprey	<i>Petromyzon marinus</i>	Restore
1096	Brook Lamprey	<i>Lampetra planeri</i>	Maintain
1099	River Lamprey	<i>Lampetra fluviatilis</i>	Maintain
1103	Twaite shad	<i>Alosa fallax</i>	Restore
1106	Atlantic Salmon	<i>Salmo salar</i>	Maintain
1355	Otter	<i>Lutra lutra</i>	Restore
1421	Killarney Fern	<i>Trichomanes speciosum</i>	Maintain

Restore = Restore favourable conservation condition, Maintain = Maintain favourable conservation condition

**Table 5. Qualifying Habitats for the Blackwater River (Cork/Waterford) SAC**

Habitat Code	Habitat	Conservation objective
1130	Estuaries	Maintain
1220	<i>Perennial vegetation of stony banks</i>	Maintain
1140	<i>Mudflats and sandflats not covered by seawater at low tide</i>	Maintain
1310	Salicornia and other annuals colonizing mud and sand	Maintain
1330	Atlantic salt meadows ( <i>Glaucopuccinellietalia maritimae</i> )	Restore
1410	Mediterranean salt meadows ( <i>Juncetalia maritimi</i> )	Maintain
3260	Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	Maintain
91E0	Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )	Restore
91J0	* <i>Taxus baccata</i> woods of the British Isles	Under Review



91A0	Old sessile oak woods with Ilex and Blechnum in British Isles	Restore
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Restore = Restore favourable conservation condition, Maintain = Maintain favourable conservation condition

**Table 6. Qualifying Habitats and/Species for Blackwater Callows SPA**

Species code	Species	Conservation objective
A038	Whooper Swan ( <i>Cygnus cygnus</i> )	Maintain or restore
A050	Wigeon ( <i>Anas penelope</i> )	Maintain or restore
A052	Teal ( <i>Anas crecca</i> )	Maintain or restore
A156	Black-tailed Godwit ( <i>Limosa limosa</i> )	Maintain or restore
A999	Wetland and Waterbirds	Maintain or restore

Restore = Restore favourable conservation condition, Maintain = Maintain favourable conservation condition

## 5.5 Status of qualifying species and habitats for the Blackwater River (Cork/Waterford) SAC

### 5.5.1 Twaite shad

These fish are one of the rarest fish species to breed in Irish freshwaters. Shad have an anadromous life cycle and have been recorded in the lower reaches of the River Blackwater during monitoring in 2003 (King and Linnane, 2004). Twenty-five fish were captured on rod and line at Cappoquin, the head of the tide in the River Blackwater. In another sampling operation a single twaite shad was captured on rod and line in the Careysville fishery, near Fermoy (King and Linnane, 2004). Dufour *et al.* (2008) reported that sampling at the top of the tidal limit in the River Blackwater in 2005 yielded very low numbers. Any adverse impact on water quality arising from sedimentation or eutrophication could potentially affect this species.

### 5.5.2 Otter

Otters *Lutra lutra*, along with their breeding and resting places are protected under the provisions of the Wildlife Act 1976, as amended by the Wildlife (Amendment) Act, 2000. Otters have additional protection because of their inclusion in Annex II and Annex IV of the Habitats Directive which is transposed into Irish law in the European Communities (Natural Habitats) Regulations (S.I. 94 of 1997), as amended. Otters are also listed as requiring strict protection in Appendix II of the Berne Convention on the Conservation of European Wildlife and Natural Habitats and are included in the Convention on International Trade of Endangered species (CITES)). Although rare in parts of Europe, they are widely distributed in the Irish countryside in both marine and freshwater habitats.

This species is a qualifying interest for the Blackwater River (Cork/Waterford) SAC, which is one of the most important sites in Ireland for this species. Results from the most recent national survey found that 78% of sites surveyed within the SAC recorded the presence of otters. The National Biodiversity Centre Database shows Otter records (3 records, most recently from October 2015) for the 1km square in which the proposed development is located (W8299).

While, the development site itself is not of value for this species, any deterioration in water quality could potentially impact on this species by reducing the availability of prey.

### 5.5.3 Freshwater Pearl Mussel

Freshwater pearl mussel *Margaritifera margaritifera* is listed on Annexes II and V of the EU Habitats Directive (1992). Annex II of the Habitats Directive requires that listed species' habitats be maintained or, where appropriate, restored to favourable conservation status. Under Annex V of the Habitats Directive this species is listed as 'a species of community interest whose taking in the wild and exploitation may be subject to management measures'. This species is also listed on Appendix III of the Bern Convention which requires that 'any exploitation of wild fauna specified in Appendix III must be regulated in order to keep the populations out of danger (temporary or local prohibition of exploitation, regulation of transport or sale, etc.)'. The Freshwater pearl mussel is listed as 'Critically Endangered' in the Republic of Ireland according to the 'Ireland Red List No. 2: Non-Marine Molluscs' (Byrne et al. 2009).

This species is legally protected in Ireland under Schedule 1 of the Wildlife Act (1976) (Protection of Wild Animals) (S.I. No. 112, 1990) as per the requirements of Section 23 of the Wildlife Act (1976), amended under Section 31 of the Wildlife Act (2000).

The transposition of the EU Water Framework Directive (2000) into Irish legislation, as the European Communities (Water Policy) Regulations 2003 (S.I. No. 722 of 2003) and the more recent European Communities Environmental Objectives (Surface Waters) Regulations (S.I. No. 272 of 2009) require the achievement of 'good ecological status' in Irish waterbodies by 2015. Further measures for the protection of Freshwater pearl mussel are set out in the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations (S.I. 296 of 2009). This legislation sets environmental quality objectives for 'the habitats of the Freshwater pearl mussel populations that are within the boundaries of a site notified in a candidate list of European sites, or designated as a Special Area of Conservation, under the European Communities (Natural Habitats) Regulations, 1997 (S.I. No. 94/1997).'

The Blackwater (Munster) River catchment is the largest FPM catchment in Ireland, totalling 2,333.83km<sup>2</sup>. It is in the South-Western River Basin District (SWRBD). The River Blackwater flows through the counties Kerry, Cork and Waterford. The Blackwater River (Cork/Waterford) Special Area of Conservation (SAC) encompasses the entire length of the catchment and part of the Galtee Mountains. The MBW River has many tributaries including the Allow, Awbeg and the Owentaraglin and incorporates the Allow FPM catchment.

The Munster Blackwater Sub-basin Management Plan for Freshwater Pearl Mussel (Second draft) details the distribution of and pressures on Freshwater pearl mussel in the Blackwater (Munster) catchment. The Munster Blackwater population of Freshwater pearl mussel was reported to be in unfavourable conservation status. It is currently ranked at 24th out of the 27 FPM populations in the country based on population status, habitat condition and current pressures. Recent declines have been due to a number of issues, which have combined to reduce river water quality and riverbed habitat. Eighteen WWTPs within the Munster Blackwater catchment were deemed to have a significant adverse effect on the Freshwater pearl mussel (FPM) or its habitat (DoEHLG, 2010a). The purpose of the Blackwater River sub-basin management plan is to address the catchment wide issues that are contributing to this decline and to develop a strategy for implementing measures that will bring the catchment and thus the population back to favourable condition (DEHLG, 2010a). The key improvement needed for the Munster Blackwater catchment is to restore juvenile habitats to appropriate condition by simultaneously reducing nutrient and silt inputs to the river.

To date there has been no detailed or systematic surveys carried out on the overall Munster Blackwater FPM population. However, there have been several surveys undertaken in the MBW to establish the population status of the FPM. The findings of surveys are given in DoEHLG (2010a) and are summarised as follows:

- Two living mussels and 300 dead mussels from a 500m stretch of river, 2km upstream of Mallow in 2004. Siltation of the mussels attributed to instream works was believed to be the cause of the mussel kill
- No mussels were recorded in these tributaries of the Blackwater catchment between 1997 and 2005; Glenlara, Brogeen, Dalua, Owenbaun, Glen, Nadd, Awanaskirtaun, Finnow, Rathcool, Corrigduff/Ivale, Grinaloo, Glashawee, Owenkeal, Cregg, Ross, Clyda, Duvglasha, Glen, Rahan, Ogeen and Bride.
- A small number of adult mussels were found in gravels under willows upstream of Keale Bridge in 2008 in a short section of the Blackwater River (approx. 250m)
- In a presence/absence non-continuous survey of the Blackwater River 6km upstream and 6km downstream of Mallow in 2008, 19 out of the 38 sites examined had mussels. All sites upstream of Mallow town had mussels, some in relatively high density and only one site downstream had *M. margaritifera* present. At a location along the north bank of the river adjacent to the former Sugar Factory, an estimated density of up to 50-60 individuals per m<sup>2</sup> were found beneath overhanging trees
- At the 38 EPA sites in the catchment, 18 had live mussels and 12 had dead shells. These sampling sites were located on the main River Blackwater channel between Lisheen Bridge (Cork) to Lismore Bridge (Waterford). Living mussels were also found in the Owentaraglin, Allow and the Licky River tributaries.
- A survey undertaken in August of 2009 to check the status of FPMs in parts of the upper Blackwater catchment found no evidence of mussels between the town of Ballydesmond and the village of Knocknagree.
- Ross (2013) found small numbers of mussels near Scrahan, or 8.79km downstream of the Ballydesmond WWTP.

In addition, two more surveys were carried out in 2014 on the upper Blackwater River (Munster) in Mallow in 2014 (Ross, 2014a). The survey covered the area directly downstream of Mallow Bridge. One live mussel was found in this area approximately 20m downstream from the concreted bridge apron of the bridge and 7m out from the southern bank. The report noted that the habitat was sub-optimal for FPM due to mobile and unstable substrate. A survey on the stretch of river downstream from the existing effluent pipe 520m downstream of Mallow Bridge was also carried out (Ross 2014b). The first 100m were effectively surveyed. No live mussels were found in this area. The 70m directly downstream were also surveyed and 5 live mussels were found approximately 150m downstream of the outfall. There were suitable areas of FPM habitat in this stretch however heavy siltation was noted along with eutrophication which make this area unsuitable for the survival of juvenile mussels.

An aquatic survey of the River Blackwater was carried out by Ecofact in late-September /early October 2018. The report concluded the following:



*Generally, the habitat in the study area and within the survey sections was considered to be unsuitable both for adult FPM and juvenile FPM recruitment. This is mainly due to heavy siltation, unsuitable and unstable substrate and eutrophication. Despite this, some small areas did contain some suitable freshwater pearl mussel habitat although it was not common. Occasional dead FPM shells were found throughout the survey area. However, only one live freshwater pearl mussel was found at the most downstream point of the study area, downstream of the existing outfall for the Mallow WwTP. It is possible that there are a small number of adult freshwater pearl mussels in this area that went undetected, however there is no significant population present here and there are no individuals present in the direct vicinity of the location where the works will be carried out. These results are similar to previous and most recent knowledge of the study area at Mallow, as demonstrated by studies completed by Ross (2014a; 2014b).*

It is generally considered that a scattered population exists over a wide area from upstream of Mallow to Fermoy. The Munster Blackwater Sub-basin Management Plan for Freshwater Pearl Mussel (Second draft) details the distribution of and pressures on Freshwater Pearl Mussel in the Blackwater [Munster] catchment. The Munster Blackwater population of Freshwater pearl mussel was reported to be in unfavourable conservation status. Eighteen WWTPs within the Munster Blackwater catchment were deemed to have a significant adverse effect on the Freshwater pearl mussel or its habitat (DoEHLG, 2010a). Eighteen WWTPs have been prioritised and the aim is to reduce the overall nutrient, organic and sediment loads in Munster Blackwater catchment.

