



**DixonBrosnan**  
environmental consultants

Report in Support of Appropriate  
Assessment (AA) Screening

Proposed Residential Development  
Mill Road,  
Kanturk

On Behalf of  
Cork County Council

February 2023

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# DixonBrosnan

environmental consultants

<b>Project</b>	<b>Report in Support of Appropriate Assessment (AA) Screening for Proposed Residential Development, Mill Road, Kanturk. Co. Cork</b>	
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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 a proposed residential development at Mill Road, Kanturk, Co. Cork, to impact on any Natura 2000 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 Natura 2000 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 2000T 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 Natura 2000 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 Natura 2000 sites in the context of their conservation objectives and specifically on the habitats and species for which the sites have been designated.

- *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);
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive* (EC 2021) and
- CJEU Case C 164/17 Edel Grace Peter Sweetman v An Bord Pleanála.

### **1.3 Authors of Report**

This report was prepared by Carl Dixon MSc (Ecological Monitoring) and 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 particular 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 13 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; S.I. No. 477 of 2011).

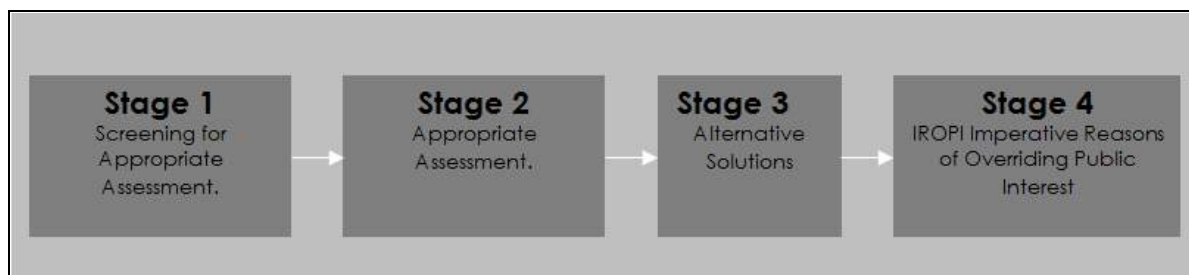
Under the Directive a network of sites of nature conservation importance have been identified by each Member State as containing specified habitats or species requiring to be maintained or returned to favourable conservation status. In Ireland the network consists of SACs and SPAs, and also candidate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

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 Natura 2000 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 Natura 2000 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 Natura 2000 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 Natura 2000 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 to make a decision on whether or not the proposed development should be approved, taking into consideration any potential impact upon any Natura 2000 site within its likely zone of impact.

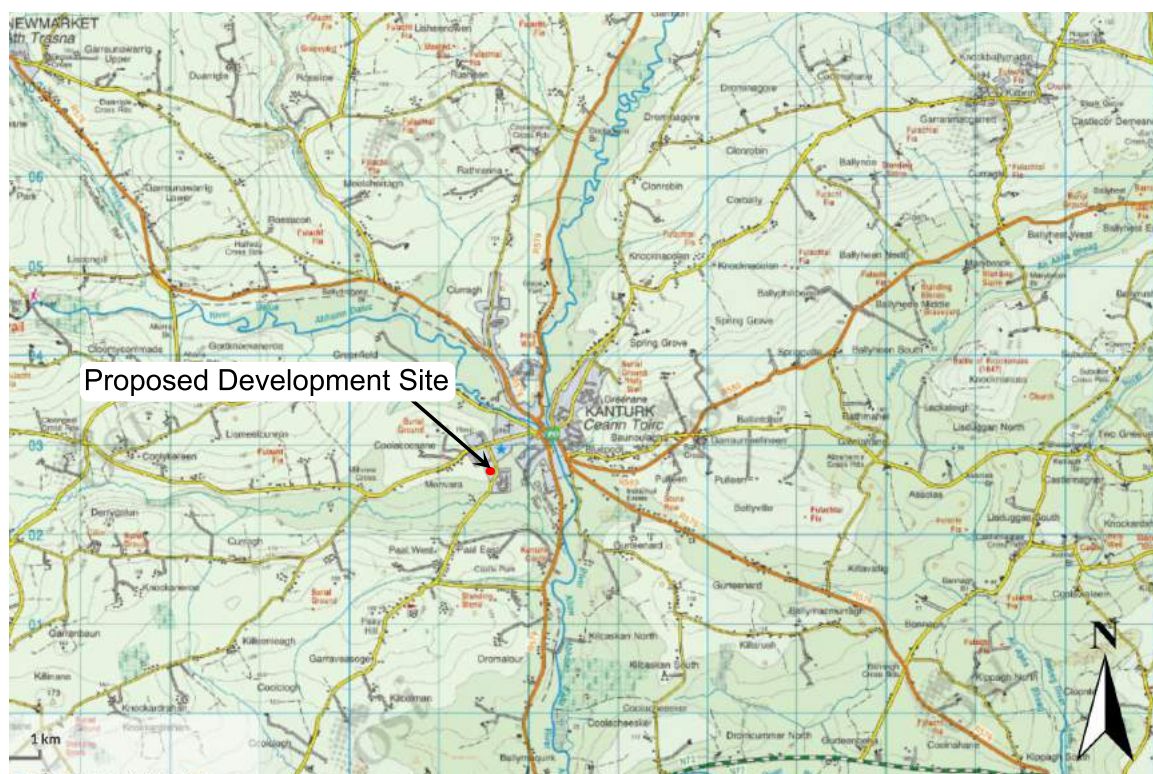
### 3. Receiving Environment

#### 3.1 Existing site

Kanturk is located approximately 17km west of Mallow and 7.5km southeast of Newmarket in County Cork (**Figure 1**). The proposed development site, on Mill Road, is located on the southwest extent of Kanturk Village. Mill Road runs along the eastern boundary of the site. To the north and east of the site, lands are dominated by low-density residential and urban development associated with Kanturk village. To the west and south of the site, lands are largely rural in nature and are dominated by improved agricultural grassland.

#### 3.2 Proposed development

The project includes 13no. housing units, 6no. apartments and 7no. houses, and associated site works at Mill Road, Kanturk. Please refer to the attached site plan and site location map for reference (**Figure 2**). There is currently a derelict bungalow onsite which is earmarked for demolition.



**Figure 1. Proposed development location | Source OSI**



Figure 2. Proposed site layout | Source Cork County Council

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

The proposed development are not directly connected with, or necessary to the conservation management of any Natura 2000 sites.

