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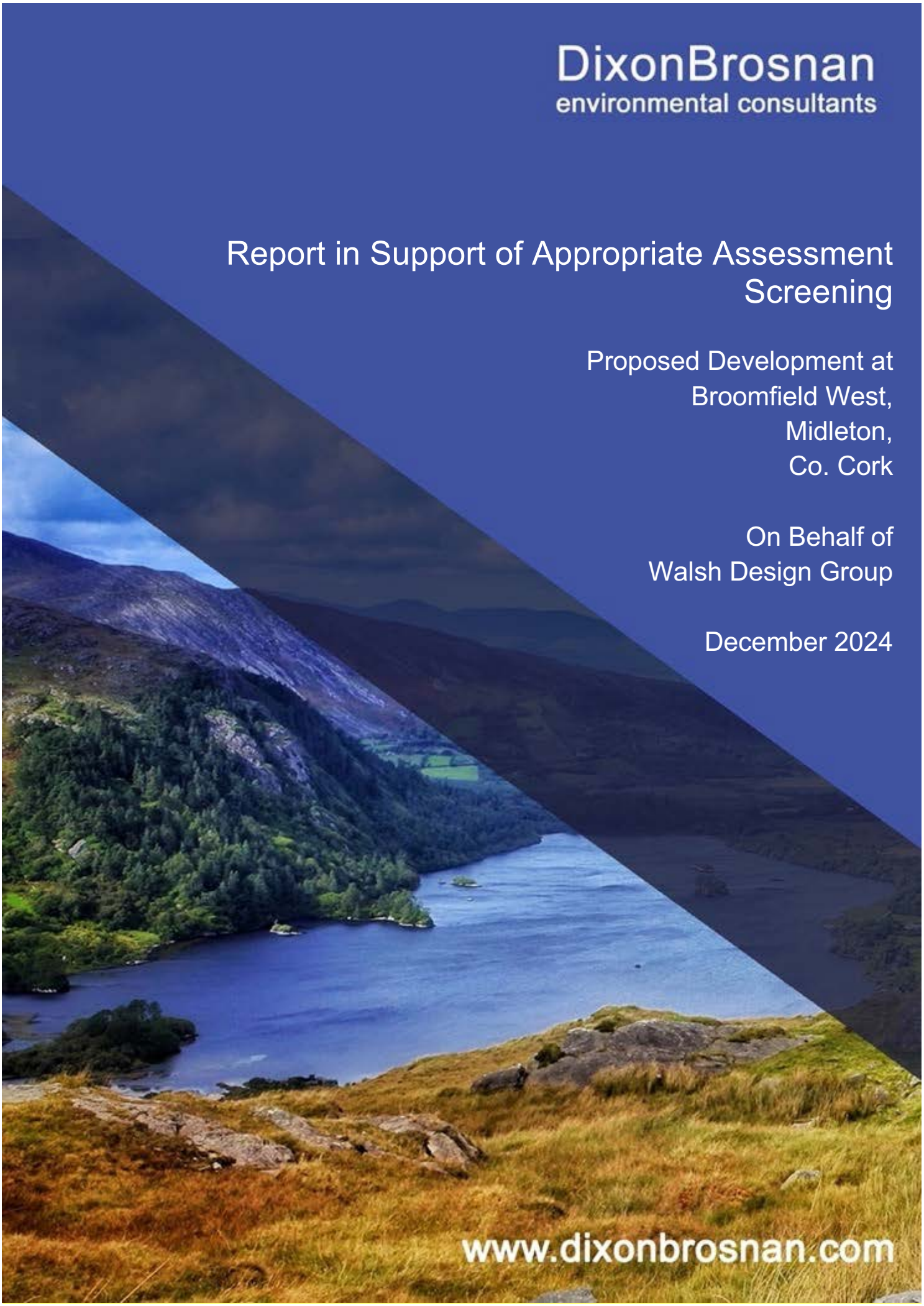
Report in Support of Appropriate Assessment Screening

Proposed Development at
Broomfield West,
Midleton,
Co. Cork

On Behalf of
Walsh Design Group

December 2024



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14/02/23	First draft	Carl Dixon BSc MSc
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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 development at the Broomfield West, Midleton, 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 other planning application documentation.

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 2000 as amended, a screening for appropriate assessment of an application for consent for the proposed development must be carried out by the competent authority to assess, in view of best scientific knowledge, if the proposed development, individually or in combination with another plan or project is likely to have a significant effect on any European site. Each step in the assessment process precedes and provides a basis for other steps. The results at each step must be documented and recorded carefully so there is full traceability and transparency of the decisions made.

1.2 Aim of Report

The purpose of this report is to inform the AA process as required under the Habitats Directive (92/43/EEC) in instances where a plan or project may give rise to significant impacts on a 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 study area, in the context of their conservation objectives and specifically on the habitats and species for which the sites have been designated.

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

- *Managing Natura 2000 Sites: The Provision of Article 6 of the Habitats Directive 92/43/EEC (European Commission (EC), 2018);*
- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites: Methodical Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission (EC), 2021);*
- *Guidance Document on Article 6(4) of the Habitats Directive 92/43/EEC (European Commission, (EC) 2007);*
- *Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010 revision);*
- *Appropriate Assessment under Article 6 of the Habitats Directive; Guidance for Planning Authorities. Circular NPW 1/10 and PSSP 2/10 (Department of Environment, Heritage and Local Government, 2010);*
- *Guidelines for Good Practice Appropriate Assessment of Plans under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011);*
- *Commission notice Guidance document on wind energy developments and EU nature legislation, (EC 2020);*
- *Communication from the Commission on the precautionary principle. European Commission (2000)*
- *Assessment of plans & projects in relation to N2K sites – Methodological Guidance (EC 2021)*
- *Guidance document on the strict protection of animal species of Community interest under the Habitats Directive (EC 2021)*
- CJEU Case C 164/17 Edel Grace Peter Sweetman v An Bord Pleanála,
- People Over Wind and Peter Sweetman *v*. Coillte Teoranta (People Over Wind) [2018] C-323/17 and
- Kelly -v- An Bord Pleanála & anor [2019] IEHC 84

1.3 Authors of Report

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

Carl Dixon holds an Honours Degree (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC. He is a senior ecologist who has over 25 years' experience in ecological assessment. Prior to setting up DixonBrosnan Environmental Consultants in 2000, Carl set up and ran Core Environmental Services which included REPS planning for landowners and ecological assessments. Carl has particular experience in freshwater ecology, including electrofishing fish stock assessments and water quality assessments. He also has considerable experience in habitat mapping and mammal ecology including survey work and reporting in relation to Badgers and bats. Other competencies include surveys for invasive species and bird surveys. Carl has extensive experience with regards to EIAR and NIS mitigation and impact assessment. He has experience in large-scale industrial developments with extensive experience in complex assessments as part of multi-disciplinary teams. Such projects include gas pipelines, incinerators, electrical cable routes, oil refineries and quarries.