The decline of FPM populations in Ireland is primarily related to the continuous failure to produce new generations of mussels because of the loss of clean gravel beds, which have become infiltrated by fine sediment and/or over-grown by algae or macrophytes. Macrophytes smother the juvenile habitat even further, and trap more sediment, exacerbating the problem in the long term. Filamentous algae can lead to the death of juvenile mussels, through blocking oxygen exchange with the sediment (DoEHLG, 2010a). The survival rates for glochidia in salmonid gills has been found to be in the region of 5%; with a further 5% survival rate for juvenile mussels in gravels in rivers capable of supporting recruitment (DoEHLG, 2010a). If the river water remains strongly turbid for a number of days, mussels can die from oxygen starvation, either from remaining clammed, or from ingesting contaminated water while stressed. During a time of year when water temperatures are high, oxygen depletion in the body occurs more rapidly, and mussels die more quickly (DoEHLG, 2010a).

Juvenile mussels require well-oxygenated and silt-free substrate and riffled habitats in low gradient watercourses frequently provide a suitable mix of rock, cobble and sand substrates. The typical substrate preference is small sand patches stabilised amongst large stones or boulders in fast-flowing streams and rivers (Skinner et al. 2003). Riverbed substratum characteristics appear to be the best physicochemical parameters for describing FPM habitat and for explaining their highly aggregated, non-random spatial dispersion (Hastie, Boon & Young, 2000). Average redox potential loss within the substrate at 5cm at 20% has been shown to be required for juvenile survival by Geist & Auerswald (2007). This is severely affected by siltation, algal growth and decomposition of organic material.

As per European Commission (2001) and Department of the Environment, Heritage and Local Government (2009) guidance, Appropriate Assessments (AA) are to “assess whether there

will be adverse effects on the integrity of the site as defined by the conservation objectives and status of the site". Important indicators of Freshwater pearl mussel integrity include:

- Will the plan or project cause delays in progress towards achieving the conservation objectives of the site?
- Will the plan or project interrupt progress towards achieving the conservation objectives?

Appropriate assessment must consider the current unfavourable condition of populations and their habitat, particularly whether the plan or project could:

- Prolong the poor condition of the Freshwater pearl mussel habitat
- Result in further deterioration in Freshwater pearl mussel habitat condition
- Increase the area of Freshwater pearl mussel habitat negatively effected

And in so doing:

1. Prevent juvenile recruitment, owing to unsuitable juvenile habitat condition
2. Cause stress to adult mussels resulting in reproductive failures
3. Cause mortalities of adult mussels, impacting population size
4. Result in an extended 'gap' in the population's age profile, impacting population size and future reproductive potential
5. Increase the patchiness of mussel distribution, impacting future reproductive potential.

#### **5.5.4 White-clawed crayfish**

The White-clawed Crayfish *Austropotamobius pallipes* is listed in Annex II and V of the EU Habitats Directive (92/42/EEC) and is protected under the Wildlife Act 1976 (Protection of Wild Animals) Regulations, 1990 (SI 112/190). Ireland is required to designate Special Areas of Conservation (SACs) for the species under European and to monitor the status of crayfish populations on a regular basis.

The white-clawed crayfish is Ireland's only crayfish species. The distribution of crayfish in Ireland is limited to lowland (below 220m) lakes, and rivers and streams with underlying Carboniferous limestone (Reynolds 1998). A tributary of the Blackwater River, the Awbeg which flows through an area of karstic limestone, contains what was believed to be the main population of crayfish in Co. Cork. The species was noted as absent from other rivers including the main channel of the Munster Blackwater, believed to be due to a deficiency in lime. Recent surveys have contradicted this. The first records of crayfish in the main channel were from 2009. There have been several other records of crayfish in recent years, including in deep waters downstream of Fermoy Bridge (Sweeney & Sweeney, 2017).

A dedicated species survey in the main Blackwater channel in 2015 by Sweeney & Sweeney established the most recent distribution and population of White-clawed Crayfish in the Munster Blackwater. They found small numbers of crayfish at several sites, in low abundances.

Habitat was not found to be a limiting factor in their distribution, but water quality is important, with crayfish shown to be preferential to unpolluted waters of a quality rating of Q4.

#### **5.5.5 Lamprey species (*Petromyzon marinus*, *Lampetra planeri*, *Lampetra fluviatilis*)**

The Brook lamprey is the smallest of the three-lamprey species native to Ireland and it is the only one of the three species that is non-parasitic and spends all its life in freshwater (Maitland & Campbell 1992). The River lamprey is larger in size than the Brook lamprey and exhibits an anadromous life cycle (i.e. anadromous fish spend most of their adult lives in salt water and migrate to freshwater rivers and lakes to reproduce). The Sea lamprey is the largest of the Irish lampreys. Brook lamprey and Sea lamprey are listed in Appendix II, while River lamprey is listed in both Appendices II and IV of the Habitats Directive (92/43/EEC). All three species are listed in Appendix III of the Berne Convention.

The distribution of Lamprey species in the Blackwater River (Cork/Waterford) SAC is detailed in King & Linnane (2004). Juvenile River/Brook and Sea Lamprey have been recorded from the main Blackwater channel and from the following watercourses: Licky, Bride, Araglin, Clyda, Allow, Owenkeal, Finnow, Owentaraglin, Awanaskirtaun River, Crooked River and Awbeg. Relatively high numbers of all three lamprey species were recorded from the main channel. Petit (2004) noted that

*"The sea lamprey is commonly seen as far upstream as Mallow, where it has been observed spawning. River lamprey has been commonly encountered in the R. Blackwater, and brook lamprey adults have been caught in the upper reaches of the river."*

Maitland and Campbell (1992) list the threats to lamprey as water pollution, barriers to migration and habitat degradation. In Ireland, the single biggest factor limiting the distribution of anadromous lamprey are upstream barriers. Although the data available to date are limited, the impact of artificial barriers on the distribution of lampreys on a number of major rivers is evident. Ecofact (2015) noted that a recently installed dam on a River Blackwater tributary, the Tanyard Stream would severely restricted movement for lamprey and other species on this stream.

#### **5.5.6 Atlantic salmon (*Salmo salar*)**

Salmon are anadromous migratory fish. Adult fish migrate from the sea to river/stream spawning areas, where the young fish live out their juvenile life stages before migrating as adults to the sea. The Blackwater system is considered one of the most important and prolific salmon rivers in Ireland and the main channel is a designated salmonid water (European Communities (Quality of Salmonid Waters) Regulations, 1988).

Salmonoids require clean gravels to complete their life cycle. The infilling of clean gravels with sediment can render them unsuitable for spawning salmonoids and lamprey, or if sedimentation occurs during or immediately after spawning this can cause a reduction in oxygen and lead to death of the larvae.

#### **5.5.7 Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation.**

The EU (2003) definition of the habitat water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation is very broad. There is no satisfactory definition of the habitat and its sub-types or their distribution in Ireland and a lack of relevant monitoring data concerning the habitat. This habitat can occur over a wide range



of physical conditions, from acid, oligotrophic, flashy upland streams dominated by bryophytes to more eutrophic, slow flowing streams dominated by *Ranunculus* and *Callitriche* species. While the former will be sensitive to diffuse pollution the latter, especially in shallow streams, will be relatively more resistant.

This habitat type is commonly distributed along the main Blackwater channel and within its tributaries including both the Allow and Dalua rivers, and includes species such as Pond Watercrowfoot (*Ranunculus peltatus*), Water-crowfoot (*Ranunculus* sp.), Canadian Waterweed (*Elodea canadensis*), Broad-leaved Pondweed (*Potamogeton natans*) and Water Milfoil (*Myriophyllum* spp.).

The NPWS conservation objectives for the Blackwater River (Cork/Waterford) SAC (NPWS 2012) notes the following in relation to this habitat:

*The full distribution of this habitat and its sub-types in this site are currently unknown. The basis of the selection of the SAC for the habitat was the presence of plant species listed in the Interpretation Manual (European Commission, 2007), recorded during the Natural Heritage Area (NHA) survey of the river (internal NPWS files). Further records of these and other aquatic plant species in the Blackwater can be found in Green (2008) and O'Mahony (2009). The dominant floating leaved species appears to be the common and widespread stream water-crowfoot (*Ranunculus penicillatus* subsp. *penicillatus*). No high conservation value subtypes are known to occur in the SAC and further survey is required to determine whether any such are present. Only one rare/threatened vascular plant species is known to occur in the SAC, the protected opposite-leaved pondweed (*Groenlandia densa*), which is abundant in the tidal stretches around Cappoquin.*

## **5.6 Status of qualifying species and habitats for the Blackwater Callows SPA potentially affected by the proposed development.**

### **5.6.1 Whooper Swan**

Whooper Swan is a SCI for Blackwater Callows SPA. Whooper Swans are a winter visitor to wetlands throughout Ireland from October to April. They are primarily herbivorous, feeding on aquatic plants, grasses and agricultural plants such as grain and vegetables. The most recent published swan census (Hall *et al.* 2012) indicated that just over 50% of the habitat usage records for Whooper Swans were for dry improved pasture with 37.5% seen on arable land. Whooper Swan in Ireland are part of the Icelandic population which migrate south for the winter to Ireland and the UK. Whooper Swan occurs in numbers of international importance (212) within the Blackwater Callows SPA. According to the NBDC records, Whooper Swan have been recorded in within R70, the 10km grid square in which the proposed development site is located (NBDC 2020).

### **5.6.2 Wigeon**

Wigeon is a SCI for Blackwater Callows SPA. Wigeon are common and widespread throughout Ireland in the winter where they occur on the coast and in inland wetlands, lakes and rivers. Non-breeding birds occur in the summer months and they rarely breed in Ireland. Away from coasts they graze on algae and regularly feed on grasslands and cereal crops. They are a red-listed species of conservation concern (Colhoun & Cummins 2013). The Blackwater Callows SPA supports nationally important populations of Wigeon (2,313). Wigeon have been recorded throughout grid square R70 (NBDC 2020)

### 5.6.3 Teal

Teal is a SCI for Blackwater Callows SPA. Wintering Teal are widespread in Ireland on wetlands both coastal and inland. They feed predominately on small seeds, with algae (*Ulva* spp.) and molluscs also taken. They do breed in Ireland, although in smaller numbers, and usually nest near small freshwater lakes or pools and small upland streams away from the coast. The Blackwater Callows SPA supports nationally important populations of Teal (898). Teal have been recorded on several occasions within R70 (NBDC 2020).

### 5.6.4 Black-tailed Godwit

Black-tailed Godwit is a SCI for the Blackwater Callows SPA. Black-tailed Godwit are a winter visitor from Iceland. They are an amber listed species in Ireland as they winter in less than ten sites. Visual and tactile feeders, they feed on a range of invertebrates, including bivalves, polychaete worms and shore crabs. Black-tailed Godwit prefer to feed on muddier estuaries, but also feed in brackish pools and on nearby rough pasture. While on pasture, they feed on the larvae of crane fly (*Tipulidae*) and on the amphipod *Corophium volutator*. They have also been recorded feeding on grain in stubble fields on the Wexford Slobs. Nine breeding sites were identified in Ireland during the last breeding atlas. The Blackwater Callows SPA supports nationally important populations of Black-tailed Godwit (251). There are no records of Black-tailed Godwit within R70 (NDBD 2020).

### 5.6.5 Wetlands and waterbirds

Wetlands and Waterbirds is a SCI for the Blackwater Callows SPA. The wetlands around the Blackwater Callows include areas of reed bed, marsh and wet grassland habitats. These habitats are important for listed species and pollution control. The biggest threats to these habitats include direct loss through development and drainage and eutrophication.