### 4.2 Zone of Impact

The likely zone of impact (Zoi) comprises the area within which the proposed development may potentially affect the conservation objectives or qualifying interests (QI) of a Natura 2000

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 Natura 2000 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. Natura 2000 site) through a particular pathway (e.g. a watercourse which connects the proposed development with the Natura 2000 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 walkover survey was carried out on the 10<sup>th</sup> February 2022. 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 have been assessed using a source-pathway-receptor model, where:

- A 'source' is defined as the individual element of the proposed development 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 likely Zol of activities associated with 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 development;

- Identification of the European sites that are situated (in their entirety or partially or downstream) within the likely zone of impact of the proposed development;
- 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 development 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 Natura 2000 sites and facilitates an evaluation assessment of potential in-combination impacts. Sources of information used for this report include reports prepared for the Kanturk 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 (NDBC)– [www.biodiversityireland.ie](http://www.biodiversityireland.ie)
- County Cork Biodiversity Action Plan 2009-2014
- Cork County Development Plan 2022
- Bat Conservation Ireland – <http://www.batconservationireland.org>
- 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)
- *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
- *Assessment of plans & projects in relation to N2K sites – Methodological Guidance* (EC 2021).
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive* (EC 2021)
- *Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment* (DoHLGH 2018)
- NPWS (2012) *River Blackwater (Cork/Waterford) SAC (site code 2170) Conservation objectives supporting document- woodland habitats*
- King. and Linnane (2004) *The status and distribution of lamprey and shad in the Slaney and Munster Blackwater SACs. Irish Wildlife Manuals, No. 14.* National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland
- NS 2 (2010) *Freshwater Pearl Mussel. Second Draft. Munster Blackwater Sub-basin management plan* and
- Sweeney and Sweeney (2017) *Expansion of the White-clawed Crayfish (Austropotamobius pallipes (Lereboullet)) population in the Munster Blackwater. Irish Naturalists' Journal 35: 94-98.*



## 5. Natura 2000 Sites

### 5.1 Designated sites within Zone of Impact

In accordance with the European Commission Methodological Guidance (EC 2018), a list of Natura 2000 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 1** and shown in **Figure 3** and **Figure 4**.

The proposed development site is located approximately 320m north of the Brogeen River, which forms part of the Blackwater River (Cork/Waterford) SAC. Although there is no direct hydrological connection to the Brogeen River from the proposed development site, given the proximity of this watercourse and the topography of the surrounding landscape, surface water runoff could potentially reach the Brogeen River. During operation of the proposed development, wastewater will be discharged to the River Allow, which forms part of the Blackwater River (Cork/Waterford) SAC via the Kanturk Wastewater Treatment Plant (WWTP) (D202).

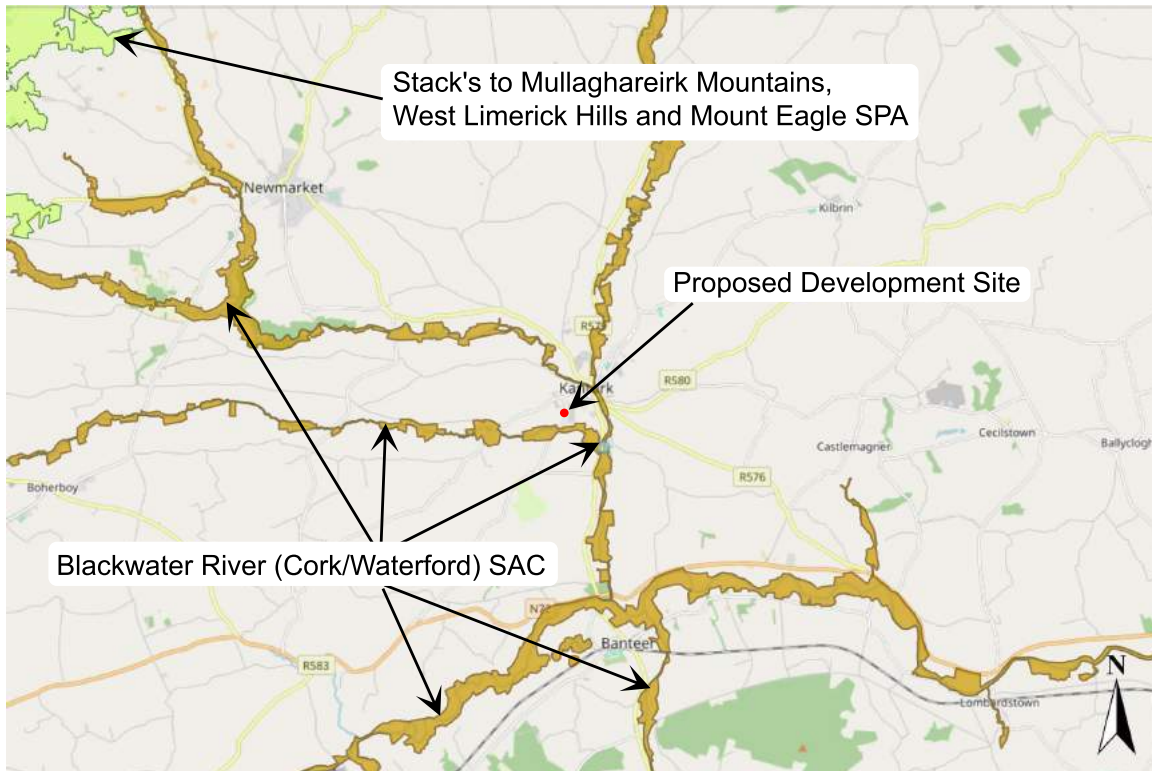
Otter, which is a qualifying species for the Blackwater River (Cork/Waterford) SAC, could potentially forage within or adjacent to the proposed development site. Therefore, qualifying species and habitats within the Blackwater River (Cork/Waterford) SAC could potentially be impacted as a result of the proposed development by reductions in water quality and disturbance during the construction or operational phases as well as loss of *ex situ* foraging habitat and/or and the spread of invasive species during construction.

Therefore a source-pathway-receptor link has been identified between the source (proposed development) and the receptor (Blackwater River (Cork/Waterford) SAC) via a potential pathway (surface water runoff during construction/operational phase, discharges of wastewater, the spread of invasive species during construction and loss of/disturbance to *ex situ* habitats for Otter). A full site synopsis for the Blackwater River (Cork/Waterford) SAC is included **Appendix 1**.