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

2. Regulatory Context and Appropriate Assessment Procedure

2.1 Regulatory Context

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

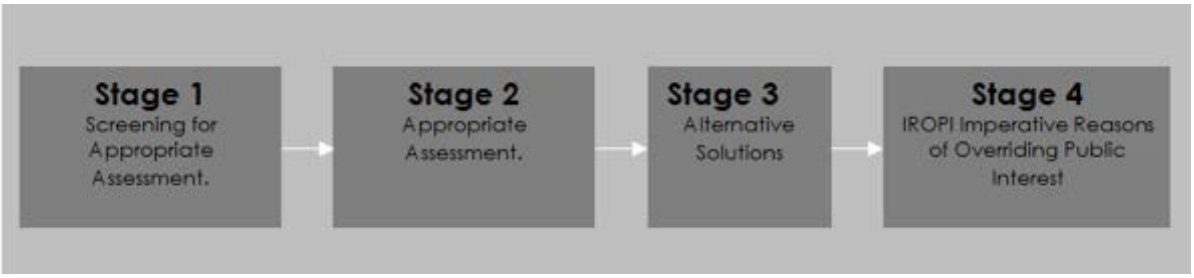
Article 6(3) of Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (hereafter 'the Habitats Directive') requires that, any plan or project not directly connected with or necessary to the management of a designated site, but likely 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 Office for Official Publications of the European Communities, Luxembourg (EC, 2019);



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

The proposed development site is located on a greenfield site to the north of Midleton town centre (Figure 1). A local road (L7360) runs along the eastern boundary and provides access to the site. This road has been recently upgraded. The site is bounded to the south and west by adjacent agricultural land and to the north by a new housing estate (The Steeples).

The proposed development site covers an area of approximately 1.45ha. The site generally slopes southwest with a high point of approximately 58.000m in the northeast of the site and the low point of approximately 41.620m at its southwest boundary.

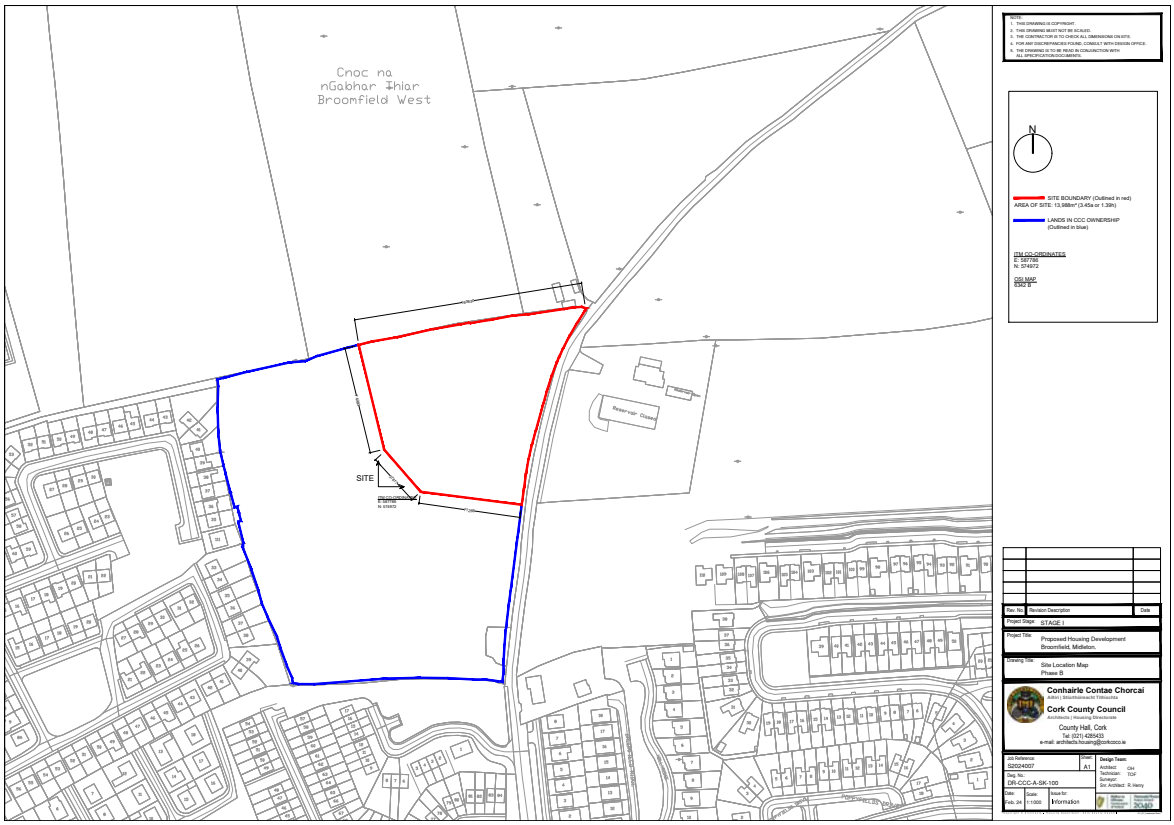


Figure 1. Site location | Source Cork County Council

Figure 2. Proposed site layout plan | Source Geraldine Coughlan

3.2 Proposed Development

The proposed development on the site is for consist of 45 dwelling units including 8 No. 2 Bed Apartment Units, 10 No. 1 Bed Apartment Units, 3 No. 4 Bed Semi-detached Houses, 10No.3 Bed End of Terrace Houses, 5 No. 3 Bed Terraced, 1 No. 3 bed Detached House and 8 No. 2 Bed Terrace Houses as well as associated green areas, estate roads, boundary treatments, services and all other infrastructure required to develop a housing project.

An overview of the proposed development is shown in **Figure 2**. Additional site drawings of the existing site and proposed development are included in **Appendix 2**.

3.3 Flood Risk

A desktop study of the history of flooding and the probability of flooding at the site was carried out with the intention of assessing the flood risk in accordance with *The Planning System and Flood Risk Management Guidelines* as published by the Department of the Environment, Heritage and Local Government give guidelines on flood risk and development planning (Walsh Design Group).

Midleton town centre and the low-lying areas adjacent to the Owenacurra River are prone to flooding from Ballyedmond to the north and south as far as Ballynacora, as the river overtops its banks in sustained heavy rainfall events. The OPW has recorded several past and recurring flood events along the river. Cork County Council is currently planning a flood relief scheme

for Midleton to defend properties at risk from all four sources of flooding, i.e. tidal, fluvial, pluvial and groundwater.

The proposed development site near the top of a hill in Broomfield West and the ground levels on site are significantly higher than the river. The predicted high-water levels along the Oweracurra River in a 0.1% AEP flood event range from 13.87m OD to the north of Broomfield to 5.44m OD to the South of Midleton Town Centre. The lowest ground level in the proposed development site is 41.6m OD.

The proposed development site lies outside any areas that have flooded in the past or have a probability of flooding in any event, whether fluvial, coastal or groundwater, up to and including a 1 in 1000-year storm. This places the site in flood zone C where residential development is appropriate without requiring a justification test.

3.4 Surface Water Drainage

The proposed storm sewer collection system consists of a 100mm diameter pipe collection network around each house in accordance with TGD part H discharging to 225mm diameter uPVC sewer or larger in the public areas of the development. The surface water network layout is shown in drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-002 and the typical details for the surface water infrastructure are shown on drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-500 (**Appendix 2**). Details of SuDS are included in drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-504.