## 6. Water Quality

### 6.1 Local Hydrology

The existing quarry and proposed extension area are located within the Blackwater (Munster) Catchment (HA: 18). The site is located with the WFD sub-catchment known as the Funshion (SC\_020).

The sub-catchment boundary/watershed between the Funshion sub-catchment SC\_(020) and Blackwater [Munster] sub-catchment (SC\_100) is located c. 150 m from the proposed quarry extension area.

The River Funshion (IE\_SW\_18F050700) is located c. 1.20 km to the North East of the existing quarry. The River Awbeg [Buttevant] (IE\_SW\_18A051300) is located c. 4.00 km to the west of the existing quarry.

The River Funshion rises in the Galtee Mountains at Kilbehenny, near the Limerick–Tipperary border and flows southwards through the towns of Mitchelstown, Kildorrery, Rockmills and Glanworth before discharging to the River Blackwater south of the town of Fermoy.

The River Funshion is not classified as a salmonid watercourse or a nutrient sensitive water course.

The River Blackwater is classified as a designated salmonid watercourse and a nutrient sensitive river.

The proposed development does not contain any natural watercourses. There are no drains, ponds or artificial water courses in the proposed extension area. The regional hydrological mapping is shown in **Figure 5**.



**Figure 5. Regional Hydrology**

## 6.2 EPA Water Quality Data

The Environmental Protection Agency carries out a biological assessment of most river channels in the country on a regular basis. The assessments are used to derive Q values, indicators of the biological quality of the water. The biological health of a watercourse provides an indication of long-term water quality. The EPA Q value scheme is summarised in **Table 7**. The relationship between the Q-rating system and the Water Framework Directive classification as defined by the Surface Waters Regulations 2009 (S.I. 272 of 2009) is shown in **Table 8**. EPA biological monitoring data for the closest freshwater monitoring sites applicable to the development site, in relation to flow direction and topography are shown in **Table 9** and **Figure 7**.

The Q Value system, which is used by the Environmental Protection Agency, describes the relationship between water quality and the macro-invertebrate community in numerical terms. The presence of pollution causes changes in flora and fauna of rivers. Well documented changes occur in the macro-invertebrate community in the presence of organic pollution: sensitive species are progressively replaced by more tolerant forms as pollution increases. Q5 waters have a high diversity of macro-invertebrates and good water quality, while Q1 have little or no macro-invertebrate diversity and unsatisfactory water quality.



The intermediate ratings Q1-2, Q2-3, Q3-4 and Q4-5 are used to denote transitional conditions, while ratings within parenthesis indicate borderline values. Great importance is attached to the EPA biotic indices, and consequently it is these data that are generally used to form the basis of water quality management plans for river catchments.

The status of the River Funshion in the vicinity of the proposed development site is Good to High both upstream and downstream.

**Table 7. EPA biotic index scheme.**

Q value	Water quality	Pollution	Condition
5	Good	Unpolluted	Satisfactory
4	Fair	Unpolluted	Satisfactory
3	Doubtful	Moderately polluted	Unsatisfactory
2	Poor	Seriously polluted	Unsatisfactory
1	Bad	Seriously polluted	Unsatisfactory

Source: EPA

**Table 8. Correlation between the WFD classification and Q values**

Ecological status WFD	Q Values
High	Q5, Q4-5
Good	Q4
Moderate	Q3-4
Poor	Q3, Q2-3
Bad	Q2, Q1

Source: EPA

**Table 9. EPA water quality status**

Location	Distance from development (as the crow flies)	Q-Value (Most recent)
<b>River Funshion</b>		
Glenavuddig Br (RHS)	4.8km northeast	Q4(Good Status – 2019)
Br NE of Carrigdownane	1.0km east	Q4(Good Status – 2020)
Br at Glanworth	3.1 km southeast	Q4(Good Status – 2021)
Ballynahow Br	6.7km southeast	Q4(Good Status – 2021)
Downing Br	11.01 km southeast	Q4-5(High Status – 2021)
Bridge U/S Blackwater River Confluence	11.4km southeast	Q3-4 (Moderate Status – 2021)
<b>River Blackwater</b>		
W of Kilmurry Ho	15.8km southeast	Q4(Good Status – 2021)

Source: EPA Envision map system



**Figure 7. Location of closest EPA Q-value monitoring sites in relation to proposed development**

### **6.3 River Basin Management Plan for Ireland 2018 – 2021 (3<sup>rd</sup> Cycle)**

The Water Framework Directive (WFD) sets out the environmental objectives which are required to be met through the process of river basin planning and implementation of those plans. Specific objectives are set out for surface water, groundwater and protected areas. The challenges that must be overcome in order to achieve those objectives are significant. Therefore, a key purpose of the River Basin Management Plan (RBMP) is to set out priorities and ensure that implementation is guided by these priorities.

The third cycle RBMP aims to build on the progress made during the first cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has resulted in significant progress in terms both of compliance levels and of the impact of urban wastewater on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first and second cycles.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of our water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are At Risk of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. Data relating to the watercourses within the study area is provided in **Table 10** and shown in **Figure 8**.



**Table 10. Water Framework Directive Data – Relevant data**

Catchment: Blackwater (Munster) (Code 18) –3 <sup>rd</sup> Cycle			
<p>This catchment includes the area drained by the River Blackwater and all streams entering tidal water between East Point and Knockaverry, Youghal, Co. Cork, draining a total area of 3,310km<sup>2</sup>. The largest urban centre in the catchment is Mallow. The other main urban centres in this catchment are Fermoy, Mitchelstown, Youghal, Kanturk and Millstreet. The total population of the catchment is approximately 109,030 with a population density of 33 people per km<sup>2</sup>.</p> <p>The Blackwater rises on the southern side of Knockanefune in the Mullaghareirk Mountains and flows south to Rathmore where it is joined by the Cullavaw River and the Owentaraglin River. The Blackwater continues eastwards to Banteer where it is joined by the Allow River from the north and the Glen River from the south. On its route east, the Blackwater is joined by the Awbeg, and the Cyldagh River before flowing through Mallow and eastwards to Fermoy. Downstream of Fermoy, the river is joined by its tributaries, the Rivers Funshion, Ariglin and Owennashad. The Blackwater becomes tidal, before turning abruptly south at Cappoquin where the Glennafilla River joins from the northeast. The tidal Blackwater is joined by the Finisk River and the Bride River from the west downstream of Villerstown. The Goish, Licky, Glendine and Tourig Rivers drain the lands adjacent to the estuarine part of the catchment, and the Blackwater then flows past Youghal and out to sea through Youghal Harbour.</p>			
<b>Sub catchment data</b>			
<p>Three out of seven river water bodies within the Funshion_SC_020 sub catchment are AT RISK: Farahy_010 and Farahy_020 due to</p> <p>Moderate biological status; Funshion_050 due to not achieving its High Ecological Status objective. Overall ecological status for all three water bodies was driven by invertebrate status. Funshion_040 is under REVIEW due to elevated nutrients.</p> <p>Agricultural activities are the main significant pressures throughout the sub catchment. In addition, forestry activities (notably clear-felling) may be exacerbating siltation issues within Farahy_010 and Farahy_020.</p>			
Funshion SC_020			
Sub-basin	WFD Status (2013-2018)	WFD Risk	Significant Pressures
Funshion_050	Good	At risk	Agriculture
Funshion_060	Good	Not at risk	na
Funshion_070	Good	Not at risk	na





**Figure 8. River Waterbodies relevant to the proposed project | Source: wfdireland map system & [www.catchments.ie](http://www.catchments.ie)**

## 7. Site Surveys

### 7.1 Habitat survey

A site walkover survey was carried out on the 8th June 2022, 10th June 2022, 6th April 2023, 26th April 2023. Habitat mapping was carried out in line with the methodology outlined in the Heritage Council Publication, Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011). The terrestrial and aquatic habitats within or adjacent to the proposed development site was classified using the classification scheme outlined in the Heritage council publication *A Guide to Habitats in Ireland* (Fossitt, 2000) and cross referenced with Annex I Habitats where required.

It is proposed that the existing quarry will be extended into agricultural land to the west and southwest of the existing quarry. The existing quarry is dominated by highly disturbed habitats with some planted trees along external boundaries. Natural or semi-natural vegetation is largely absent with the exception of common ruderal species. The proposed extension area is dominated by improved pasture for cattle with limited species diversity. Field boundaries consist primarily of hedgerows with sections of mature treeline. There are no watercourses or waterbodies within the proposed development site. No Annex I habitats were recorded within the existing quarry or proposed development site. Habitats recorded within the site are described in **Table 11** and illustrated in **Figure 9**.

**Table 11. Habitat present within proposed development site**

Habitat	Comments
Improved agricultural grassland (GA1)	<p>The dominant habitat within the proposed development area are one large field of improved agricultural grassland on level ground. This area has not recently been grazed or cut with dense growth of low diversity grassland.</p> <p>Perennial Rye Grass is the dominant grass species with Yorkshire Fog, Cocksfoot and Smooth Meadow Grass also recorded. Herbaceous species noted included Mayflower, Field Sorrel, Curled Dock, Hogweed, Common Mouse Ear, Red Clover, Field Thistle, Creeping Buttercup, Ragweed and Dandelion. These are all common constituents of this type of managed agricultural grassland. The second large field has a short sward and less biodiversity. Species noted include</p> <p>This is not an Annex I habitat and is not a qualifying interest for the Blackwater River (Cork/Waterford) SAC</p>
Earthbank (BL2)/Improved agricultural grassland (GA1)/Dry meadows and grassy verges (GS2)	<p>A berm forms the western boundary of the existing quarry. It is dominated by common grass species and is similar in species composition to the adjoining improved agricultural grassland. Grass species include Perennial Rye Grass and Yorkshire Fog. Herbaceous species include Bramble, Hogweed and Field Thistle. Trees have been planted along the berm</p> <p>On the northern boundary of the existing quarry, where the berm is wider and the soil is less fertile, this forms a mosaic of Improved agricultural grassland (GA1)/Dry meadows and grassy verges (GS2). Species recorded in this area include Cocksfoot, Yorkshire Fog, Creeping Buttercup, Clovers, Speedwell, Ragweed, Primrose, Nettle, False Oat grass, Field Thistle and Buddleia. Some immature Sycamore have begun to recolonise this area.</p> <p>GS2 has links with Annex I habitat i.e. Corresponds to the annexed habitat, 'lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) (6510)'. However, the grassland mosaic within the proposed development site does not correspond to this Annex I habitat.</p> <p>This is not an Annex I habitat and is not a qualifying interest for the Blackwater River (Cork/Waterford) SAC</p>
Hedgerows (WL1)/Treelines (WL2)	<p>Boundary habitats consist primarily of good quality hedgerows with occasional mature trees and treelines.</p>