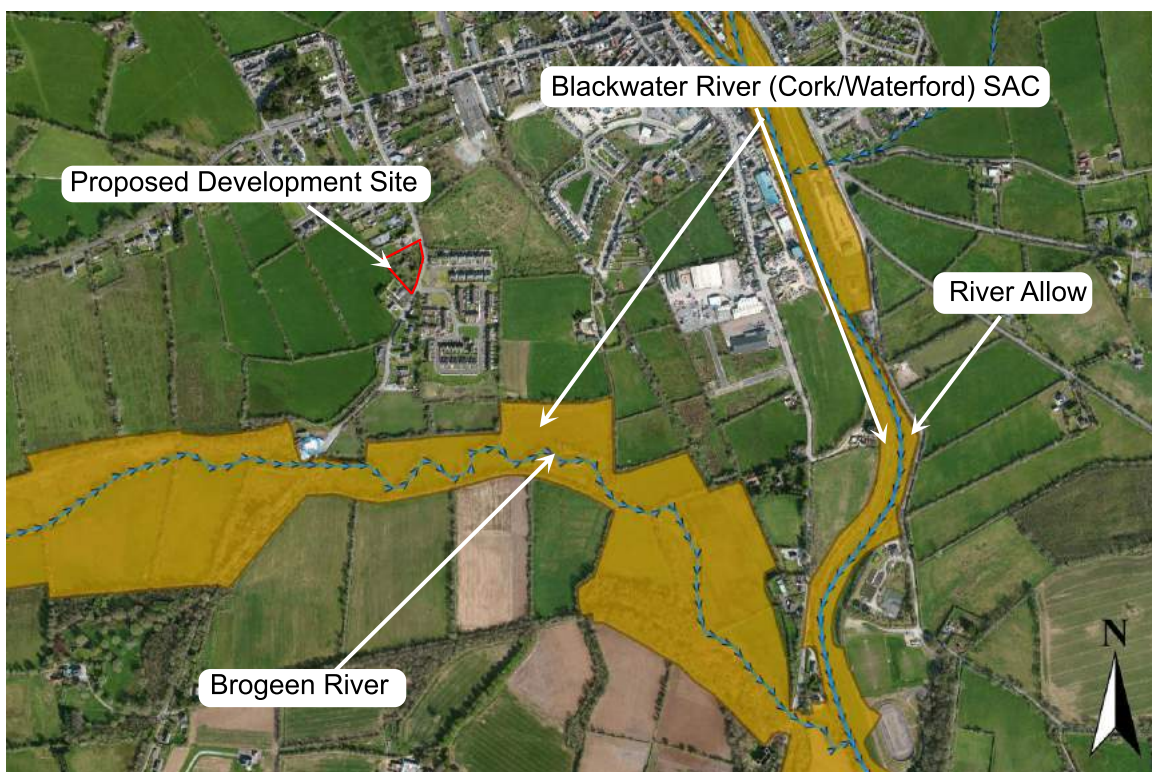
The Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (site code 004095) is located 11.3km northwest of the site. As detailed in **Section 7** of this report, there is no suitable nesting habitat for Hen Harrier (*Circus cyaneus*) within or in proximity to the proposed development site. While Hen Harrier could potentially overfly the site during the winter months, when they tend to be more widely distributed, the proposed development site does not provide valuable foraging habitat for this species. Therefore, the proposed development will not have an impact on the conservation objectives of the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA. Given the lack of impact pathways and the distances involved, no potential impact on other Natura sites is predicted to occur.

**Table 1. Designated sites and their location relative to the proposed development site.**

Site	Code	Approx. Distance at Closest Point.	Qualifying species
<b>Special Area of Conservation (SAC)</b>			
Blackwater River (Cork/Waterford)	002170	260m south. 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 (reductions in water quality and disturbance during the construction or operational phases as well as loss of ex situ foraging habitat and/or and the spread of invasive species during construction). Therefore, this site will be considered further in the below impact assessment.	<b>See Tables 2 and 3</b>
<b>Special Protection Area (SPA)</b>			
Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA	004095	11.3km NW. No pathway exists	Hen Harrier ( <i>Circus cyaneus</i> ) [A082]



**Figure 1. Natura 2000 Sites within likely zone of impact proposed development site | Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/> | Not to scale**



**Figure 4. Proposed development site in relation to Blackwater River (Cork/Waterford) SAC | River channels and directions shown with blue arrows | Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/> | 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 Natura 2000 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 conservation objectives for the Blackwater River (Cork/Waterford) SAC 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.

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 Natura 2000 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 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 and conservation objectives for the Blackwater River (Cork/Waterford) SAC are provided below are included in **Table 2 and Table 3**.

**Table 2. 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 3. 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>Ranunculion fluitantis</i> and Callitricho-Batrachion 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 <i>Ilex</i> and <i>Blechnum</i> in British Isles	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. Otter have previously been recorded within Kanturk Village (spraint September 2015). The NBDC database shows 18 records of Otter in R30, the 10km OS grid square in which the proposed development site is located.

No holts or couches were recorded within the proposed development or in proximity to it. However any deterioration in water quality in local watercourses due to surface or waste water discharges 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 24<sup>th</sup> out of the 27 FPM populations in the country based on population status, habitat condition and current pressures. Recent declines have been due to several 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 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.

#### **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 Natura 2000 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.

#### **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).

Salmonids require clean gravels to complete their life cycle. The infilling of clean gravels with sediment can render them unsuitable for spawning salmonids 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 *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation.**

The EU (2003) definition of the habitat water courses of plain to montane levels with the *Ranunculion 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.*

## 6. Water Quality

### 6.1 EPA Water Quality Data

The Environmental Protection Agency (EPA) 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 4**. 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 5**. 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 6**.

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.

**Table 4. 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

**Table 5. 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

The most recent biological monitoring on the River Allow, conducted by the EPA in 2019 and 2020, at locations upstream and downstream of Kanturk town is presented in **Table 6**. This indicated that water quality upstream of Kanturk is Good, but is moderate downstream of the town (**Figure 5**).

**Table 6. EPA Q Values River Allow**

River	Location	Q Values	Status
<b>Blackwater EPA Station</b>			
Brogueen River			
Br u/s Allow R confl	1.0km southeast of proposed development site	Q4 (2020)	Good
<b>River Allow</b>			
1.3 km d/s Kanturk Br	1.3km downstream of Kanturk village	Q3-4 (2020)	Moderate
Leader's Bridge	3.4km downstream of Kanturk village	Q4 (2020)	Good



**Figure 5. Proposed development site in relation to relevant EPA biological monitoring sites along the Brogeen River and River Allow| Source EPA envision mapping| Not to scale**

## 6.2 River Basin Management Plan for Ireland 2022-2027 (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 very 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 waste-water 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.