The surface water sewers have been designed using the Causeway Flow design software and the Wallingford procedure for the design and analysis of urban drainage. The surface water system for the development is a single network falling generally from north to south, exiting the site in its south-eastern corner where it is proposed to connect to the existing surface water sewer in the L7360.

The storm network's design criteria included:

- Return period of 5 years,
- maximum rainfall of 50 mm/hr,
- maximum time of concentration of 30 minutes,
- minimum cover of 1.2m to pipes under roads,
- M5-60 of 18.8mm (Met Éireann),
- SPR of 0.3. (https://www.uksuds.com/tools/members/greenfield-runoff-rate-estimation-members)

OCB Geotechnical Ltd. were contracted by Cork County Council to carry out a site investigation on the site. The soil was noted as being a generally shallow layer of sandy gravelly silty clay and glacial till consisting of sandy gravelly clayey silt. The soil infiltration rates recorded after BRE Digest 365 testing were good. To classify this soil, Table 5/1 of the NRA, DMRB, Volume 4, Section 2, Part 1 – NRA HD 106/15, was used to cross check the

UKSuDS value. The soil would be considered Class S2 with a corresponding SPR of 0.3 which is consistent with the UKSuDS figure.

The surface water sewer networks have been modelled and each individual pipe run has been designed such that no flooding will occur to individual elements during any storm up to and including 24-hour 100-year return period, summer, and winter storms. In all storm simulations an additional flow of 20% was added to account for future climate change.

This single network is designed to fall generally from north to south and exit the development in the southeastern corner to tie into the existing sewer in the L7360. To reduce the forward flow from the developed site to a maximum of the QBAR greenfield runoff rate of 3.9 l/s a hydrobrake shall be constructed in a manhole prior to the sewer exiting the site. Choking the flow to this rate will result in the requirement for temporary attenuation storage. A certain amount of attenuation storage shall be provided in the roadside infiltration trenches, but the primary storage element shall be an underground reinforced concrete tank in the southeastern green area of the site.

SuDS measures are proposed for the development in both public and private areas in accordance with the guidance from the County Development Plan 2022 Advice Note 1 on Surface Water management and the CIRIA SuDS Manual C753. The measures proposed will decrease the impact of the development on the receiving environment and also provide amenity and biodiversity in many cases. Regular maintenance of the SuDS measures will be required to ensure that they are effective throughout their design life. The following SuDS features are proposed: permeable paving, underdrained roadside swales and infiltration trenches, bio-retention tree pits, bio-retention raingardens and water butts.

3.5 Wastewater Drainage

The layout of the proposed wastewater drainage network for the development is shown on WDG drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-002 and the typical details for the wastewater infrastructure are shown on drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-501. 1 conventional piped, gravity sewer network is proposed. The network will generally fall from the north to the south where it will connect to existing Irish Water infrastructure in the L7360 near the southeast corner of the site.

All sewers within the curtilage of individual houses are to be installed in accordance with TGD Part H (2010) and will consist of 100 mm diameter uPVC Sewers from individual houses laid to falls of min 1:60 to connect to a 150mm and 225mm uPVC sewer to be laid under the estate road. Inspection chambers will be constructed within 1m of the boundary of each private property in accordance with Uisce Éireann Standard Details.

All wastewater sewers in the public realm have been designed in compliance with Uisce Éireann's Code of Practice for Wastewater Infrastructure – A Design and Construction Guide for Developers (Revision 2) July 2020. All construction details within the public realm will be in accordance with Uisce Éireann's Wastewater Infrastructure Standard Details (Revision 4), July 2020.

A pre-connection enquiry was submitted to Uisce Éireann to assess the feasibility of providing a connection to the site and Irish Water subsequently issued a confirmation of feasibility for

the development (see **Appendix 3**). Uisce Éireann responded to confirm that a wastewater connection for the site is feasible subject to upgrades.

In order to accommodate the proposed connection at the Premises, upgrade works are required to increase the capacity of Midleton WWTP. Uisce Éireann currently has two projects underway which will provide the necessary upgrade and capacity. The first of these upgrades is scheduled for completion in Q4 2025 (this may be subject to change) and the proposed connection could be completed as soon as possibly practicable after this date.

4. Screening

4.1 Introduction

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

The aims of this section are to:

- Determine whether the proposed development is directly connected with, or necessary to, the conservation management of any 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 is not directly connected with, or necessary to the conservation management of any Natura 2000 sites.

4.2 Study Area and Scope of Appraisal

Natura 2000 sites (European sites) are only at risk from significant effects where a source-pathway-receptor link exists between a proposed development and a Natura 2000 site(s). This can take the form of a direct impact (e.g. where the proposed development and/or associated construction works are located within the boundary of the Natura 2000 site(s) or an indirect impact where impacts outside of the Natura 2000 site(s) affect ecological receptors within (e.g. impacts to water quality which can affect riparian habitats at a distance from the impact source).

The Likely zone of impact (ZoI) comprises the area within which the proposed development may potentially affect the conservation objectives (or qualifying interests) of a Natura 2000 site. There is no recommended likely zone of impact, and guidance from the National Parks and Wildlife Service (NPWS) recommends that the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects (cumulative).

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, *ex situ* foraging habitat for SCI birds). 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.

Thus, any appreciable direct, indirect or in-combination impacts which could arise from the proposed development in relation to the designated sites within this zone were considered.

4.3 Field Study

A site walkover survey was carried out on the 6th November 2024 to identify the habitats, flora and fauna present at the site. 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 ZoI of activities associated with the construction and operation of the proposed development, where LSE pathways to European sites were identified through the source-pathway-receptor model.

4.6 Screening Process

The Screening for Appropriate Assessment will incorporate the following steps:

Definition of the likely zone of impact for the proposed 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 Midleton 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
- Environmental Protection Agency (EPA) – www.epa.ie

- National Biodiversity Data Centre (NBDC) – www.biodiversityireland.ie
- Cork County Biodiversity Action Plan 2009;
- Cork County Development Plan 2022-2028;
- Birdwatch Ireland - http://www.birdwatchireland.ie/
- Invasive Species Ireland - http://www.invasivespeciesireland.com/
- *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011)
- *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 and
- Midleton D0056-01 Wastewater Treatment Plant (WWTP) *Annual Environmental Report 2022* (Irish Water 2023).

5. Natura 2000 Sites

5.1 Designated sites within Likely 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 SACs (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 does not overlap with any Natura 2000 site. The Great Island Channel SAC and Cork Harbour SPA are located approximately 1.8km south of the site. There are no watercourses on or near the proposed development site. The closest watercourse is the Owenacurra River located c.550m southwest, which is hydrologically connected to Great Island Channel SAC and Cork Harbour SPA). Although there is no direct hydrological connection to the Owenacurra River, following the precautionary approach the potential for impacts on construction works and operation of the proposed development on European sites downstream are considered in more detail in **Section 8** of this report. The potential for spread of invasive species to nearby European sites is also considered.

Habitats within or near the proposed development site could also potentially provide *ex-situ* foraging grounds for SCI species outside the Cork Harbour SPA boundary. Therefore, the proposed development could result in disturbance and/or loss of *ex situ* foraging habitat for SCI birds. Wastewater water discharges during operation could potentially impact on water quality within nearby European sites.