Habitat	Comments
	<p>A review of historical mapping (Ref: <a href="http://www.OSI.ie">www.OSI.ie</a>) indicates that some internal boundaries that were present in the 1800s were no longer present by 1995. However, the external boundaries have remained broadly similar.</p> <p>Hedgerows within the site support a high proportion of native species particularly Elder, Hawthorn, Blackthorn and Bramble. Gorse and Bracken also occur but are more limited in extent.</p> <p>Climbing plants such as Dog Rose and Honeysuckle have a patchy distribution. Fertiliser drift and heavy shade has reduced diversity in the ground layer and in the grassy verge alongside the hedge. Species noted include Cow Parsley, Hogweed, Male Fern, Ladies Fern, Herb Robert, Lesser Celendine, , Hartstongue Fern, Lesser Dog Greater Stichwort, Gemander Speedwell, Goosegrass, Nettle and Yorkshire Fog.</p> <p>Apart from small sections of distinct treeline, large trees are limited in extent with a small number of larger individual Sycamore noted.</p> <p>The largest section of distinct treeline (A-B on Figure 8.3) is dominated by 12 semi-mature Sycamore and one semi-mature Ash. A smaller treeline of 5 semi-mature ash (C-D on Figure 8.3) is located along the southern boundary of the agricultural field. Several of these trees are showing symptoms of Ash die back disease and these trees are unlikely to survive in the absence of development. A small section of treeline runs along the eastern boundary of the exiting quarry. The short section of treeline is dominated by Ash with relatively dense ivy. Hedgerow species include Nettle, Hawthorn, immature Sycamore, Wild Rose, Blackthorn and Elder</p> <p>The semi mature/mature trees have some ivy covering, and the presence of occasional roosting bats cannot be entirely precluded but they are not of significant value as potential bat roosts.</p> <p>The hedgerows along the site boundaries are generally well maintained and this regular trimming keeps the hedges dense. This improves the structure of these hedges for breeding birds. The height of the hedges varies considerably. Some open sections are dominated by grasses and low growing bramble but these areas are limited in extent.</p> <p>The mixture of hedges/treelines occurring within the site is of local value for wildlife. These mature, native hedgerows can provide important habitats for local wildlife such as birds, insects, mammals and commuting routes and nesting habitat. Nearly two thirds of Ireland's bird species nest in hedges. The berries of the spinose species recorded are particularly important as a source of winter food to both migratory species and resident species. Bats also like to roost in old, hollow hedgerow trees and hunt for insects along the hedge itself. Hundreds of different species of invertebrates have found their niches on the leaves, twigs and bark of hedgerow</p>



Habitat	Comments
	<p>shrubs. In general, mature, native and well managed hedgerows with a broad diversity of plant species are the most beneficial to wildlife.</p> <p>This is not an Annex I habitat and is not a qualifying interest for the Blackwater River (Cork/Waterford) SAC</p>
Buildings and artificial surfaces (BL3)	A surfaced track provides access to the active quarry from the local road L5612.
Active quarries and mines (ED4)	<p>The existing active quarry includes the active faces, access tracks and stockpiled materials. Generally these habitats are of minimal ecological value, however areas of cliff and stockpiles support Sand Martin colonies (see Section 8.4.3.10 for details). It is noted that there is no dewatering required onsite, as all extraction takes place at least 1 metre above the water table. Therefore, there are no drains/lagoons within the active quarry.</p> <p>This habitat does not correspond to an Annex I habitat</p>

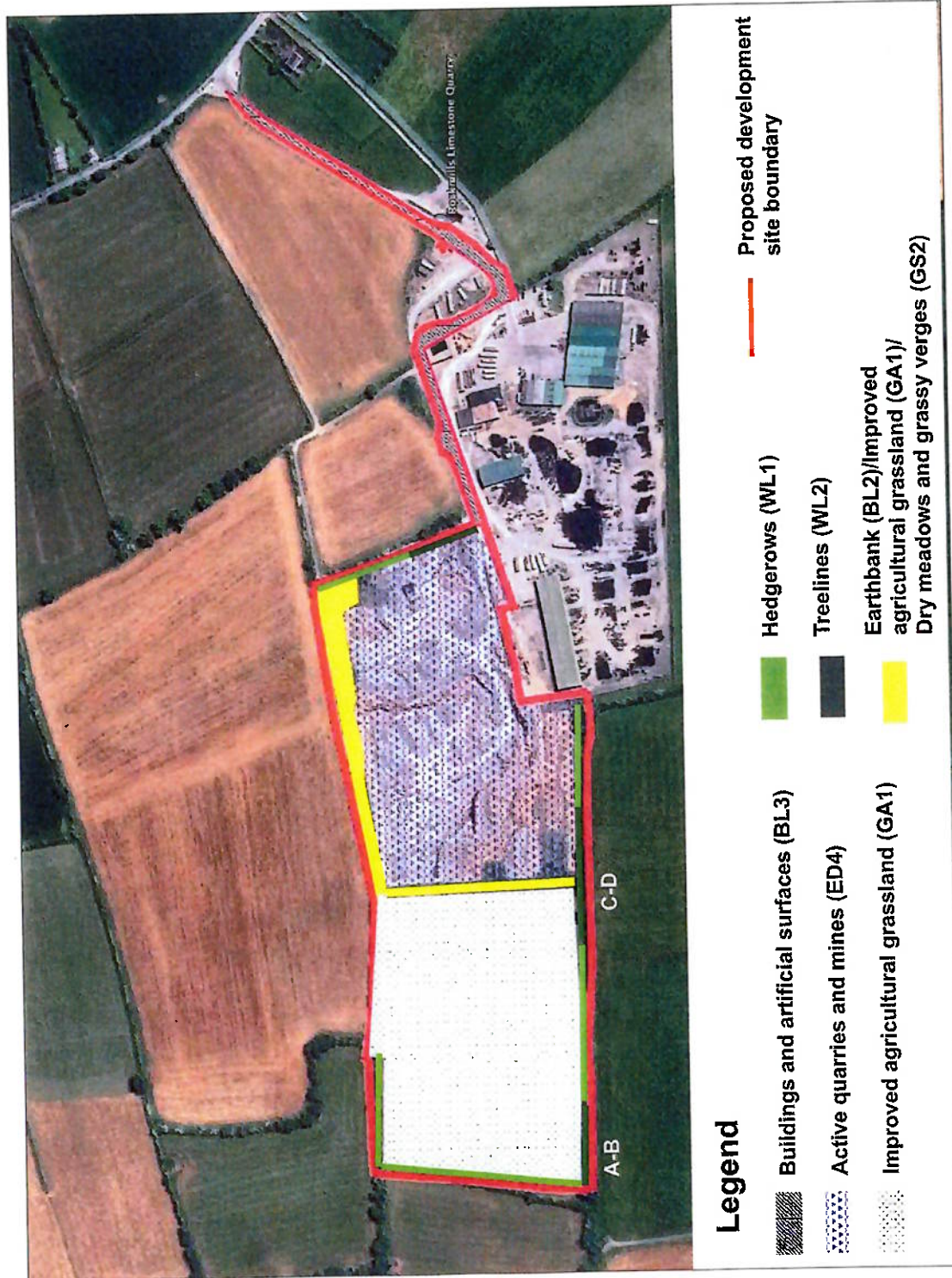


Figure 9. Habitats recorded within proposed development site boundary

## 7.2 Otter

Otter *Lutra lutra*, along with their breeding and resting places are protected under the provisions of the Wildlife Act 1976, as amended. Otters have additional protection because of their inclusion in Annex II and Annex IV of the Habitats Directive which is transposed into Irish law in the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I 477 of 2011), as amended. Otters are also listed as requiring strict protection in Appendix II of the Berne Convention on the Conservation of European Wildlife and Natural Habitats and are included in the Convention on International Trade of Endangered species (CITES).

Although rare in parts of Europe, they are widely distributed in the Irish countryside in both marine and freshwater habitats. Otters are solitary and nocturnal and as such are rarely seen. Thus, surveys for Otters rely on detecting signs of their presence. These include spraints (faeces), anal gland secretions, paths, slides, footprints, and remains of prey items.

Spraints are of value as they are used as territorial markers and are often found on prominent locations such as grass tussocks, stream junctions and under bridges. In addition, they are relatively straightforward to identify.

Otters occasionally dig out their own burrows but generally they make use of existing cavities as resting places or for breeding sites. Suitable locations include eroded riverbanks, under trees along rivers, under fallen trees, within rock piles or in dry drainage pipes or culverts etc. If ground conditions are suitable, the holt may consist of a complex tunnel and chamber system. Otters often lie out above ground especially within reed beds where depressions in the vegetation called "couches" are formed. (NRA, 2008). Generally, holts or resting areas can be located by detecting signs such as spraints or tracks.

In contrast natal holts which are used by breeding females can be extremely difficult to locate. They are often located a considerable distance from any aquatic habitats and Otters may also use habitats adjoining small streams with minimal or no fish populations. In addition, natal holts are usually carefully hidden and without obvious sprainting sites. Otters do not have a well-defined breeding season. It is noted that Otters are largely nocturnal, particularly in areas subject to high levels of disturbance as evidenced by the presence of Otters in the centre of Cork and Limerick City.

Otter have been recorded on three occasions in R70, the most recent in September 2013 (Source NBDC 03/05/23). The River Funshion is located approximately 1.2km northeast of the proposed development site. Otter have been recorded on this river downstream of the site. There are no watercourses or wetland habitats within the proposed development site (either the proposed extension area or existing quarry) which could provide foraging habitat for Otter. No signs of Otter were recorded within 150m of the proposed development site. The proposed development site is of low local value for Otter.



### 7.3 Birds

The NBDC has recorded the following Annex I bird species in R70; Kingfisher *Alcedo atthis*, Golden Plover *Pluvialis apricari*, Merlin *Falco columbarius*, Peregrine Falcon *Falco peregrinus* and Whooper Swan *Cygnus cygnus*. No Annex I species were recorded during the site surveys.

A general bird survey was carried out in conjunction with the habitat survey on 8<sup>th</sup> June 2022, 10<sup>th</sup> June 2022, 6<sup>th</sup> April 2023, 26<sup>th</sup> April 2023. During the survey, all birds seen or heard within the development site were recorded. Bird species listed in Annex I of the Birds Directive are considered a conservation priority. Certain bird species are listed by BirdWatch Ireland as Birds of Conservation Concern in Ireland (BOCCI). These are bird species suffering declines in population size. BirdWatch Ireland and the Royal Society for the Protection of Birds have identified and classified these species by the rate of decline into Red and Amber lists. Red List bird species are of high conservation concern and the Amber List species are of medium conservation. Green listed species are regularly occurring bird species whose conservation status is currently considered favourable. Bird species listed in Annex I of the Birds Directive (2009/147/EC) are considered a conservation priority. Species recorded within the site are shown in **Table 12**.

**Table 12. Bird species recorded during site surveys**

Species		Birds Directive	BOCCI	
		Annex I	Red List	Amber List
<i>Hirundo rustica</i>	Barn Swallow			X
<i>Turdus merula</i>	Blackbird			
<i>Parus caeruleus</i>	Blue Tit			
<i>Fringilla coelebs</i>	Chaffinch			
<i>Carduelis carduelis</i>	Goldfinch			
<i>Parus major</i>	Great Tit			
<i>Carduelis chloris</i>	Greenfinch			X
<i>Corvus cornix</i>	Hooded Crow			
<i>Corvus monedula</i>	Jackdaw			
<i>Falco tinnunculus</i>	Kestrel		X	
<i>Anthus pratensis</i>	Meadow Pipit		X	
<i>Motacilla alba</i>	Pied Wagtail			
<i>Erithacus rubecula</i>	Robin			
<i>Corvus frugilegus</i>	Rook			
<i>Riparia riparia</i>	Sand Martin			X

Species		Birds Directive	BOCCI	
		Annex I	Red List	Amber List
<i>Turdus philomelos</i>	Song Thrush			
<i>Saxicola rubicola</i>	Stonechat			
<i>Columba palumbus</i>	Woodpigeon			
<i>Troglodytes troglodytes</i>	Wren			

The surrounding landscape is dominated by a mix of good quality agricultural land. The proposed extension area is dominated by pasture. Site boundaries within the extension area include a mixture of hedgerows and treelines which are of value for breeding birds and provide foraging resources. A well-managed, mature, hedgerow will have a three-dimensional structure that provides a range of habitats for invertebrates, birds and mammals. Mature hedgerow trees are often the most valuable because their many branches, fissured bark and holes provide nesting and roosting spaces for birds such as tits and tree creepers.