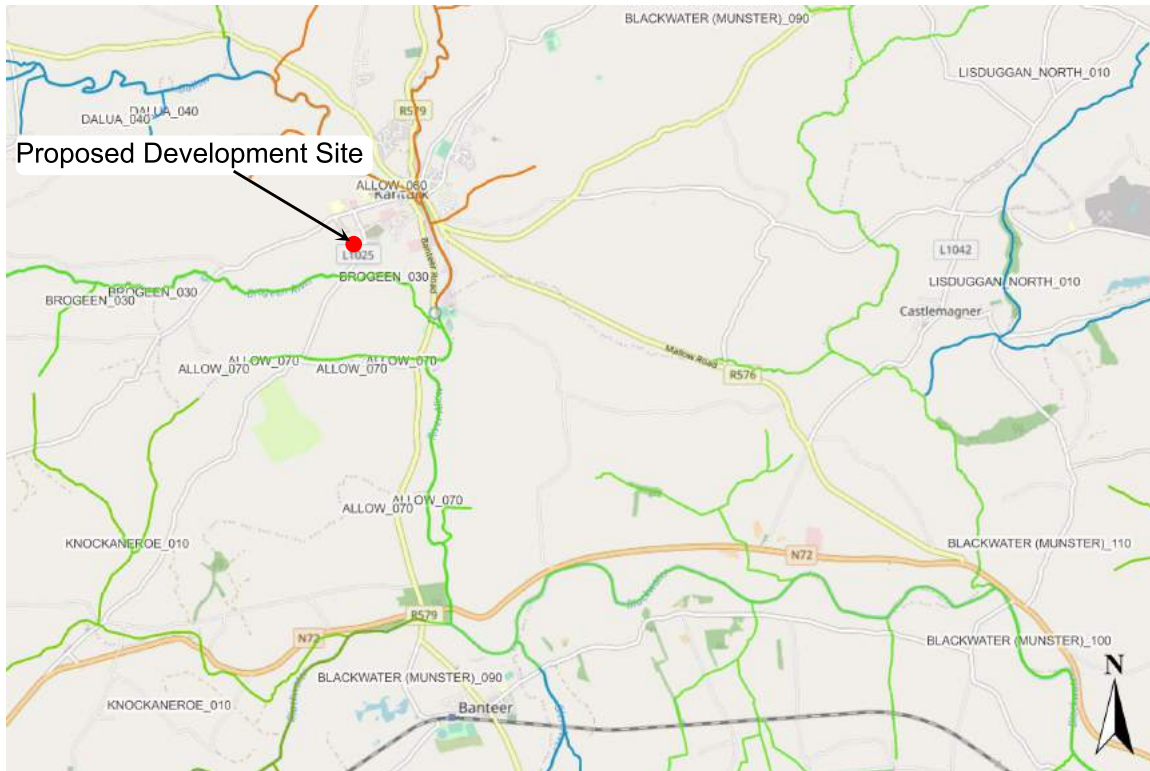
Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of our water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation 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 3<sup>rd</sup> Cycle of the WFD is provided in **Table 7** and the location of these shown in **Figure 6**.

**Table 7. WFD Status**

<b>Catchment: Blackwater Munster (Code 18)</b>			
<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>. Several small coastal rivers drain the area to the southeast of Cork Harbour and the area at the eastern extreme of the catchment is drained by the Womanagh River which flows into the sea on the western side of Youghal Bay.</p> <p>The proposed development site is located between the Brogeen_SC_010 sub catchment and the Dalua_SC_020 sub catchment.</p> <p>Within Brogeen_SC_010 sub catchment the Brogeen_010, 020 and 030 are NOT AT RISK.</p> <p>One water body in the Dalua_SC_020 sub catchment, the Allow_060, is At Risk, with ecological status dropping from Good to Poor during the 2013-2015 monitoring cycle. The significant pressures are excess nutrients driven by discharges from point sources (a Section 4 and a wastewater treatment plant), as well as likely diffuse nutrient losses from agriculture. The Allow_040 is under Review as sedimentation from land drainage is a potential pressure.</p> <p>The Allow_030 and Allow_050 have had consistently High ecological status (2007 - 2015); these are also High Ecological Status objective water bodies. Therefore these water bodies are Not at Risk.</p>			
<b>Waterbodies relevant to the proposed project</b>			
<b>Waterbody</b>	<b>WFD Status (2016-2021)</b>	<b>WFD Risk</b>	<b>Pressure</b>
Brogeen_010	Good	Not at risk	NA
Allow_060	Moderate	At risk	Agriculture (Farmyards, pasture), Industry, Urban wastewater
Allow_070	Good	Not at risk	NA

Source: EPA envision mapping and [www.catchments.ie](http://www.catchments.ie) NA; not applicable



**Figure 6. WFD waterbodies in the vicinity of the proposed development | Source: EPA Envision mapping <https://gis.epa.ie/EPAMaps/> | not to scale**

### 6.3 Urban Wastewater Treatment Directive

The Wastewater Discharge (Authorisation) Regulations 2007 (S.I. 684 of 2007) gives effect to the requirements of the Urban Wastewater Treatment Directive (Directive 91/271/EEC) and the Water Framework Directive (2000/60/EC) in Ireland. The Urban Wastewater Treatment Directive (UWWTD) lays down the requirements for the collection, treatment and discharge of urban waste-water and specifies the quality standards which must be met — based on agglomeration size — before treated waste-water is released into the environment.

The priority objective for this river basin planning cycle is to secure compliance with the Urban Wastewater Treatment Directive and to contribute to the improvement and protection of waters in keeping with the water-quality objectives established by this Plan. Achieving this objective entails addressing waste-water discharges and overflows where protected areas (i.e. designated bathing waters and shellfish waters) or high-status waters are at risk from urban waste-water pressures.

As part of the proposed development wastewater discharging from the proposed development will be conveyed to the Kanturk Wastewater Treatment Plant (WWTP) (D202) for treatment prior to discharging into the River Allow.

## 7. Site Surveys

The ecological baseline for the proposed development site was based on a desktop review and direct surveys of the relevant works area and areas proximate to same. This focused on habitats and species that are listed as Qualifying Interests (QI) (in the case of SACs) and Special Conservation Interests (SCI) (in the case of SPAs) in the designations for the



European sites. Surveys for habitats, mammals, birds and invasive species were undertaken within the study area.

## 7.1 Habitats

A site survey was carried out on the 10<sup>th</sup> February 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 the proposed development site were 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. An overview of habitats recorded within the site is shown in the habitat map below (**Figure 7**) and the habitats recorded on site are described in **Table 8**. Site photographs are included below.