Therefore, a potential source-pathway-receptor link has been identified between the source (proposed development) and the receptors (Great Island Channel and Cork Harbour SPA) via a potential pathway (surface water runoff, the spread of invasive species, disturbance and/or loss of *ex situ* foraging habitat during construction/operational and wastewater discharges during operation).

There are no hydrological or other connections between the proposed development and any other Natura 2000 site.

Table 1. Natura 2000 sites and their location relative to the proposed development site

Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
Special Area of Conservation (SAC)			
Great Island Channel SAC	001058	1.8km south. A potential source-pathway-receptor link has been identified between the source (proposed development site) and the receptor (Great Island Channel) via a potential pathway (impacts on water quality and spread of invasive species during construction or operational phase, wastewater water discharges during operation).	**Habitats** 1140 Mudflats and sandflats not covered by seawater at low tide 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
Blackwater River (Cork/Waterford) SAC	002170	12.2km north. No hydrological or other pathway exists. No viable source-pathway-receptor link will occur.	**Habitats** 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1220 Perennial vegetation of stony banks 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* **Species** 1096 Brook Lamprey (*Lampetra planeri*) 1106 Salmon (*Salmo salar*)

Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
			1421 Killarney Fern (*Trichomanes speciosum)* 1095 Sea Lamprey (*Petromyzon marinus)* 1355 Otter (*Lutra lutra)* 1103 Twaite Shad (*Alosa fallax fallax)* 1092 White-clawed Crayfish (*Austropotamobius pallipes*) 1029 Freshwater Pearl Mussel (*Margaritifera margaritifera)* 1099 River Lamprey (*Lampetra fluviatilis)*
Special Protection Area (SPA)			
Cork Harbour SPA	004030	1.8km south. A potential source-pathway-receptor link has been identified between the source (proposed development site) and the receptor (Cork Harbour SPA) via a potential pathway (impacts on water quality, disturbance or spread of invasive species during construction or operational phase, wastewater discharges during operation).	**Birds** A056 Shoveler *(Anas clypeata)* A149 Dunlin *(Calidris alpina)* A140 Golden Plover *(Pluvialis apricaria)* A050 Wigeon *(Anas penelope)* A028 Grey Heron *(Ardea cinerea)* A069 Red-breasted Merganser *(Mergus serrator)* A142 Lapwing *(Vanellus vanellus)* A130 Oystercatcher *(Haematopus ostralegus)* A141 Grey Plover *(Pluvialis squatarola)* A052 Teal *(Anas crecca)* A054 Pintail *(Anas acuta)* A157 Bar-tailed Godwit *(Limosa lapponica)* A162 Redshank *(Tringa totanus)* A183 Lesser Black-backed Gull *(Larus fuscus)* A179 Black-headed Gull *(Chroicocephalus ridibundus)* A004 Little Grebe *(Tachybaptus ruficollis)* A160 Curlew *(Numenius arquata)* A182 Common Gull *(Larus canus)* A048 Shelduck *(Tadorna tadorna)* A017 Cormorant *(Phalacrocorax carbo)* A193 Common Tern *(Sterna hirundo)* A005 Great Crested Grebe *(Podiceps cristatus)* A156 Black-tailed Godwit *(Limosa limosa)* **Habitats** Wetlands

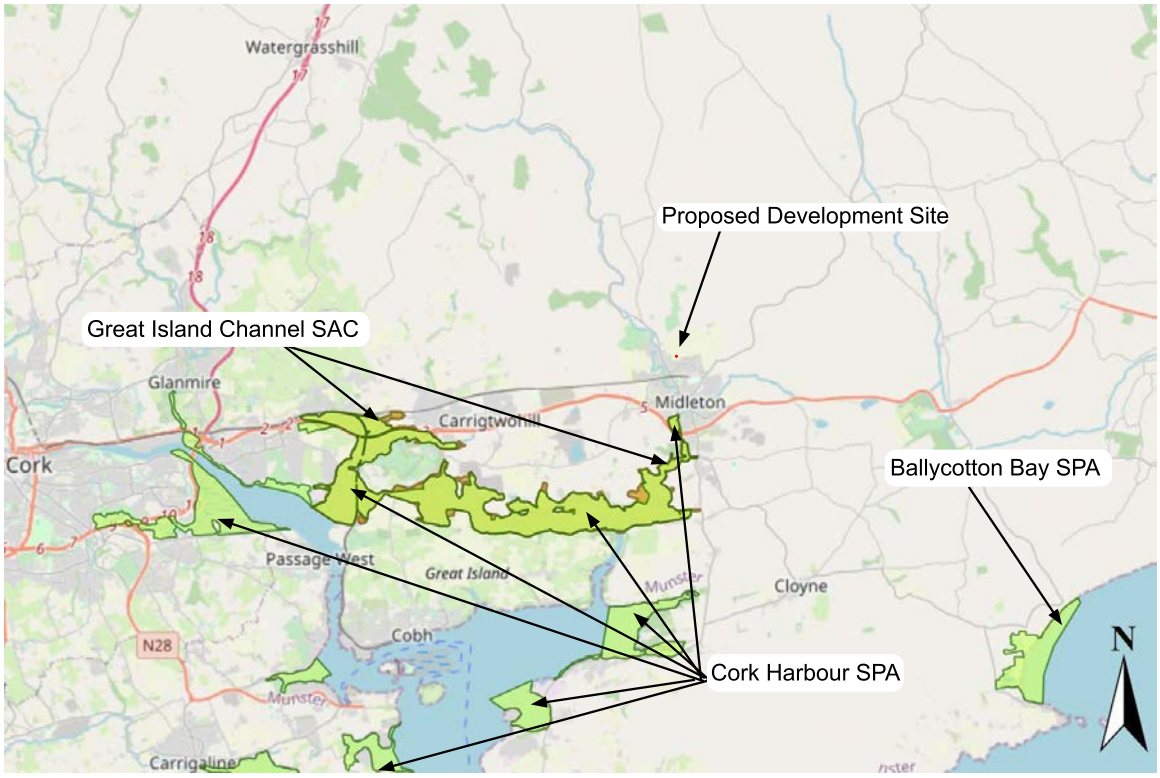


Figure 3. Natura 2000 sites within likely zone of impact of the proposed development site | Source EPA Envision Mapping | Not to scale

Figure 4. Great Island Channel SAC (orange/green shading), Cork Harbour SPA (green shading) and Owenacurra River relative to proposed development site | Source EPA Envision Mapping | Not to scale

5.2 Great Island Channel SAC (site code 001058)

This site comprises the north-eastern part of Cork Harbour. It includes all of the Great Island Channel, the intertidal areas between Fota Island and Little Island, and also the estuary of the Dungourney and Owennacurra Rivers as far as Midleton. The North Channel is on average 1km wide but extends for about 9km from east to west. The area is well sheltered and the intertidal sediments are predominantly fine muds. In addition to the estuarine habitats, the site includes some wet grassland areas which are used by roosting birds, as well as some broad-leaved woodland at Fota Island. Compared to the rest of Cork Harbour, the Great Island Channel is relatively undisturbed, with aquaculture the main activity. The site is of ecological importance for its examples of intertidal mud and sand flats and Atlantic salt meadows of the estuarine type. Both habitats are fairly extensive in area and of moderate to good quality. The SAC has high ornithological importance, supporting regularly c.50% of the wintering waterfowl of Cork Harbour. Significant proportions of the internationally important populations of *Limosa limosa* and *Tringa totanus* which winter in Cork Harbour utilise the site and it supports nationally important populations of a further 12 species, including *Pluvialis apricaria* and *Limosa lapponica*, both listed on Annex I of the EU Birds Directive.