One Red List species *Anthus pratensis* Meadow Pipit was recorded within the extension area. A single bird was recorded overflying the grassland habitat. While breeding was not confirmed, this species could potentially be breeding within the extension area, as this has not been grazed or cut recently. It is noted that this species will not occur in intensively managed agricultural grassland. Two Amber List species Swallow *Hirundo rustica* and Greenfinch *Carduelis chloris* were also recorded within the extension area.

The Red List species Kestrel *Falco tinnunculus* was recorded overflying the existing quarry area. However, no signs of Kestrel breeding activity were recorded. Signs of Sand martin *Riparia riparia* activity were recorded within the cliffs and stockpiles at the site during the 2023 breeding season. The location of Sand Martin nests will vary from year to year depending primarily on the stability and type of cliff faces available. The location of Sand Martin colonies for the 2023 breeding season is shown in Figure 8.5. Active Sand Martin nest holes were recorded in three locations around the quarry within stockpiles and cliff faces. Although this is too early in the breeding season to assess breeding success, holes appear relatively recent in origin and are likely to indicate current active breeding behaviour.

No SCI birds for the Blackwater Callows SPA were recorded during the site surveys. While terrestrial wading birds and waterfowl will forage on grassland habitats, given the large areas of similar habitat in the vicinity and distance from the Blackwater Callows SPA, the proposed development site does not provide critical foraging habitat for SCI species.

### 7.3 Invasive Species

Non-native plants are defined as those plants which have been introduced outside of their native range by humans and their activities, either purposefully or accidentally. Invasive non-native species are so-called as they typically display one or more of the following

characteristics or features: (1) prolific reproduction through seed dispersal and/or re-growth from plant fragments; (2) rapid growth patterns; and, (3) resistance to standard weed control methods.

Where a non-native species displays invasive qualities and is not managed it can potentially: (1) out compete native vegetation, affecting plant community structure and habitat for wildlife; (2) cause damage to infrastructure including road carriageways, footpaths, walls and foundations; and, (3) have an adverse effect on landscape quality. Where a non-native species displays invasive qualities and is not managed it can potentially: (1) out compete native vegetation, affecting plant community structure and habitat for wildlife; (2) cause damage to infrastructure including road carriageways, footpaths, walls and foundations; and, (3) have an adverse effect on landscape quality. The NBDC lists a number of both aquatic and terrestrial high impact invasive plant species which have been recorded within hectad R70, the 10km OS grid square which overlaps with the proposed development site (**Table 13**). It should be noted that this data relates to the entire 10km<sup>2</sup> area and these species will not necessarily occur within the proposed development site boundary.

**Table 13. NBDC records of high impact invasive species from R70**

Species Group	Species Name
Flowering plant	Canadian Waterweed ( <i>Elodea canadensis</i> )
Flowering plant	Cherry Laurel ( <i>Prunus laurocerasus</i> )
Flowering plant	Curly Waterweed ( <i>Lagarosiphon major</i> )
Flowering plant	Fringed Water-lily ( <i>Nymphoides peltata</i> )
Flowering plant	Giant Hogweed ( <i>Heracleum mantegazzianum</i> )
Flowering plant	Indian Balsam ( <i>Impatiens glandulifera</i> )
Flowering plant	Japanese Knotweed ( <i>Fallopia japonica</i> )
Terrestrial mammal	American Mink ( <i>Mustela vison</i> )
Terrestrial mammal	Fallow Deer ( <i>Dama dama</i> )

Source: NBDC 03/05/23

The control of invasive species in Ireland comes under the Wildlife (Amendment) Act 2000, where it states that:

*'Any person who— [...] plants or otherwise causes to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores of flora, [refers only to exotic species thereof][...] otherwise than under and in accordance with a licence granted in that behalf by the Minister shall be guilty of an offence.'*

*The Birds and Natural Habitats Regulations 2011 (SI 477 of 2011), Section 49(2) prohibits the introduction and dispersal of species listed in the Third Schedule, which includes Japanese Knotweed Fallopia japonica, as follows: "any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow [...] shall be guilty of an offence."*



No third schedule invasive species or species which are at risk of having damaging effects (Kelly et al 2013), were recorded within the proposed development site. The non-native invasive species *Buddleia* was recorded along the grassy berms on the northern boundary of the existing quarry. This species is not included in the Third Schedule of the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011). Therefore, its presence at the site does not have the potential to lead to an offence under the Birds and Natural Habitats Regulations 2011 (S.I. 477 of 2011). However, *Buddleia* is classified as an Amber Threat species by Invasive Species Ireland and a medium impact species by the NBDC, which under the right ecological conditions may have a negative impact on native species or habitats.

## 8. Potential Impacts

Potential impacts could arise from the following:

- Potential impacts from loss of habitat.
- Potential impacts from noise and disturbance
- Potential impacts on water quality during construction
- Potential impacts on water quality during operation
- Spread of invasive species
- In-combination Impacts

### 8.1 Potential impacts from loss of habitat

Any habitat loss of European sites or deterioration in habitat quality would reduce the extent of habitat available for SCI/QI species. This could potentially decrease the viability of existing QI habitats and increase the pressure on existing habitat and may result in further deterioration.

The proposed development site does not overlap with any European site. The Blackwater River (Cork/Waterford) SAC is located 4km west and the Blackwater Callows SPA is located 12.4km southeast of the proposed development site. An ecological appraisal of the proposed development site indicates that it supports common habitats which are not of high value and are not qualifying habitats for European sites.

There are no wetland habitats or watercourses which could provide valuable *ex situ* habitats for Otter. No signs of Otters were recorded within 150m of the proposed development site. There will be no reduction in *ex situ* habitats for Otter as a result of the proposed development.

The grassland habitats within the proposed development site are similar to large areas of habitat in the immediate vicinity. No SCI species were recorded within the proposed development site during any of the site surveys. Therefore, the loss of grassland habitats at the site will not reduce *ex situ* foraging habitat for the SCI birds of the Blackwater Callows SPA.

The proposed development will not result in any significant deterioration in habitat quality, loss of habitat or loss of connectivity within the Blackwater River (Cork/Waterford) SAC, the Blackwater Callows SPA or any other European site. Therefore, it has been concluded that the proposed development will not result in any loss or deterioration of habitat within European sites.

## **8.2 Potential impacts from noise and disturbance**

Potentially increased noise and disturbance associated with the site works could cause disturbance/displacement of fauna. The proposed development is located approximately 4km from the Blackwater River (Cork/Waterford) SAC and the terrestrial QI species Otter could theoretically occur within the proposed development site.

Otter is listed on Annex II of the Habitats Directive and is a QI for the Blackwater River (Cork/Waterford) SAC. Potential impacts could arise due to disturbance of Otter as a result of increased noise and activity during site works. This could potentially lead to changes in feeding behaviour which if of sufficient severity could impact on reproductive success. Disturbance of breeding Otter could also have an impact on overall populations within the Blackwater River (Cork/Waterford) SAC.

As noted in **Section 7.2**, no Otter holts or signs of Otter were noted during the site survey. The closest watercourse, the River Funshion is located approximately 1.2km from the site. There are no watercourses or wet grassland habitat within the proposed development site which could provide foraging habitat for Otter. It is considered highly improbable that Otter holts occur in close proximity to the proposed development given the low value breeding habitat available and the ready availability of alternative sites which are not subject to the same level of disturbance. During the construction and operational stage, there will be increases in noise and disturbance at the site. Blasting will take place during operation of the facility. This will be limited to a maximum of one blast per month and take place during daytime hours. Noise emissions will be in line with the licensing requirements. It is noted that the proposed development site is located immediately adjacent to an existing active quarry. Given the existing noise environment and the lack of valuable habitat for Otter, no significant impact on Otter have been identified, either during construction or operation of the proposed development. Therefore, no impact from the proposed development on for Otter as a qualifying interest for the Blackwater River (Cork/Waterford) SAC from increased noise and disturbance will occur.

Given the distance of the proposed development from the Blackwater Callows SPA, no disturbance impacts have been identified.

## **8.3 Potential impacts from surface water**

Potential impacts on aquatic habitats which can arise from surface water emissions during the construction or operation phase of the proposed development include increased silt levels in surface water run-off during stripping operations or the erosion of the bund during heavy rainfall and/or contamination of groundwater due to inadvertent spillages of hydrocarbons from fuel and hydraulic fluid.

It is noted that environmental control measures will implemented during construction/operation of the quarry in line with standard guidelines. Whilst the implementation of such measures during construction will assist in minimising impacts on the local environment, the implementation of these measures has not been taken into consideration in this screening report when reaching a conclusion as to the likely impact of the development on European sites.

Inadvertent spillages of hydrocarbon and/or other chemical substances during construction and operation could introduce toxic chemicals into the aquatic environment via direct means, surface water run-off or groundwater contamination. Some hydrocarbons exhibit an affinity for sediments and thus become entrapped in deposits from which they are only released by vigorous erosion or turbulence. Oil products may contain various highly toxic substances, such as benzene, toluene, naphthenic acids and xylene which are to some extent soluble in water; these penetrate into the fish and can have a direct toxic effect. The lighter oil fractions (including kerosene, petrol, benzene, toluene and xylene) are much more toxic to fish than the heavy fractions (heavy paraffins and tars). In the case of turbulent waters, the oil becomes dispersed as droplets into the water. In such cases, the gills of fish can become mechanically contaminated and their respiratory capacity reduced (Svobodova *et al.* 1993).

High levels of silt can also impact on fish species. If of sufficient severity, adult fish could theoretically be affected by increased silt levels as gills may become damaged by exposure to elevated suspended solids levels. If of sufficient severity, aquatic invertebrates may be smothered by excessive deposits of silt from suspended solids. In areas of stony substrate, silt deposits may result in a change in the macro-invertebrate species composition, favouring less diverse assemblages and impacting on sensitive species. Cement can also affect fish, plant life and macroinvertebrates by altering pH levels of the water.

Aquatic plant communities may also be affected by increased siltation. Submerged plants may be stunted and photosynthesis may be reduced. Significant impacts on fish stocks could impact on piscivorous species such as Otter due to a reduction in prey availability. Such run-off if severe could potentially result in changes in the ecology of the River Blackwater.

There are no watercourses in the vicinity of the proposed development site. The closest watercourse is the River Funshion 1.2km northeast. There is no general stormwater pipework or management system at the site. All rainfall that falls within the footprint of the quarry infiltrates into the services area floor or the quarry floor and migrates vertically down to the water table. There is the potential for minor leaks of hydraulic and engine oil to occur from the vehicles and mobile plant accessing the extension area. However, given the volumes involved and the attenuation capacity provided by the *in situ* soils any such incidents will have only a slight and highly localised negative impact on the groundwater in the subsoils no impact on the bedrock aquifer. There is no dewatering required onsite, as all extraction takes place at least above the water table (maximum recorded groundwater level of 62.93 m AOD @ GW2 in January 2021).

The proposed development site is located a considerable distance upstream of the Blackwater River (Cork/Waterford) SAC i.e., 17.7km upstream via the River Funshion. Given the absence of a direct hydrological connection to the River Funshion, the distance from the River Funshion from the proposed development site and the dilution available 17.7km upstream of the Blackwater River (Cork/Waterford) SAC and Blackwater Callows SPA there is no significant risk silt or hydrocarbon contamination within these European sites. Therefore, no impact on water quality within European sites during construction or operation is predicted to occur.



## 8.4 Potential Impacts from wastewater

There would be no alteration to the existing infrastructure, management, or control systems as part of the proposed development. There will be no increased wastewater discharges and therefore no impact on European sites.