**Table 8. Habitat present and their relative value.**

Habitat	Comments
Dry meadow and grassy verge GS2/Scrub WS1	<p>The site consists of one field which is not actively managed and has become overgrown. The dominant habitat is dry meadows and grassy verge with emerging scrub forming a complex mosaic. Species noted include, red fescue, field thistle, St. John's Wort, ribwort plantain, cocksfoot, creeping bent, couch grass, creeping buttercup, broad-leaved dock, Yorkshire fog, nettle, cleavers, willowherb, spear thistle, wild rose, mouse ear and field sorrel. Scrub species include bramble which is starting to form thickets and gorse. Willow is occasional.</p> <p>Although grassland is the predominant habitat, scrub encroachment is likely to continue in the absence of active management. One semi-mature beech and one mature conifer are located within the grassland area.</p> <p>Dry meadows and grassy verges GS2 corresponds to the Habitats Directive Annex 1 habitat: 'lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) (6510). GS1 habitat has links with Annex I: Calcareous grasslands with either high numbers or diversity of orchids correspond to the priority habitat, 'semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometea</i>) (*important orchid sites) (6210)'.</p> <p>However, the grassland within the proposed development area is very common locally and does not represent a valuable example of this Annex I habitat type.</p>

Habitat	Comments
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**Plate 1. Dry meadow and grassy verge GS2/Scrub WS1**



**Plate 2. Dry meadow and grassy verge GS2/Scrub WS1**



Habitat	Comments
	 <p data-bbox="354 947 983 976"><b>Plate 3. Dry meadow and grassy verge GS2/Scrub WS1</b></p>
<p data-bbox="204 1010 309 1160">Buildings and artificial surfaces BL3</p>	<p data-bbox="354 1010 1361 1039">One modern dwelling bungalow, in relatively good condition is located at the centre of the site.</p> <p data-bbox="354 1066 1382 1126">To the north of the dwelling and separating the site from a neighbouring property, is a bare concrete wall with pillars, which is of negligible ecological value.</p> <p data-bbox="354 1153 1382 1214">This is not an Annex I habitat under the habitats directive and is not a qualifying habitat for Blackwater River (Cork/Waterford) SAC.</p>  <p data-bbox="354 1839 730 1868"><b>Plate 4. Bungalow located at site</b></p>


Habitat	Comments
	 <p data-bbox="355 904 1086 931"><b>Plate 5. Bare concrete wall located on northern boundary of site</b></p>
<p data-bbox="204 965 325 1055">Hedgerow WL1/Earth bank BL2</p>	<p data-bbox="355 965 1385 1088">A poor-quality hedgerow has developed along an earth bank on the western boundary of the site. Species recorded here include elder, hawthorn, bramble, cleavers and gorse. One large cherry laurel is prominent. Understory species include herb Robert, vetch sp., ivy, nettle. common grass species and cotoneaster.</p> <p data-bbox="355 1122 1385 1305">Along the eastern boundary, where the site adjoins the Mill Road, there is a band of overgrown hedge. This is generally immature with one large mature dead tree in the corner of the site. The remaining trees are generally immature ash with some griselinia also noted. The ash in this hedgerow have been trimmed back and there is a lot of immature regrowth evident. Ivy is present on these trees, but generally is not dense enough to support bats. Understory species recorded within this hedgerow include bramble, cleavers herb Robert. Holly and Blackthorn are occasional.</p> <p data-bbox="355 1339 1385 1395">This is not an Annex I habitat under the habitats directive and is not a qualifying habitat for Blackwater River (Cork/Waterford) SAC.</p>



Habitat	Comments
	 <p data-bbox="355 954 994 987"><b>Plate 6. Poor quality hedgerow along western boundary</b></p>  <p data-bbox="355 1597 994 1630"><b>Plate 7. Poor quality hedgerow along western boundary</b></p>



Habitat	Comments
	 <p data-bbox="355 969 847 1003"><b>Plate 8. Hedgerow along eastern boundary</b></p>  <p data-bbox="355 1615 847 1648"><b>Plate 9. Hedgerow along eastern boundary</b></p>
Earth bank BL2	<p data-bbox="355 1675 1385 1738">A low earth bank separates a property outside the western boundary from the proposed development site.</p> <p data-bbox="355 1765 1385 1827">This is not an Annex I habitat under the habitats directive and is not a qualifying habitat for Blackwater River (Cork/Waterford) SAC.</p>

Habitat	Comments
	 <p data-bbox="355 869 831 898"><b>Plate 10. Earth bank on eastern boundary</b></p>