A full site synopsis for the Great Island Channel SAC is included as **Appendix 1** of this report.

5.3 Cork Harbour SPA (site code 004030)

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poulnabibe inlets.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably *Macoma balthica, Scrobicularia plana, Hydrobia ulvae, Nepthys hombergi, Nereis diversicolor* and *Corophium volutator*.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Mallard, Pintail, Shoveler, Redbreasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Black-tailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Greenshank, Blackheaded Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl. Cork Harbour has a nationally important breeding colony of Common Tern (102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

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

5.4 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 (QI)' (or 'special conservation interest (SCI)' in the case of SPAs) 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 Great Island Channel SAC are detailed in:

- NPWS (2014) *Conservation Objectives: Great Island Channel SAC 001058. Version 1.* National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

The NPWS state that the conservation objectives for Great Island Channel SAC should be used in conjunction with those for Cork Harbour SPA as appropriate. The conservation objectives for Cork Harbour SPA site are detailed in:

- NPWS (2014) *Conservation Objectives: Cork Harbour SPA 004030. Version 1.* 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 SACs and SPAs 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 SACs and SPAs. 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 species and habitats listed as QIs/SCIs for the Great Island Channel SAC and Cork Harbour SPA and specific conservation objectives are included in **Tables 2 and 3**.

Table 2. Qualifying Interests (QIs) for the Great Island Channel SAC

Habitat Code	Habitat	Conservation objective
1140	*Mudflats and sandflats not covered by seawater at low tide*	Maintain
1330	Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	Restore

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

Table 3. Special Conservation Interests (SCIs) for Cork Harbour SPA

Species code	Species		Conservation objective
A056	Shoveler	*Anas clypeata*	Maintain
A149	Dunlin	*Calidris alpina*	Maintain
A140	Golden Plover	*Pluvialis apricaria*	Maintain
A050	Wigeon	*Anas penelope*	Maintain
A028	Grey Heron	*Ardea cinerea*	Maintain
A069	Red- breasted merganser	*Mergus serrator*	Maintain
A142	*Lapwing*	*Vanellus vanellus*	Maintain
A130	O*ystercatcher*	*Haematopus ostralegus*	Maintain
A141	Grey plover	*Pluvialis squatarola*	Maintain
A052	Teal	*Anas crecca*	Maintain
A054	Pintail	*Anas acuta*	Maintain
A157	Bar-tailed Godwit	*Limosa lapponica*	Maintain
A162	Redshank	*Tringa totanus*	Maintain
A183	Lesser Black-backed gull	*Larus fuscus*	Maintain
A179	Black-headed Gull	*Chroicocephalus ridibundus*	Maintain
A004	Little Grebe	*Tachybaptus ruficollis*	Maintain
A160	Curlew	*Numenius arquata*	Maintain
A182	Common Gull	*Larus canus*	Maintain
A048	Shelduck	*Tadorna tadorna*	Maintain
A017	Cormorant	*Phalacrocorax carbo*	Maintain
A193	Common Tern	*Sterna hirundo*	Maintain
A005	Great crested grebe	*Podiceps cristatus*	Maintain
A156	Black-tailed Godwit	*Limosa limosa*	Maintain
A999	Wetlands and waterbirds		Maintain

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

To acknowledge the importance of Ireland's wetlands to wintering waterbirds, “Wetland and Waterbirds” may be included as a Special Conservation Interest for some SPAs that have been designated for wintering waterbirds and that contain a wetland site of significant importance to one or more of the species of Special Conservation Interest. Thus, a further objective is to maintain or restore the favourable conservation condition of the wetland habitat within the Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

5.5 Status of Qualifying Interests (QI) for Great Island Channel SAC

A number of surveys on the qualifying interests of the Great Island Channel SAC were conducted in 2014 on behalf of Cork County Council (O’Neill *et. al.* 2014). The objective of these surveys was to determine the current conservation status of these features, and to assess the likely impacts on the SAC in relation to increased waste water loadings generated by the 2022 population targets given in the *Draft Cork County Development Plan 2014* (Cork County Council 2013) (now replaced by the Cork County Development Plan 2022).

The report concluded that Mudflats and sandflats not covered by seawater at low tide are currently at an unfavourable/bad condition. The main issues relating to the conservation status of the habitat are pollution and Spartina invasion. However the prospects of recovery are good, and will not be compromised by population targets of the *Draft Cork County Development Plan* once the proposed upgrades to WWTPs are in place in advance of any population increase, and provided that on-going monitoring is carried out to track any changes in the water quality of the discharges and surface water (O'Neill *et. al.* 2014). The conservation objectives for this QI habitat are listed in **Table 4**.

Table 4. QI habitats for which a potential impact has been identified – specific targets - Mudflats and sandflats not covered by seawater at low tide

Attribute	Measure	Target
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes
Community distribution	Hectares	The following sediment communities should be maintained in a natural condition: Muddy estuarine community complex; Sand to muddy fine sand community complex

With regard to Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), the current condition was deemed to be unfavourable to inadequate (O'Neill *et al.* 2014). The conservation objectives for this QI habitat are included in **Table 5** The main issues relating to the conservation status of the habitat are coastal squeeze, Spartina invasion and erosion (NPWS 2014a). The prospects of recovery are good to fair, however the time frame is uncertain due to complexity of processes involved and insufficient data on the physical sedimentary and tidal processes in the SAC (O'Neill, *et. al.,* 2014).

Table 5. Conservation Objectives for Atlantic salt meadows (Glauco-Puccinellietalia maritimae) for Great Island Channel SAC

Attribute	Measure	Target
Habitat area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. Based on data from Saltmarsh Monitoring Project (SMP) (McCorry and Ryle, 2009). Two sub-sites that supported Atlantic salt meadow were mapped (1.30ha) and additional areas of potential saltmarsh (17.60ha) were identified from an examination of aerial photographs, giving a total estimated area of 18.90ha. Saltmarsh habitat has also been recorded at two other sub-sites within the SAC (Curtis and Sheehy Skeffington, 1998).
Habitat distribution	Occurrence	No decline, subject to natural processes
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain/restore or where necessary restore natural circulation of sediments and organic matter, without any physical obstructions

Attribute	Measure	Target
Physical structure: flooding regime	Hectares flooded; frequency	Maintain/restore natural tidal regime
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession
Vegetation structure: zonation	Occurrence	Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward
Vegetation structure: vegetation cover.	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated
Vegetation composition: typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub- communities with typical species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009).
Vegetation structure: negative indicator species: *Spartina anglica*	Hectares	No significant expansion of *Spartina*. No new sites for this species and an annual spread of less than 1% where it is already known to occur

Accretion and erosion are natural elements of saltmarsh systems. Maintaining the sediment supply is vital for the continued development and natural functioning of a saltmarsh system. Interruption to the sediment circulation through physical structures can starve the system and lead to accelerated erosion rates. The target for the habitat is to maintain the natural circulation of sediment and organic matter, without any physical obstructions.