## 8.5 Spread of Invasive Species

No high-risk invasive species were recorded within the proposed development. Given the distance from the SAC/SPA and the absence of direct hydrological connection, there is no potential for the medium impact species Buddleia to impact on these European sites. Therefore, there is no risk to Blackwater River (Cork/Waterford) SAC or Blackwater Callows SPA via impacts from the spread of invasive species.

## 8.6 In-combination Impacts

In-combination impacts refer to a series of individual impacts that may, in combination, produce a significant effect. The underlying intention of this in combination provision is to take account of in-combination impacts from existing or proposed plans and projects and these will often only occur over time.

High negative pressures, threats and activities identified for the Blackwater River (Cork/Waterford) SAC include grazing, fertilisation, mowing and cutting of grassland. The area surrounding the proposed development site is heavily agriculturalized. Intensive agriculture in particular can have significant impacts on aquatic ecology by increasing nutrients and sediment loads. Wastewater is also discharged from settlements such as Mallow, Kanturk and Fermoy. Surface water run-off during the construction phase could potentially be contaminated with silt, hydrocarbons or other chemicals. This could potentially lead to in-combination impacts within the Blackwater River (Cork/Waterford) SAC and Blackwater Callows SPA. Other developments which could potentially cause in-combination impacts are listed in **Table 14**.

**Table 14. Other developments near site and potential in-combination impacts**

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
<b>River Basin Management Plan 2021-2027</b>	<p>The project should comply with the environmental objectives of the Irish RBMP which are to be achieved generally by 2027.</p> <ul style="list-style-type: none"><li>• Ensure full compliance with relevant EU legislation</li><li>• Prevent deterioration</li><li>• Meeting the objectives for designated protected areas</li><li>• Protect high status waters</li><li>• Implement targeted actions and pilot schemes in focus sub-catchments aimed at: targeting water bodies close to meeting their objective and addressing more complex issues</li></ul>	<p>The implementation and compliance with key environmental policies, issues and objectives of this management plan will result in positive in-combination effects to European sites. The implementation of this plan will have a positive impact for the biodiversity. It will not contribute to in-combination or in-combination impacts with the proposed development.</p>

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
	which will build knowledge for the third cycle.	
<b>Inland Fisheries Ireland Corporate Plan 2021-2025</b>	<p>To ensure that Ireland's fish populations are managed and protected to ensure their conservation status remains favourable. That they provide a basis for a sustainable world class recreational angling product, and those pristine aquatic habitats are also enjoyed for other recreational uses.</p> <p>To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected.</p> <p>To grow the number of anglers and ensure the needs of IFI's other key stakeholders are being met in a sustainable conservation focused manner.</p> <p>EU (Quality of Salmonid Waters) Regulations 1988. All works during development and operation of the project must aim to conserve fish and other species of fauna and flora habitat; biodiversity of inland fisheries and ecosystems and protect spawning salmon and trout.</p>	The implementation and compliance with key environmental issues and objectives of this corporate plan will result in positive on-combination effects to European sites. The implementation of this corporate plan will have a positive impact for biodiversity of inland fisheries and ecosystems. It will not contribute to in-combination or in-combination impacts with the proposed works.
<b>Irish Water Capital Investment Plan 2020-2024</b>	Proposals to upgrade and secure water services and water treatment services countrywide.	Likely net positive impact due to water conservation and more effective treatment of water.
<b>Water Services Strategic Plan (WSSP, 2015)</b>	<p>Irish Water has prepared a Water Services Strategic Plan (WSSP, 2015), under Section 33 of the Water Service No. 2 Act of 2013 to address the delivery of strategic objectives which will contribute towards improved water quality and biodiversity requirements through reducing:</p> <ul style="list-style-type: none"> <li>• Habitat loss and disturbance from new / upgraded infrastructure;</li> <li>• Species disturbance;</li> <li>• Changes to water quality or quantity; and</li> <li>• Nutrient enrichment /eutrophication.</li> </ul>	The WSSP forms the highest tier of asset management plans (Tier 1) which Irish Water prepare and it sets the overarching framework for subsequent detailed implementation plans (Tier 2) and water services projects (Tier 3). The WSSP sets out the challenges we face as a country in relation to the provision of water services and identifies strategic national priorities. It includes Irish Water's short, medium and long-term objectives and identifies strategies to achieve these objectives. As such, the plan provides the context for subsequent detailed implementation plans (Tier 2) which will document the approach to be used for key water service areas such as water resource management, wastewater compliance and sludge management. The WSSP also sets out the strategic objectives against which the Irish Water Capital Investment Programme is developed. The current version of the CAP outlines the proposals for capital expenditure in terms of

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
		<p>upgrades and new builds within the Irish Water owned assets.</p> <p>The overarching strategy was subject to AA and highlighted the need for additional plan/project environmental assessments to be carried out at the tier 2 and tier 3 level. Therefore, no likely significant in-combination effects are envisaged.</p>
<b>WWTP discharges</b>	<p>Ballyclough, Ballydesmond, Ballyduff WWTP, Ballyhooley, Banteer WWTP, Boherbue WWTP, Bweeng, Castlemagner, Cecilstown, Clondulane, Cullen, Dromahane WWTP, Fermoy WWTP, Freemount, Kanturk WWTP, Kilbrin, Killavullen WWTP, Kilworth, Kiskeam, Knocknagree, Lismore WWTP, Lombardstown, Mallow WWTP, Meelin, Millstreet WWTP, Nad, Newmarket, Rathcool, Rathmore WWTP</p>	<p>Discharges from municipal WWTPs are required to meet water quality standards. Irish Water Capital Investment Plan 2014-2016 and 2017 – 2021 proposes to upgrade water treatment services countrywide. The long-term in-combination impact is predicted to be negligible.</p>
<b>Other developments</b>	<p>A review of Cork County Council planning portal shows that three planning applications have been submitted to Cork County Council for Carrigdownane Upper and Lower, Lisnagooreen and Ballynahisk, in the last 24-month period (17<sup>th</sup> March 2023).</p> <p>215792. Rockmills Quarry, Carrigdownane Upper, Rockmills, Kildorrery, Co. Cork. Permission to retain the quarry service yard extension, control room, lime crusher enclosure, lime storage shed, site office, generator enclosure, weighbridge office, and lime manufacturing, and for permission to extend the lime storage shed, all at the existing quarry.</p>	<p>Future developments will only be granted permission where discharges from same meet with relevant water quality standards. The long-term in-combination impact is predicted to be negligible.</p>

There are no watercourses within or in the immediate vicinity of the proposed development site. Given there are no direct discharges to surface water and no significant impact on groundwater has been identified, there is no potential for cumulative or in-combination impacts in relation to water quality within European sites.

No significant development is proposed in the vicinity of the proposed development and therefore in the short-medium term, no in-combination noise and disturbance impacts have been identified. In the case of future developments, it is noted that the proposed development is subject to environmental management in compliance with legal requirements and under the conditions of previous planning applications 15/5484 and 21/5792. Therefore, no significant in-combination noise impacts have been identified. Given the distance of European sites from the proposed development, no in-combination disturbance impacts in relation to designated sites have been identified.



In absence of any significant impact associated with this project no in combination impacts on water quality have been identified. Similarly, no significant in-combination impacts in relation to noise and disturbance have been identified.

## **9. Screening conclusion and statement**

This AA screening report has been prepared to assess whether the proposed development, individually or in-combination with other plans or projects, and in view of best scientific knowledge, is likely to have a significant effect on any European site(s).

The screening exercise was completed in compliance with the relevant European Commission guidance, national guidance, and case law. The potential impacts of the proposed development have been considered in the context of the European sites potentially affected, their qualifying interests or special conservation interests, and their conservation objectives.

Through an assessment of the source-pathway-receptor model, which considered the ZoI of effects from the proposed development and the potential in-combination effects with other plans or projects, the following findings were reported:

The proposed development Carrigdownhane Upper Co. Cork, either alone or in-combination with other plans and/or projects, does not have the potential to significantly affect any European Site, in light of their conservation objectives.

Therefore, a Stage 2 Appropriate Assessment is deemed not to be required.

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## Appendices

### Appendix 1 Site synopses

#### Blackwater River (Cork/Waterford) SAC (Site Code 2170) Site Synopsis

The River Blackwater is one of the largest rivers in Ireland, draining a major part of Co. Cork and five ranges of mountains. In times of heavy rainfall the levels can fluctuate widely by more than 12 feet on the gauge at Careysville. The peaty nature of the terrain in the upper reaches and of some of the tributaries gives the water a pronounced dark colour. The site consists of the freshwater stretches of the River Blackwater as far upstream as Ballydesmond, the tidal stretches as far as Youghal Harbour and many tributaries, the larger of which include the Licky, Bride, Flesk, Chimneyfield, Finisk, Araglin, Awbeg (Buttevant), Clyda, Glen, Allow, Dalua, Brogeen, Rathcool, Finnow, Owentaraclin and Awnaskirtaun. The portions of the Blackwater and its tributaries that fall within this SAC flow through the counties of Kerry, Cork, Limerick, Tipperary and Waterford. Nearby towns include Rathmore, Millstreet, Kanturk, Banteer, Mallow, Buttevant, Doneraile, Castletownroche, Fermoy, Ballyduff, Rathcormac, Tallow, Lismore, Cappoquin and Youghal.

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

- [1130] Estuaries
- [1140] Tidal Mudflats and Sandflats
- [1220] Perennial Vegetation of Stony Banks
- [1310] Salicornia Mud
- [1330] Atlantic Salt Meadows
- [1410] Mediterranean Salt Meadows
- [3260] Floating River Vegetation
- [91A0] Old Oak Woodlands
- [91E0] Alluvial Forests\*
- [1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*)
- [1092] White-clawed Crayfish (*Austropotamobius pallipes*)
- [1095] Sea Lamprey (*Petromyzon marinus*)
- [1096] Brook Lamprey (*Lampetra planeri*)
- [1099] River Lamprey (*Lampetra fluviatilis*)
- [1103] Twaite Shad (*Alosa fallax*)
- [1106] Atlantic Salmon (*Salmo salar*)
- [1355] Otter (*Lutra lutra*)
- [1421] Killarney Fern (*Trichomanes speciosum*)

The conservation objectives for the site are detailed in: NPWS (2012) Conservation Objectives: Blackwater River (Cork/Waterford) SAC 002170, Version 1. NPWS, Department of Arts, Heritage & the Gaeltacht (dated 31 July 2012). The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest.

The Blackwater rises in boggy land in east Kerry, where Namurian grits and shales build the low heather-covered plateaux. Near Kanturk the plateaux enclose a basin of productive Coal Measures. On leaving the Namurian rocks the Blackwater turns eastwards along the northern slopes of the Boggeragh Mountains before entering the narrow limestone strike vale at Mallow. The valley deepens as first the Nagles Mountains and then the Knockmealdowns impinge upon it. Interesting geological features along this stretch of the Blackwater Valley include limestone cliffs and caves near the villages and small towns of Killavullen and Ballyhooly; the Killavullen caves contain fossil material from the end of the glacial period. The associated basic soils in this area support the growth of plant communities which are rare in Cork because in general the county's rocks



are acidic. At Cappoquin the river suddenly turns south and cuts through high ridges of Old Red Sandstone. The Araglin valley is predominantly underlain by sandstone, with limestone occurring in the lower reaches near Fermoy.