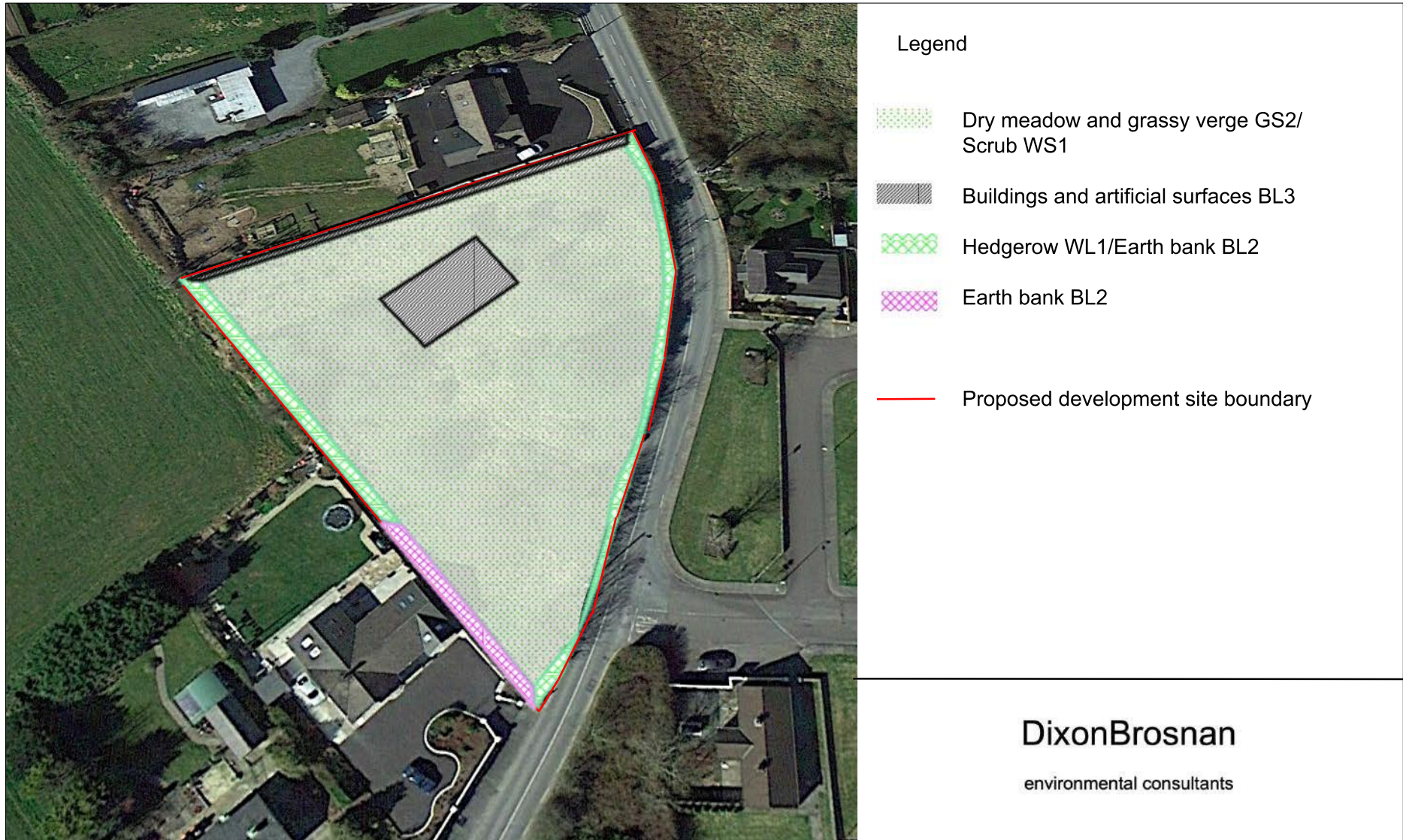


Figure 7. Habitat map of proposed development site



## 7.2 Otter

Otter is a qualifying interest for the Blackwater River (Cork/Waterford)) SAC which is one of the most important sites in Ireland for this species. The most recent national Otter Survey recorded Otter in 98.8% of the site assessed within the Blackwater catchment (Reid *et al.* 2013).

Otters are also known to frequent sections of the River Allow to the east of the proposed development site including within Kanturk town. The National Biodiversity Data Centre's (NBDC) online database provides data on the distribution of species within 10km grid squares. The NBDC database shows 18 records of Otter in R30, the 10km OS grid square in which the proposed development site is located.

The closest watercourses are the Brogeen Stream located approximately 320m south of the site and the River Allow located 710m east of the site. It is noted there is direct hydrological connected between the proposed development site and local watercourses. There are no watercourses or wetland habitats onsite which could provide foraging habitat for Otter. No signs of Otter were recorded within 150m of the proposed development site.

## 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. The NBDC lists a number of both aquatic and terrestrial high impact invasive species which have been recorded within grid square R30 (**Table 9**).

**Table 9. High impact invasive species recorded in R30**

Common name	Latin name
Indian Balsam	<i>Impatiens glandulifera</i>
Japanese Knotweed	<i>Fallopia japonica</i>
American Mink	<i>Mustela vison</i>
Fallow Deer	<i>Dama dama</i>
Sika Deer	<i>Cervus nippon</i>

Source NBDC database 13/02/23

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 and Himalayan Balsam *Impatiens glandulifera*, 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 was recorded within the proposed development site.

The high impact species, Cherry Laurel was recorded at the site. 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). Cherry Laurel (*Prunus laurocerasus*) is listed by the National Biodiversity Data Centre as a high risk invasive species. Cherry laurel is a dense thicket forming invasive ever-green shrub of gardens, parks and woodlands from South West Asia. The leaves are thick and laurel-like and are poisonous with cyanide. Its rapid growth and the way it casts an all-year-round dense shade means that it shades out plants from the woodland floor, and generally out-competes less vigorous shrubs and young trees. Like *Rhododendron ponticum* with which it often grows, if unmanaged, it will form almost impenetrable shrubberies or understories in woodland and effectively kill off all other vegetation except the mature trees.

## 8. Potential Impacts

Potential impacts relate to habitat loss, changes to water quality, the spread of invasive species and biosecurity risk, barriers to movement, increased predation, changes in hydrological regimes and disturbance effects during the proposed development. Based on the *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC* (European Commission (EC), 2018) and CIEEM guidelines ‘*Guidelines for Ecological Impact Assessment*’ (CIEEM, 2019) impacts are listed as significant using a combination of professional judgement and criteria or standards where available, if impacts have the potential to have a significant impact on the ecological integrity of the habitats and species for which the site is designated.

The potential impacts associated with the proposed development are discussed in the following sections with respect to their likelihood to have significant impacts on European sites.

As part of the assessment direct, indirect and in-combination impacts were considered. Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for development. Indirect and secondary impacts do not have a straight-line route between cause and effect, and it is potentially more challenging to ensure that all the possible indirect impacts of the project/plan - in combination with other plans and projects have been established.

Potential impacts were identified as follows:

- Potential impacts from loss of habitat



- Potential impacts from noise and disturbance
- Potential impacts on water quality
- Potential impacts from spread of invasive species
- In-combination effects.

### 8.1 Loss of Habitat

Any habitat loss of Natura 2000 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 Natura 2000 site. The Blackwater River (Cork/Waterford) SAC is located 260m from 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 Natura 2000 sites. The proposed development will not result in any significant deterioration in habitat quality, loss of habitat or loss of connectivity within Blackwater River (Cork/Waterford) SAC. Therefore, it has been concluded that the proposed development will not result in any loss or deterioration of habitat within Natura 2000 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. If of sufficient severity, there could be impacts on reproductive success. The proposed development is located approximately 260m 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. Otters are known to occur along the River Allow where it flows through Kanturk town (Source NBDC). However, no habitats for value for Otter occur within the proposed development site. There are no watercourses or wetland habitats within or in the immediate vicinity of the site. The closest watercourses are the Brogeen River located approximately 320m south of the site and the River Allow located 710m east of the site. It is noted there is no direct hydrological connection from the proposed development site to either the River Allow or the Brogeen River.

While during the construction and operational stage, there will be increases in noise and disturbance at the site, the proposed development is located adjacent to an existing regional route and in proximity to existing housing. 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 significant impact from the proposed development on Otter as a qualifying interest for the Blackwater River (Cork/Waterford) SAC from increased noise and disturbance will occur.

### 8.3 Potential impacts from surface water

Surface water run-off during the construction and operational phase could potentially be contaminated with silt, hydrocarbons or other chemicals. Given the proximity of the Brogeen River and River Allow and the topography of the site, this runoff has the potential to impact on water quality enter local watercourses and subsequently impact aquatic habitats, i.e. Water courses of plain to montane levels with the *Ranunculus fluitans* and Callitriche-Batrachion vegetation and qualifying species which use these habitats, *Margaritifera margaritifera* (Freshwater Pearl Mussel), *Austropotamobius pallipes* (White-clawed Crayfish), *Petromyzon marinus* (Sea Lamprey), *Lampetra planeri* (Brook Lamprey), *Lampetra fluviatilis* (River Lamprey) and *Salmo salar* (Salmon). Otter could also be indirectly impacted by a reduction in prey availability.

A search for recorded flood events near the proposed development was carried out using the OPW's website, [www.floodmaps.ie](http://www.floodmaps.ie) and using a general internet search. The OPW floodmaps.ie website provides information on recorded flood events nationwide. A search of the subject site does not show any instances of historic flooding within the proposed development site but there is flooding in areas around Kanturk town to the south and east of the site. In the absence of SuDs measures, the proposed development could impact on surface water runoff rates to the surrounding catchment.