5.6 Status of qualifying interests for the Cork Harbour SPA

Cork Harbour SPA is a large, sheltered bay system that is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top ten sites in the country. Owing to the sheltered conditions, the intertidal flats are often muddy in character but described principally as 'mixed sediment to sandy mud with polychaetes and oligochaetes'. These muds support a range of macro-invertebrates, notably *Macoma balthica, Scrobicularia plana, Peringia (Hydrobia) ulvae, Nepthys hombergi, Nereis diversicolor* and *Corophium volutator*, all of which provide a food source for many wintering waterbird species. Salt marshes are scattered through the site and these provide high tide roosts for waterbirds (NPWS 2014b).

The specific conservation objectives for the species listed as conservation interests for the Cork Harbour SPA (**Table 6**) are to maintain a favourable conservation condition of the non-breeding/breeding waterbirds and to maintain the favourable conservation condition of the wetland habitat at Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.

Table 6. SCI species for which a potential impact has been identified – specific targets outlined in SPA supporting document (NPWS 2014d)

Species/Habitats	Attribute	Measure	Target
Little Grebe Great Crested Grebe Cormorant Grey Heron Shelduck	Population trend	Percentage change	Long term population trend stable or increasing
Wigeon Teal Pintail Shoveler Red-breasted Merganser Oystercatcher Golden Plover Grey Plover Lapwing Dunlin Black-tailed Godwit Bar-tailed Godwit Curlew Redshank Black-headed Gull Common Gull Lesser Black-backed Gull	Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by each species, other than that occurring from natural patterns of variation
Common Tern	Breeding population abundance: apparently occupied	Number	No significant decline

Species/Habitats	Attribute	Measure	Target
	nests (AONs)		
	Productivity rate: fledged young per breeding pair	Mean number	No significant decline
	Distribution: breeding colonies	Number; location; area (hectares)	No significant decline
	Prey biomass available	Kilogrammes	No significant decline
	Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase
	Disturbance at the breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population
Wetlands	Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,587 hectares, other than that occurring from natural patterns of variation

The Conservation Objectives Supporting document for Cork Harbour SPA (NPWS, 2014c) provides a review of the site conservation condition and population trends for Cork Harbour SPA with regard to species' all-Ireland and international trends. All-Ireland trends follow I-WeBS data 1994-2015 (Birdwatch Ireland 2022) while International trends follow Wetlands International (2012). The conservation status of Cork Harbour SPA's SCI birds are included in **Table 7**.

Table 7. Conservation Status of SCI species within Cork Harbour

Special Conservation Interests	BoCCI Category [1]	Site conservation condition[2]	Current All-Ireland Trend[3]	Current International Trend[4]
Shelduck	Amber	Unfavourable	Stable/increasing	Increasing
Wigeon	Amber	Unfavourable	Intermediate decline	Stable
Teal	Amber	Intermediate (Unfavourable)	Stable/increasing	Increasing
Pintail	Amber	Highly unfavourable	Intermediate decline	Increasing
Shoveler	Red	Highly unfavourable	Intermediate decline	Increasing

Special Conservation Interests	BoCCI Category [1]	Site conservation condition[2]	Current All-Ireland Trend[3]	Current International Trend[4]
Red-breasted Merganser	Amber	Highly unfavourable	Intermediate decline	n/c
Little Grebe	Green	Favourable	Stable/increasing	Increasing
Great Crested Grebe	Amber	Unfavourable	Intermediate decline	Declining?
Cormorant	Amber	Highly unfavourable	Stable/increasing	Increasing
Grey Heron	Green	Intermediate	Stable/increasing	Increasing
Oystercatcher	Red	Intermediate (unfavourable)	Stable/increasing	Declining
Golden Plover	Red	Favourable	Large decline	Declining
Grey Plover	Red	Highly unfavourable	Large decline	Declining?
Lapwing	Red	Highly unfavourable	Large decline	Stable
Dunlin	Red	Unfavourable	Moderate decline	Stable
Black-tailed Godwit	Red	Favourable	Stable/increasing	Increasing
Bar-tailed Godwit	Red	Favourable	Intermediate decline	Increasing
Curlew	Red	Unfavourable	Moderate decline	Declining
Redshank	Red	Unfavourable	Stable/increasing	Stable/increasing
Black-headed Gull	Amber	Highly unfavourable	n/c	n/c
Common Gull	Amber	Highly unfavourable	n/c	n/c
Lesser Black-backed Gull	Amber	Highly unfavourable	n/c	n/c

1. Gilbert et al. 2021. 2. NPWS, 2014c, 3. Birdwatch Ireland I-WeBS Trends Report 1994/95 – 2019/20, 4. Wetlands International (2012)

6. Water Quality data - River Basin Management Plan (3rd Cycle)

6.1 River Basin Management Plan (3rd 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 EPA has published an updated draft Catchment Assessment for each of the 46 catchments. These assessments provide an overview of the situation in the catchment, draw comparison between Cycle 2 and Cycle 3, and will help support the draft River Basin Management Plan 2022-2027 public consultation process. The third cycle RBMP, which was published in July 2022, aims to build on the progress made during the second cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has resulted in significant progress in terms both of compliance levels and of the impact of urban wastewater on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and

phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first and second cycles.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are *At Risk* of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. Data relating to the watercourses within the study area is provided in **Table 8** and the location of these shown in **Figure 5**.

Table 8. RBMP data

Catchment: Lee, Cork Harbour and Youghal Bay				
This catchment includes the area drained by the River Lee and all streams entering tidal water in Cork Harbour and Youghal Bay and between Knockaverry and Templebreedy Battery, Co. Cork, draining a total area of 2,153km². The largest urban centre in the catchment is Cork City. The other main urban centres in this catchment are Ballincollig, Macroom, Carrigaline, Crosshaven, Blarney, Glanmire, Midleton, Carrigtohill, Cobh, Passage West and Belvelly. The total population of the catchment is approximately 328,854 with a population density of 153 people per km². There were 51 (54%) river and lake water bodies at Good or High status, and 19 (20%) at less than Good status in 2015. Twenty-five (26%) river and lake water bodies are unassigned. Twenty-two river water bodies and sites have a high ecological status objective. In 2015, 20 (90%) of these water bodies were at High status and two were at Good status. There are four Transitional and coastal water bodies at Good status, five at Moderate status, one at Poor status and nine unassigned. There are no High ecological status objective water bodies or sites. **2nd Cycle Summary** The proposed development site is located within the Owenacurra _SC_010 sub-catchment and on the Transitional waters of the Owenacurra Estuary. Within the Owennacurra_SC_010 sub-catchment, two out of seven river water bodies are: AT RISK-Dungourney_020 due to Poor biological status and Owennacurra_040 due to Moderate biological status. Within Dugourney_020, agriculture is a significant pressure in the upper reaches while a licenced facility is a significant pressure in the lower reaches. Diffuse urban sources from Midleton is the likely significant pressure within Owennacurra_040.				
3rd Cycle Summary				
Name	**WFD Risk**	**WFD Status (2016-2021)**	**Pressure category**	**Pressure sub category**
Owenacurra Estuary	At risk	Moderate	Industry, Urban run -off Urban waste water	IE, Diffuse Sources Run-Of, Combined Sewer Overflows
DUNGOURNEY_020	At risk	Poor	Agriculture, industry	Pasture, IE
OWENNACURRA_040	At risk	Moderate	Urban run-off	Diffuse Sources Run-Of