Wet woodlands are found where river embankments have broken down and channel edges are subject to daily inundation. This is particularly evident in the steep-sided valley of the River Bride, between Cappoquin and Youghal. The river side of the embankments was often used for willow growing in the past (most recently at Cappoquin) so that the channel is lined by narrow woods of White and Almondleaved Willow (*Salix alba* and *S. triandra*), with isolated Crack Willow (*S. fragilis*) and Osier (*S. viminalis*). Rusty Willow (*S. cinerea* subsp. *oleifolia*) spreads naturally into the sites and occasionally, as at Villierstown on the Blackwater and Sapperton on the Bride, forms woods with a distinctive mix of woodland and marsh plants, including Gypsywort (*Lycopus europaeus*), Guelder-rose (*Viburnum opulus*), Bittersweet (*Solanum dulcamara*) and various mosses and algae. These wet woodlands form one of the most extensive tracts of the wet woodland habitat in the country.

A small stand of Yew (*Taxus baccata*) woodland occurs within the site. This is on a limestone ridge at Dromana, near Villierstown. While there are some patches of the wood with a canopy of Yew and some very old trees, the quality is generally poor due to the dominance of non-native and invasive species such as Sycamore (*Acer pseudoplatanus*), Beech (*Fagus sylvatica*) and Douglas Fir (*Pseudotsuga menziesii*). However, it does have the potential to develop into a Yew dominated stand in the long term and the site should continue to be monitored.

Marshes and reedbeds cover most of the flat areas beside the rivers and often occur in mosaic with the wet woodland. Common Reed (*Phragmites australis*) is ubiquitous and is harvested for thatching. There is also much Marsh-marigold (*Caltha palustris*) and, at the edges of the reeds, the Greater and Lesser Pond-sedge (*Carex riparia* and *C. acutiformis*). Hemlock Water-dropwort (*Oenanthe crocata*), Wild Angelica (*Angelica sylvestris*), Reed Canary-grass (*Phalaris arundinacea*), Meadowsweet (*Filipendula ulmaria*), Common Nettle (*Urtica dioica*), Purple Loosestrife (*Lythrum salicaria*), Common Valerian (*Valeriana officinalis*), Water Mint (*Mentha aquatica*) and Water Forget-me-not (*Myosotis scorpioides*) are all also found.

At Banteer there are a number of hollows in the sediments of the floodplain where subsidence and subterranean drainage have created isolated wetlands, sunk below the level of the surrounding fields. The water rises and falls in these holes depending on the water table and several different communities have developed on the acidic or neutral sediments. Many of the ponds are ringed with Rusty Willow, rooted in the mineral soils but sometimes collapsed into the water. Beneath the densest stands are woodland herbs like Yellow Pimpernel (*Lysimachia nemorum*), with locally abundant Common Water-starwort (*Callitriche stagnalis*) and Marsh Ragwort (*Senecio aquaticus*). One of the depressions has Silver Birch (*Betula pendula*), Ash (*Fraxinus excelsior*), Crab Apple (*Malus sylvestris*) and a little Pedunculate Oak (*Quercus robur*) in addition to the willows.

Floating river vegetation is found along much of the freshwater stretches within the site. The species list is quite extensive, with species such as water-crowfoots, including Pond Water-crowfoot (*Ranunculus peltatus*), Canadian Pondweed (*Elodea canadensis*), pondweed species, including Broad-leaved Pondweed (*Potamogeton natans*), water-milfoil species (*Myriophyllum* spp.), Common Club-rush (*Scirpus lacustris*), water-starwort species (*Callitriche* spp.), Lesser Water-parsnip (*Berula erecta*) particularly on the Awbeg, Water-cress (*Nasturtium officinale*), Hemlock Waterdropwort, Fine-leaved Water-dropwort (*O. aquatica*), Common Duckweed (*Lemna minor*), Yellow Water-lily (*Nuphar lutea*), Unbranched Bur-reed (*Sparganium emersum*) and the moss *Fontinalis antipyretica* all occurring.

The grasslands adjacent to the rivers of the site are generally heavily improved, although liable to flooding in many places. However, fields of more species-rich wet grassland with species such as Yellow Iris (*Iris pseudacorus*), Meadowsweet, Meadow Buttercup (*Ranunculus acris*) and rushes (*Juncus* spp.) occur occasionally. Extensive fields of wet grassland also occur at Annagh Bog on the Awbeg. These fields are dominated by Tufted Hair-grass (*Deschampsia cespitosa*) and rushes.

The Blackwater Valley has a number of dry woodlands; these have mostly been managed by the estates in which they occur, frequently with the introduction of Beech and a few conifers, and sometimes of the invasive species Rhododendron (*Rhododendron ponticum*) and Cherry Laurel (*Prunus laurocerasus*). Oak woodland is well developed on sandstone about Ballinatrav, with the acid oak woodland community of Holly (*Ilex aquifolium*), Bilberry (*Vaccinium myrtillus*), Great Wood-rush (*Luzula sylvatica*) and the ferns *Dryopteris affinis* and *D. aemula* occurring in one place. Irish Spurge (*Euphorbia hyberna*)

continues eastwards on acid rocks from its headquarters to the west, but there are also many plants of richer soils, for example Wood Violet (*Viola reichenbachiana*), Goldilocks Buttercup (*Ranunculus auricomus*), Broad-leaved Helleborine (*Epipactis helleborine*) and Red Campion (*Silene dioica*). Oak woodland is also found in Rincrew, Carrigane, Glendine, Newport and Dromana. The spread of *Rhododendron* is locally a problem, as is over-grazing. A few limestone rocks stand over the river in places showing traces of a less acidic woodland type with Ash, False Brome (*Brachypodium sylvaticum*) and Early-purple Orchid (*Orchis mascula*).

In the vicinity of Lismore, two deep valleys cut in Old Red Sandstone join to form the Owenashad River before flowing into the Blackwater at Lismore. These valleys retain something close to their original cover of oak with Downy Birch (*Betula pubescens*), Holly and Hazel (*Corylus avellana*) also occurring. There has been much planting of Beech (as well as some of coniferous species) among the oak on the shallower slopes and here both *Rhododendron* and Cherry Laurel have invaded the woodland.

The oak wood community in the Lismore and Glenmore valleys is of the classic upland type, in which some Rowan (*Sorbus aucuparia*) and Downy Birch occur. Honeysuckle (*Lonicera periclymenum*) and Ivy (*Hedera helix*) cover many of the trees while Great Wood-rush, Bluebell (*Hyacinthoides non-scripta*), Wood-sorrel (*Oxalis acetosella*) and, locally, Bilberry dominate the ground flora. Ferns present on the site include Hard Fern (*Blechnum spicant*), Male Fern (*Dryopteris filix-mas*), the bucklerferns *D. dilatata* and *D. aemula*, and Lady Fern (*Athyrium filix-femina*). There are many mosses present and large species such as *Rhytidiadelphus* spp., *Polytrichum formosum*, *Mnium hornum* and *Dicranum* spp. are noticeable. The lichen flora is important and includes 'old forest' species which imply a continuity of woodland here since ancient times. Tree Lungwort (*Lobaria* spp.) is the most conspicuous and is widespread.

The Araglin valley consists predominantly of broadleaved woodland. Oak and Beech are joined by Hazel, Wild Cherry (*Prunus avium*) and Goat Willow (*Salix caprea*). The ground flora is relatively rich, with Pignut (*Conopodium majus*), Ramsons (*Allium ursinum*), Garlic Mustard (*Alliaria petiolata*) and Wild Strawberry (*Fragaria vesca*). The presence of Ivy Broomrape (*Orobanche hederæ*), a local species within Ireland, suggests that the woodland, along with its attendant Ivy, is long established.

Along the lower reaches of the Awbeg River, the valley sides are generally cloaked with mixed deciduous woodland of estate origin. The dominant species is Beech, although a range of other species are also present, e.g. Sycamore, Ash and Horsechestnut (*Aesculus hippocastanum*).

In places the alien invasive species Cherry Laurel dominates the understorey. Parts of the woodlands are more semi-natural in composition, being dominated by Ash, with Hawthorn (*Crataegus monogyna*) and Spindle (*Euonymus europæa*) also present. However, the most natural areas of woodland appear to be the wet areas dominated by Alder and willows (*Salix* spp.). The ground flora of the dry woodland areas features species such as Pignut, Wood Aven (*Geum urbanum*), Ivy and Soft Shield-fern (*Polystichum setiferum*), while the ground flora of the wet woodland areas contains characteristic species such as Remote Sedge (*Carex remota*) and Opposite-leaved Golden-saxifrage (*Chrysosplenium oppositifolium*). In places along the upper Bride, scrubby, semi-natural deciduous woodland of willow, oak and Rowan occurs, with abundant Great Wood-rush in the ground flora.

The Bunaglanna River passes down a very steep valley, flowing in a north-south direction to meet the Bride River. It flows through blanket bog to heath and then scattered woodland. The higher levels of moisture here enable a vigorous moss and fern community to flourish, along with a well-developed epiphyte community on the tree trunks and branches.

At Banteer a type of wetland occurs near the railway line which offers a complete contrast to the others. Old turf banks are colonised by Royal Fern (*Osmunda regalis*) and Eared Willow (*Salix aurita*), and between them there is a sheet of Bottle Sedge (*Carex rostrata*), Marsh Cinquefoil (*Potentilla palustris*), Bogbean (*Menyanthes trifoliata*), Marsh St. John's-wort (*Hypericum elodes*) and the mosses *Sphagnum auriculatum* and *Aulacomnium palustre*. The cover is a scraw (i.e. floating vegetation) with characteristic species like Marsh Willowherb (*Epilobium palustre*) and Early Marshorchid (*Dactylorhiza incarnata*).

The soil high up the Lismore valleys and in rocky places is poor in nutrients but it becomes richer where streams enter and also along the valley bottoms. In such sites Wood Speedwell (*Veronica montana*), Wood Anemone (*Anemone nemorosa*), Enchanter's-nightshade (*Circaea lutetiana*), Barren Strawberry (*Potentilla sterilis*) and shield-fern (*Polystichum* sp.) occur. There is some Ramsons, Three-nerved Sandwort (*Moehringia trinervia*) and Early-purple Orchid (*Orchis mascula*) locally, with Opposite-leaved Golden-saxifrage, Meadowsweet and Bugle (*Ajuga reptans*) in wet places. A stand of Hazel woodland at the base of the Glenakeeffe valley shows this community well.

The area has been subject to much tree felling in the recent past and re-sprouting stumps have given rise to areas of bushy Hazel, Holly, Rusty Willow and Downy Birch. The ground in the clearings is heathy with Heather (*Calluna vulgaris*), Slender St John's-wort (*Hypericum pulchrum*) and the occasional Broom (*Cytisus scoparius*) occurring.

The estuary and the habitats within and associated with it form a large component of the site. Very extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. The main expanses occur at the southern end of the site, with the best examples at Kinsalebeg in Co. Waterford, and between Youghal and the main bridge north of it across the river in Co. Cork. Other areas occur along the tributaries of the Licky in east Co. Waterford, and Glendine, Newport, Bride and Killahaly Rivers in Waterford west of the Blackwater. There are also large tracts along the Tourig River in Co. Cork. There are narrow bands of intertidal flats along the main river as far north as Camphire Island. Patches of green filamentous algae (*Ulva* sp. and *Enteromorpha* sp.) occur in places, while fucoid algae are common on the more stony flats, even as high upstream as Glenassy or Coneen.