Therefore, significant impacts on the conservation objectives Blackwater River (Cork/Watford) SAC from surface water runoff during construction and operation cannot be screened out in the absence of mitigation.

### 8.4 Potential Impacts from Wastewater Discharges

The proposed residential development could potentially result in an increase in nutrients discharging to the River Allow via the Kanturk Wastewater Treatment Plant (WWTP). Increased nutrients can potentially impact on aquatic habitats by changing baseline ecological conditions. The Kanturk agglomeration is served by a wastewater treatment plant with a Plant Capacity Population Equivalent (P.E.) of 3,500. Based on the most recent data (EPA 2021), the WWTP is operating at an agglomeration P.E. of 3,079 i.e., at 88% capacity. The WWTP obtained a discharge licence (Reg: D0203-01) from the Environmental Protection Agency and has assigned emission limit values (ELV's) for a range of parameters to ensure a high degree of protection to the River Allow and surrounding waters.

The discharge licence assigns ELV's for biochemical oxygen demand (BOD), chemical oxygen demand (COD), total suspended solids (TSS), Ammonia and Orthophosphate. The ELVs are set based on the full design capacity (P.E 3,500) and are aimed at providing a high degree of protection to the receiving water body and to ensure the receiving waterbody is capable of accommodating the proposed discharge without causing or exacerbating a breach in the relevant standards.

The 2021 Annual Environmental Report for Kanturk WWTP (D0203-01) was reviewed. **Table 10** provides a summary of the current operating conditions for the WWTP from the main

effluent discharge obtained from the most recent Environmental Protection Agency Annual Environment Report (2022).

**Table 10. Effluent Monitoring**

	Ammonia mg/l	BOD mg/l	COD mg/l	SS mg/l	Ortho phosphate mg/l
WWDL ELV (Schedule A1)	0.800	25	125	35	0.500
ELV with Condition 2 Interpretation	1.60	50	250	88	0.600
No. of Samples	27	14	14	14	n/a
No. sample results above WWDL ELV	14	1	n/a	1	14
No Samples above ELV with condition 2 interpretation	9	n/a	n/a	n/a	1
Annual mean	3.27	3.79	25	5.13	0.140
1Overall Compliance	Fail	Pass	Pass	Pass	Fai

As noted in **Table 11** there were nine exceedances of the Ammonia ELV during 2021. The eight exceedances between January and August were as a result of the Diffused Aeration System in the Oxidation Ditches. A build-up of inorganic material on the removal diffused aeration grids over time has given rise to both vertical and horizontal movement which in turn impacted on the fine bubble diffused aeration. The Diffused Aeration Grids were removed during July/August for inspection and repair. Guiderails were retrofitted to the Oxidation Ditches and a locking mechanism put in place as a measure to prevent a future reoccurrence. The Ortho-P exceedance was associated with a blockage of the pipework from the external bulk acid storage tank to the internal acid day tanks.

The AER notes that The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: Ammonia-Total (as N) mg/l, ortho- Phosphate (as P) - unspecified mg/l.

- The ambient monitoring results do not meet the required EQS at the upstream and the downstream monitoring locations. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.
- Based on ambient monitoring results a deterioration in BOD & Ortho-P, concentrations downstream of the effluent discharge is noted.
- A deterioration in water quality has been identified, however it is not known if it or is not caused by the WWTP.

- Other causes of deterioration in water quality in the area are: Diffuse urban point sources and S4 Industries
- The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

The WWTP is operating at an agglomeration P.E. of 3,079 i.e., at 88% capacity. The proposed development will result in a discharge of 37 P.E., which will increase the WWTP to 3,116 i.e., 89% capacity. Irish Water have been consulted regarding the connection of the proposed development to the existing foul sewer and WWTP. This confirmed that the wastewater connection was feasible without any upgrade works from Irish Water.

Although there have been compliance issues with the Kanturk WWTP, according to the most recent AER (2021), this does not have an observable negative effect on the Water Framework Status. There is also sufficient capacity within the Kanturk WWTP system prior to the connection. Therefore, no significant impact on local water quality is predicted to occur from wastewater discharges during the operational phase and there will be no significant impact on the conservation objectives of the Blackwater River (Cork/Waterford) SAC due to wastewater discharges from the proposed development.

### **8.5 Spread of Invasive Species**

Construction works have the potential to spread invasive species outside a works area, particularly in the vicinity of a watercourse. Disturbance of invasive species within the proposed development area could lead to the dispersal of scheduled invasive species either via machinery, materials, clothing or wild animals.

No high-risk or other invasive species were recorded within the footprint of the proposed development. Given the distance involved, there is no pathway for Cherry Laurel to impact on Natura 2000 sites. Therefore, there will be no significant impact on the Blackwater River (Cork/Waterford) SAC due to the spread of invasive species from the proposed development.

### **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.

Article 6(3) of the Habitats Directive requires that:

*Any plan or project not directly connected with or necessary to the management of the 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.*

It is therefore required that the potential impacts of the proposed development are considered in-combination with any other relevant plans or projects. An assessment of plans and projects with the potential for in-combination effects in association with the proposed development was undertaken. A search of planning applications in the vicinity of the proposed development was undertaken in February 2023 to examine projects with potential for in combination effects.

Other projects or developments which could potentially cause in-combination impacts are listed in **Table 11**.

**Table 11. 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	
<p>River Basin Management Plan 2022-2027</p>	<p>The project should comply with the environmental objectives of the Irish RBMP which are to be achieved generally by 2027.</p> <p>Ensure full compliance with relevant EU legislation</p> <p>Prevent deterioration</p> <p>Meeting the objectives for designated protected areas</p> <p>Protect high status waters</p> <p>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 which will build knowledge for the third cycle.</p>	<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 impacts with the proposed development.</p>
<p>Inland Fisheries Ireland Corporate Plan 2021-2025</p> <p>The Inland Fisheries Act 2010.</p>	<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>	<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 cumulative impacts with the proposed development.</p>
<p>Irish Water Capital Investment Plan 2020-2024</p>	<p>Proposals to upgrade and secure water services and water treatment services countrywide.</p>	<p>Likely net positive impact due to water conservation and more effective treatment of water.</p>



Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
<p>Water Services Strategic Plan (WSSP, 2015)</p>	<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> <p>Habitat loss and disturbance from new / upgraded infrastructure;</p> <p>Species disturbance;</p> <p>Changes to water quality or quantity; and</p> <p>Nutrient enrichment /eutrophication.</p>	<p>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 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 significant in-combination effects have been identified.</p>
<p><b>WWTP discharges</b></p>	<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.</p> <p>Although there have been compliance issues with the Kanturk WWTP, according to the most recent AER (2021), this does not have an observable negative effect on the Water Framework Status.</p>