Source: EPA envision mapping and www.catchments.ie

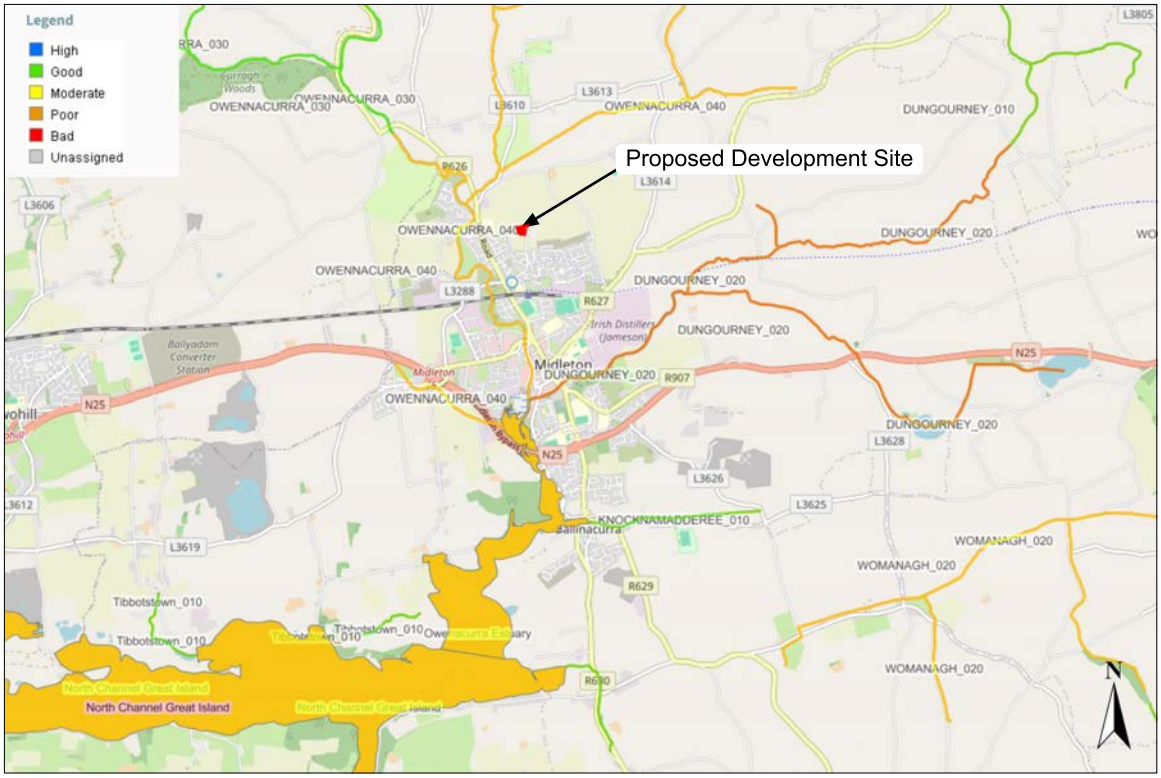


Figure 5. WFD status (2016-2021) of waterbodies in the vicinity of the proposed development (approximate site boundary) | Source: EPA Envision mapping https://gis.epa.ie/EPAMaps/) | not to scale

6.2 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 wastewater and specifies the quality standards which must be met — based on agglomeration size — before treated wastewater 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, shellfish waters and Freshwater Pearl-Mussel sites) or high-status waters are at risk from urban waste-water pressures.

As part of the proposed development foul wastewater discharging from the proposed development will be conveyed to the Midleton WWTP (D0056-01) for treatment prior to discharging into Upper Cork Harbour at Rathcoursey.

7. Site Surveys

7.1 Habitats

A site walkover survey was carried out on the 6th November 2024. Habitat mapping was carried out in line with the methodology outlined in the Heritage Council Publication, *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011). The terrestrial and aquatic habitats within or adjacent to the study area 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.

The habitats recorded on site are described in **Table 9** and illustrated in **Figure 6.** Site photographs are included below.

Table 9. Habitat present at proposed development site

Habitats	Comments
Improved agricultural grassland GA1	The site is dominated by improved agricultural grassland. In the absence of intensive management the grassland is moderately diverse. Species recorded include Sorrel, Ragweed, Cocksfoot, Common bent, Dandelion, Nettle, Creeping buttercup, Ragweed, Curled dock, Hawkweed, Ribwort plantain, Common mouse-ear and Red fescue. The area is located on the boundary of residential/urban developments and there are relatively high levels of disturbance from walkers and dogs.  Plate 1. Improved agricultural grassland dominates the site (view looking north over site)

Habitats	Comments
	 Plate 2. Improved agricultural grassland dominates the site (view looking south over site)
Hedgerow WL1/Scrub WS1 /Dense bracken HD1	Along the northern boundary of the a patchy band of Bracken, Gorse and Bramble scrub is intruding into the field. An overgrown, gappy hedgerow bounds this scrub to the north. Within the hedgerow, Hawthorn, Blackthorn and Elder are present with Foxglove, Nettle, Bramble, Bracken and Gorse in the understorey. One semi-mature to mature Ash is present along this hedgerow (just outside the proposed development site boundary).  Plate 3. Scrub encroaching into the field along the northern boundary

Habitats	Comments
	 Plate 4. Patchy hedgerow along the northern boundary  Plate 5. Mature/semi-mature Ash along northern boundary
Earth bank BL2	Running along the eastern boundary of the site is a newly created earth bank which is colonised by early successional and common grass species. There is also a newly created entrance into the site along this boundary. One dead Sycamore and an Elm with some regrowth from the base are present along the boundary. There are no other trees or shurbs present along the eastern boundary. Species noted on the earth bank include Spearthistle, Dock, Stitchwort, White clover, Oxeye daisy, Foxglove, Scarlet pimpernel, Perennial ryegrass, Common mouse-ear, Pineapple weed.

Habitats	Comments
	 Plate 6. Earth bank on eastern boundary with dead Sycamore  Plate 7. Earth bank along eastern boundary

Habitats	Comments
	 Plate 8. New entrance along eastern boundary  Plate 9. View or earth bank looking south along L7360 road