The area of saltmarsh within the site is small. The best examples occur at the mouths of the tributaries and in the townlands of Foxhole and Blackbog. Those found are generally characteristic of Atlantic salt meadows. The species list at Foxhole consists of Common Saltmarsh-grass (*Puccinellia maritima*), small amounts of Greater Seaspurrey (*Spergularia media*), glasswort (*Salicornia* sp.), Sea Arrowgrass (*Triglochin maritima*), Annual Sea-blite (*Suaeda maritima*) and Sea Purslane (*Halimione portulacoides*) - the latter a very recent coloniser. Some Sea Aster (*Aster tripolium*) occurs, generally with Creeping Bent (*Agrostis stolonifera*). Sea Couch (*Elymus pycnanthus*) and small isolated clumps of Sea Club-rush (*Scirpus maritimus*) are also seen. On the Tourig River additional saltmarsh species found include sea-lavenders (*Limonium* spp.), Thrift (*Armeria maritima*), Red Fescue (*Festuca rubra*), Common Scurvygrass (*Cochlearia officinalis*) and Sea Plantain (*Plantago maritima*). Oraches (*Atriplex* spp.) are found on channel edges. Species such as Saltmarsh Rush (*Juncus gerardi*) and Sea Rush (*J. maritimus*) are found in places in this site also, and are indicative of Mediterranean salt meadows. Areas of *Salicornia* mud are found at the eastern side of the townland of Foxhole above Youghal, at Blackbog, along the Tourig and Kinsalebeg estuaries.

The shingle spit at Ferrypoint supports a good example of perennial vegetation of stony banks. The spit is composed of small stones and cobbles and has a well-developed and diverse flora. At the lowest part, Sea Beet (*Beta vulgaris* subsp. *maritima*), Curled Dock (*Rumex crispus*) and Yellow Horned-poppy (*Glaucium flavum*) occur, while at a slightly higher level Sea Mayweed (*Matricaria maritima*), Cleavers (*Galium aparine*), Rock Samphire (*Crithmum maritimum*), Sea Sandwort (*Honkenya peploides*), Spear-leaved Orache (*Atriplex prostrata*) and Babington's Orache (*A. glabriuscula*). Other species present include Sea Rocket (*Cakile maritima*), Herb-Robert (*Geranium robertianum*), Red Fescue and Kidney Vetch (*Anthyllis vulneraria*). The top of the spit is more vegetated and supports lichens and bryophytes, including *Tortula ruraliformis* and *Rhytidiadelphus squarrosus*.

The site supports several Red Data Book plant species, i.e. Starved Wood-sedge (*Carex depauperata*), Killarney Fern (*Trichomanes speciosum*), Pennyroyal (*Mentha pulegium*), Bird's-nest Orchid (*Neottia nidus-avis*), Golden Dock (*Rumex maritimus*) and Bird Cherry (*Prunus padus*). The first three of these are also protected under the Flora (Protection) Order, 2015, while the Killarney Fern is also listed on Annex II of the E.U. Habitats Directive. The following plants, relatively rare nationally, are also found within the site: Toothwort (*Lathraea squamaria*) - associated with woodlands on the Awbeg and Blackwater; Summer Snowflake (*Leucojum aestivum*) and Flowering Rush (*Butomus umbellatus*) on the Blackwater; Common Calamint (*Calamintha ascendens*), Red Campion, Sand Leek (*Allium scorodoprasum*) and Wood Club-rush (*Scirpus sylvaticus*) on the Awbeg.

The site is also important for the presence of several E.U. Habitats Directive Annex II animal species, including Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*L. fluviatilis*), Twaite Shad (*Alosa fallax fallax*),



Freshwater Pearl Mussel (*Margaritifera margaritifera*), Otter (*Lutra lutra*) and Salmon (*Salmo salar*). The Awbeg supports a population of White-clawed Crayfish (*Austropotamobius pallipes*). This threatened species has been recorded from a number of locations and its remains are also frequently found in Otter spraints, particularly in the lower reaches of the river. The freshwater stretches of the Blackwater and Bride Rivers are designated salmonid rivers. The Blackwater is noted for its enormous run of salmon over the years. The river is characterised by significant pools, streams, glides, and generally, a good push of water coming through except in very low water. Spring salmon fishing can be carried out as far upstream as Fermoy and is highly regarded especially at Careysville. The Bride, main Blackwater upstream of Fermoy, and some of the tributaries are more associated with grilse fishing.

The site supports many of the mammal species occurring in Ireland. Those which are listed in the Irish Red Data Book include Pine Marten, Badger and Irish Hare. The bat species Natterer's Bat, Daubenton's Bat, Whiskered Bat, Brown Long-eared Bat and Pipistrelle, can be seen feeding along the river, roosting under the old bridges and in old buildings.

Common Frog, a Red Data Book species that is also legally protected (Wildlife Act, 1976), occurs throughout the site. The rare bush cricket *Metrioptera rosellii* (Order Orthoptera) has been recorded in the reed/willow vegetation of the river embankment on the Lower Blackwater River. The Swan Mussel (*Anodonta cygnea*), a scarce species nationally, occurs at a few sites along the freshwater stretches of the Blackwater.

Several bird species listed on Annex I of the E.U. Birds Directive are found on the site. Some use it as a staging area, others are vagrants, while others use it more regularly. Internationally important numbers of Whooper Swan (average peak 174, 1994/95-95/96) and nationally important numbers Bewick's Swan (average peak 5, 1996/97-2000/01) use the Blackwater Callows. Golden Plover occur in regionally important numbers on the Blackwater estuary (average peak 885, 1984/85-86/87) and on the River Bride (absolute maximum 2,141, 1994/95). Staging Terns visit the site annually, with >300 Sandwich Tern and >200 Arctic/Common Tern (average peak 1974-1994). The site also supports populations of the following: Red Throated Diver, Great Northern Diver, Barnacle Goose, Ruff, Wood Sandpiper and Greenland Whitefronted Goose. Three breeding territories for Peregrine Falcon are known along the Blackwater Valley. This, the Awbeg and the Bride River are also thought to support at least 30 pairs of Kingfisher. Little Egret breed at the site (12 pairs in 1997, 19 pairs in 1998).

The site holds important numbers of wintering waterfowl. Both the Blackwater Callows and the Blackwater Estuary Special Protection Areas (SPAs) hold internationally important numbers of Black-tailed Godwit (average peak 847, 1994/95-95/96 on the callows, average peak 845, 1974/75-93/94 in the estuary). The Blackwater Callows also hold Wigeon (average peak 2,752), Teal (average peak 1,316), Mallard (average peak 427), Shoveler (average peak 28), Lapwing (average peak 880), Curlew (average peak 416) and Black-headed Gull (average peak 396) (counts from 1994/95-95/96). Numbers of birds using the Blackwater Estuary, given as the mean of the highest monthly maxima over 20 years (1974-94), are Shelduck (137 +10 breeding pairs), Wigeon (780), Teal (280), Mallard (320 + 10 breeding pairs), Goldeneye (11-97), Oystercatcher (340), Ringed Plover (50 + 4 breeding pairs), Grey Plover (36), Lapwing (1,680), Knot (150), Dunlin (2,293), Snipe (272), Black-tailed Godwit (845), Bar-tailed Godwit (130), Curlew (920), Redshank (340), Turnstone (130), Black-headed Gull (4,000) and Lesser Black-backed Gull (172). The greatest numbers (75%) of the wintering waterfowl of the estuary are located in the Kinsalebeg area on the east of the estuary in Co. Waterford. The remainder are concentrated along the Tourig estuary on the Co. Cork side.

The river and river margins also support many Heron, non-breeding Cormorant and Mute Swan (average peak 53, 1994/95-95/96 in the Blackwater Callows). Heron occurs all along the Bride and Blackwater Rivers: 2 or 3 pairs at Dromana Rock; approximately 25 pairs in the woodland opposite; 8 pairs at Ardsallagh Wood and around 20 pairs at Rincrow Wood have been recorded. Some of these are quite large and significant heronries. Significant numbers of Cormorant are found north of the bridge at Youghal and there are some important roosts present at Ardsallagh Wood, downstream of Strancally Castle and at the mouth of the Newport River. Of note are the high numbers of wintering Pochard (e.g. 275 individuals in 1997) found at Ballyhay quarry on the Awbeg, the best site for Pochard in Co. Cork.

Other important species found within the site include Long-eared Owl, which occurs all along the Blackwater River, and Barn Owl, a Red Data Book species, which is found in some old buildings and in Castlehyde, west of Fermoy. Reed Warbler, a

scarce breeding species in Ireland, was found for the first time in the site in 1998 at two locations. It is not known whether or not this species breeds on the site, although it breeds nearby to the south of Youghal. Dipper occurs on the rivers.

Land use at the site is mainly centred on agricultural activities. The banks of much of the site and the callows, which extend almost from Fermoy to Cappoquin, are dominated by improved grasslands which are drained and heavily fertilised. These areas are grazed and used for silage production. Slurry is spread over much of this area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of this salmonid river and to the populations of E.U. Habitats Directive Annex II animal species within it. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the Blackwater and its tributaries, and there are a number of angler associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. Other recreational activities such as boating, golfing and walking are also popular. Water skiing is carried out at Villierstown. Parts of Doneraile Park and Anne's Grove are included in the site: both areas are primarily managed for amenity purposes. There is some hunting of game birds and Mink within the site. Ballyhay quarry is still actively quarried for sand and gravel. Several industrial developments, which discharge into the river, border the site.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, dredging of the upper reaches of the Awbeg, over-grazing within the woodland areas, and invasion by non-native species, for example Rhododendron and Cherry Laurel.

Overall, the River Blackwater is of considerable conservation significance for the occurrence of good examples of habitats and populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive respectively. Furthermore, it is of high conservation value for the populations of bird species that use it. Two Special Protection Areas, designated under the E.U. Birds Directive, are also located within the site - Blackwater Callows and Blackwater Estuary. Additionally, the importance of the site is enhanced by the presence of a suite of uncommon plant species.

#### **SITE NAME: BLACKWATER CALLOWS SPA SITE CODE: 004094**

The Blackwater Callows SPA comprises the stretch of the River Blackwater that runs in a west to east direction between Fermoy and Lismore in Counties Cork and Waterford, a distance of almost 25 km. The site includes the river channel and strips of seasonally-flooded grassland within the flood plain. Sandstone ridges, which run parallel to the river, confine the area of flooding to a relatively narrow corridor.

The river channel has a well-developed aquatic plant community, which includes such species as Pond Water-crowfoot (*Ranunculus peltatus*), Canadian Pondweed (*Elodea canadensis*) and a variety of pondweeds (*Potamogeton* spp.), water-milfoils (*Myriophyllum* spp.) and water-starworts (*Callitriche* spp.).

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Whooper Swan, Wigeon, Teal and Black-tailed Godwit. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site is of high ornithological interest on account of its wintering waterfowl populations. Whooper Swan occurs in numbers of international importance (212) - all figures are mean peaks for the five winters 1995/96 to 1999/2000. Bewick's Swan were regularly recorded at the site up to the mid-1990s; however, in the winters of 1997/98 and 1998/99 only four and two individuals respectively were recorded, and the species is no longer considered to be a regular visitor. This decline is in line with a national decrease and a marked contraction in range. The site supports nationally important populations of Wigeon (2,313), Teal (898) and Black-tailed Godwit (251). Other wintering species that occur include Mallard (398) Shoveler (26), Lapwing (191), Curlew (457) and Black-headed Gull (311).

Little Egret uses the site throughout the year as there is a nearby breeding colony downstream. The river system provides an important feeding area for these birds.

The Blackwater Callows SPA is of importance for its populations of wintering waterfowl, including an internationally important population of Whooper Swan and nationally important populations of Wigeon, Teal and Black-tailed Godwit. The

presence of Whooper Swan, as well as Little Egret, is of particular note as these species are listed on Annex I of the E.U. Birds Directive. Part of the Blackwater Callows SPA is a Wildfowl Sanctuary.

31.10.2014