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
		<p>There is also sufficient capacity within the Kanturk WWTP system prior to the connection. Therefore, no significant impact on local water quality is predicted to occur from wastewater discharges during the operational phase and the long-term in-combination impact is predicted to be negligible and not significant.</p>
<p><b>Industrial Emissions Licence (IEL)</b></p>	<p>There is one IEL facility on the River Allow. North Cork Co-Op Creameries Limited (P1051)</p>	<p>Discharges from this facility are governed by strict limits to ensure compliance with quality standards.</p> <p>As noted so in-combination impacts within Kanturk WWTP have been identified from wastewater discharges resulting from the proposed development. The long-term in-combination impact is predicted to be negligible and not significant.</p>
<p><b>Cork County Development Plan 2022</b></p>	<p>The population of Kanturk Mallow Municipal District stood at 54,092 in 2016 (Kanturk 2,350). Cork County Development Plan 2022 notes the following:</p> <p><i>Kanturk has been allocated a population target of 2,937 in the County Development Plan to 2028 representing growth of approximately 587 people on Census 2016 figures. In order to accommodate this level of population growth, an additional 224 housing units will be required for the period 2020-2028. Based on the National Planning Framework's requirement to deliver 30% of the core strategy requirement within the built envelope of the town and the Plan's commitment to deliver higher densities, a lower land requirement is now required than in previous plans.</i></p> <p><i>KK - GO-02 In order to secure the sustainable population growth and supporting development proposed in KK-GO-01, appropriate and sustainable water and waste water infrastructure that will secure the objectives of the relevant River Basin Management Plan and the River Blackwater Special Area of Conservation, must be provided and be operational in advance of the commencement of any discharges from the development. Wastewater infrastructure must be capable of treating discharges to ensure that water quality in the receiving water does not fall below legally required levels.</i></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 and not significant.</p>

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
<p><b>Other developments in the vicinity</b></p>	<p>Cork County Council planning database was consulted to identify any proposed or permitted developments in proximity to the proposed developments site (26/09/2022).</p> <p>Ref. 206494. Mill Road, Kanturk. The Minister for Education and Skills. Modification to previously granted permission (Reg ref: 15/04230), for the boundary fence and gate as follows: 1) Change in type of fence type A from painted mild steel over plinth wall to paladin type powder coated mesh panels over rendered plinth wall; 2) Change in height of fence type A and B from 1.8m to 2.4m, to offer increased security; 3) Change in material finish of main front gate piers to blue brick finish to match main school building, and additional timber infill panels to proposed gates; and permission for the construction of a bin store and fuel tank enclosure with paladin fencing (change of plan to that previously permitted) and associated site works.</p> <p>205341. Mill Road, Kanturk. Samantha Kelleher, Stewart Lawrence III. To construct a new dwelling house.</p> <p>205512. Mill Road, Kanturk. Declan McAuliffe, Zelda Knee. To construct an extension and make alterations to an existing dwellinghouse</p> <p>214525. Pound Hill Developments Ltd. 1) Demolition of an existing dwelling. 2) Construction of 4 No. two storey semi-detached dwellings. 3) Carrying out of all associated site works. Development Address: Mill Road, Kanturk, Co. Cork, (Corner of Mill Road and Percival Street)</p> <p>214724. The Minister for Education. Construction of a new two-storey primary school with a total internal floor area of 3253sqm on a green field site, consisting of 16no. classrooms, a general purpose hall, library, support accommodation, a 3 no. classroom special needs unit/ASD unit and all ancillary works. This includes for the provision of 37no. on-site car parking spaces and 3 no. disabled parking spaces, vehicular access roads, set down area, pedestrian access pathways, ball courts, play areas, bin store, bicycle shelters, oil storage tank, new connection to existing foul drainage system, surface water drainage system with storm water attenuation connected to existing surface water network at entrance to Market Place. Diversion of on-site overhead electricity cables to underground, signage and landscaping, as part of the overall site development works on a</p>	<p>Future developments will only be granted permission where discharges from same meet with relevant water quality standards.</p> <p>However, given the location relative to the Blackwater River (Cork/Waterford) SAC and the proposed development, and given the uncertainty surrounding the potential for surface water impacts, there is potential identified for in-combination effects in the absence of mitigation.</p>

Plans and Projects European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of the	
	site area of circa 2.389 hectares. The development also comprises a portion of a new link road with a priority junction off Mill Road - Extension of duration of permission granted under planning reference: 15/04230 - An Bord Pleanala reference : PL 04.245860	

The area surrounding Kanturk town is heavily agriculturalized. Surface water run-off during the construction phase could potentially be contaminated with silt, hydrocarbons or other chemicals. In the absence of mitigation this could potentially lead to in-combination impacts within the Blackwater River (Cork/Waterford) SAC. Given the location relative of other proposed development in the vicinity of the proposed development site to the Blackwater River (Cork/Waterford) SAC and the proposed development, and given the uncertainty surrounding the potential for surface water impacts, there is potential identified for in-combination effects in the absence of mitigation.

## 9. Screening conclusion and statement

The aims of this screening section of this report were as follows:

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

It has been objectively concluded that:

- The proposed development is not directly connected with, or necessary to the conservation management of any Natura 2000 sites.
- On the basis of objective information, the possibility of significant effects from the proposed development on European sites cannot be ruled out. There is potential for the proposed development to significantly impact the Blackwater River (Cork/Waterford) SAC due to surface water runoff during construction and operation.
- The proposed development, alone or in combination with other projects could potentially impact on the qualifying interests for the Blackwater River (Cork/Waterford) SAC

On the basis of objective information and in view of best scientific knowledge, this AA Screening report concludes that likely significant effects on the Blackwater River (Cork/Waterford) SAC cannot be excluded on the basis of objective evidence, from the proposed development alone, and in combination with other plans or projects.

## References

Applications for approval for Local Authority Developments made to An Bord Pleanála under 177AE of the Planning and Development Act, 2000, as amended (Appropriate Assessment): Guidelines for Local Authorities. An Bord Pleanála, Dublin (ABP, 2013).

Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin (DEHLG, 2010a);

CJEU Case C 164/17 Edel Grace Peter Sweetman v An Bord Pleanála

Cork County Council mapping (<https://corkcoco.maps.arcgis.com/>) accessed 10/02/23

County Cork Biodiversity Action Plan 2009-2014

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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, Owentaraglin 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 Ballinatray, 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 hederaceae*), 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 europaea*) 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 Avens (*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 furoid algae are common on the more stony flats, even as high upstream as Glenassy or Ceenen.

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 *Metroptera 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 Rincrew 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.