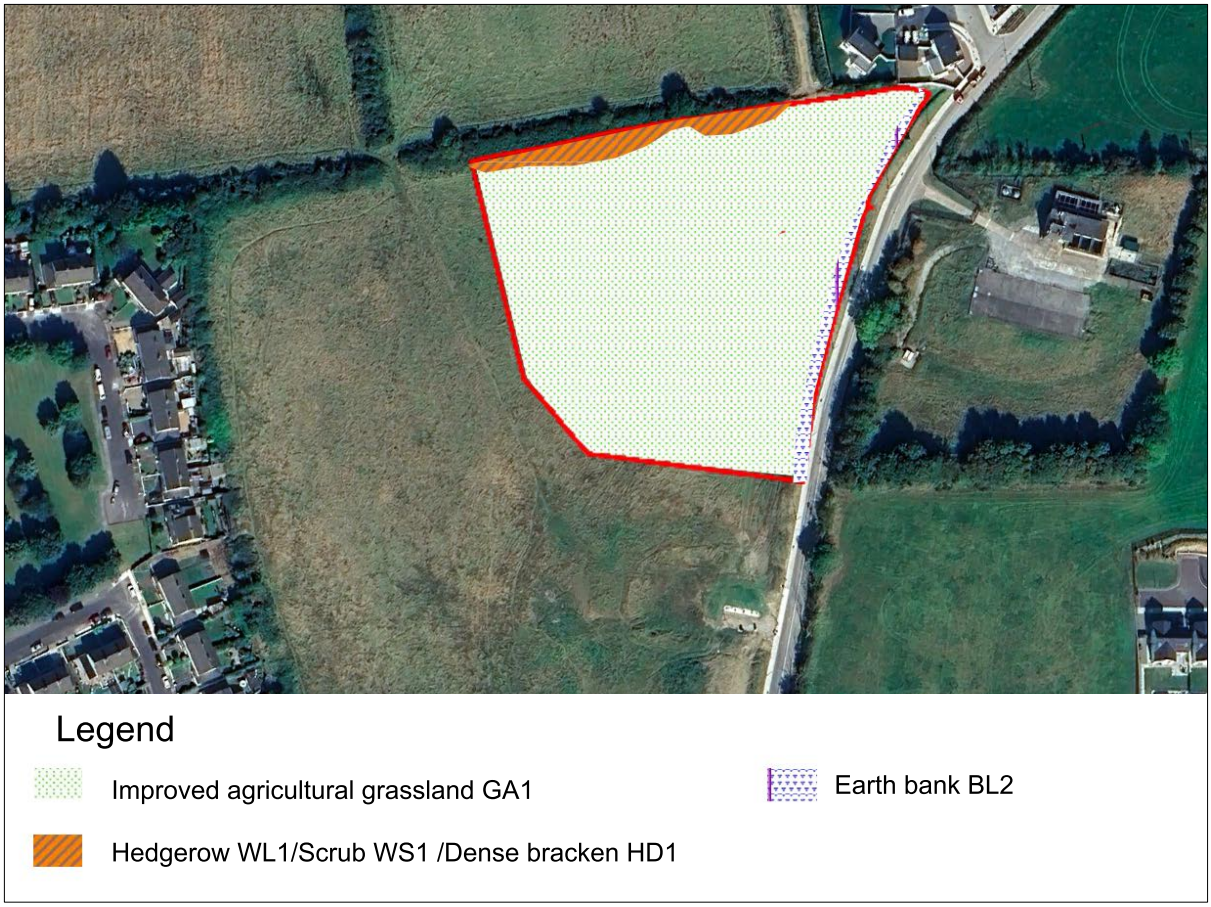


Figure 6. Habitats recorded within proposed development site boundary

7.2 Birds

During the site walkover survey on 6th November 2024, all birds seen or heard within the development site were recorded. No birds were recorded within the proposed development site.

Most bird species recorded during the survey are common species which are typical of grassland and recolonizing ground i.e. Goldfinch, House Sparrow, Blackbird, Magpie and Rook. The Red list species Meadow pipit was also recorded. Meadow Pipit are a ground nesting species which makes them particularly vulnerable to disturbance and egg damage during the breeding season. Meadow Pipit are an increasing rare species throughout Ireland but are especially rare in urban areas due to the absence of low maintenance grassland habitats which this species require for breeding and foraging.

The grassland at the site is largely overgrowm, which is a habitat of limited value for foraging wading birds i.e. SCI species of Cork Harbour SPA.

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 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, 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 invasive species were recorded during the site survey.

8. Potential Impacts

All potential impacts relate to potential surface water runoff and the spread of invasive species during the construction and operational phase. 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 on the habitats and species for which the site is designated.

The potential impacts associated with the proposed development are discussed in the following section 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 effects were identified as follows:

- Potential effects from loss of habitat
- Potential effects from noise and disturbance
- Potential effects from surface water runoff
- Potential effects from wastewater water discharges
- Potential effects from spread of invasive species
- In-combination effects

8.1 Potential effects from loss of habitat

The proposed development site is located approximately 1.8km from Great Island Channel SAC and Cork Harbour SPA at its closest point. An ecological appraisal of the proposed development site indicates that it supports common habitats i.e. improved agricultural grassland, scrub, hedgerow, earth bank. The habitats recorded within the proposed development boundary do not correspond to habitats listed on Annex I of the Habitats Directive.

In a study around Cork Harbour (NIS for the M28 Cork to Ringaskiddy Project (RPS 2017)) a detailed study was carried out on grasslands in the vicinity of the Harbour to determine the value of these habitats for roosting and foraging SCI birds. This study found that while SCI birds occasionally used fields, they found that these grassland areas are not routinely used as a feeding habitat for the SCI species associated with Cork Harbour SPA. In addition, this study concluded that there is, effectively, an unlimited supply of potentially suitable grassland habitat in the vicinity of Cork Harbour, although there may be variations in habitat quality.

The grassland at the proposed development site is unmanaged and overgrowth and does not provide suitable foraging/roosting habitat for wading birds under its current management regime. There is nothing to differentiate the grassland habitats within the proposed development site from other similar habitats in the vicinity and at this distance from the SPA boundary (1.8km) they are unlikely to represent critical foraging or roosting habitat for the SCI birds of Cork Harbour SPA. Given the availability of large areas of similar habitat in the immediate vicinity and wider area, there will be no impact on SCI from loss of foraging or roosting habitat. Considering its distance from the SPA, the core ranges of SCI birds and the absence of wetland habitats in the vicinity, this site does not provide critical roosting or foraging habitat for SCI birds. The proposed development will not result in any significant loss of *ex situ* foraging or roosting habitat for SCI birds for the Cork Harbour SPA.

The proposed development will not result in any significant deterioration in habitat quality or loss of habitat within the Great Island Channel SAC or Cork Harbour SPA. Therefore, no likely significant effects from habitat loss on European sites have been identified.

8.2 Potential effects 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. Disturbance can cause sensitive species, such as birds, to deviate from their normal, preferred behaviour, resulting in stress, increased energy expenditure and, in some cases, species mortality.

The potential effects and impacts of disturbance have been widely recognised in wildlife conservation legislation, as has the need to develop conservation measures for birds whilst taking human activities into account. Article 4.4 of the Bird's Directive (79/409/EEC) requires member states to "*take appropriate steps to avoid… any disturbances affecting the birds, in so far as these would be significant having regard to the objectives of this Article*". This specifically relates to conservation measures concerning Annex I species.

The wintering birds listed as qualifying interests for the Cork Harbour SPA are strongly associated with estuarine shoreline areas or wetlands - habitat types absent from the

proposed development site. It is noted that the proposed development site is separated from the SPA boundary by the town of Midleton and its busy road network. While fields in the vicinity of the site could potentially roosting or foraging habitat for SCI birds, the grassland at the proposed development site is unmanaged and overgrowth and does not provide suitable foraging/roosting habitat for wading birds under its current management regime. Furthermore, high levels of disturbance were noted within the site from walkers and dogs. Any birds which do forage or roost on grasslands to the north and east of the proposed development site will be habituated to comparable levels of disturbance from existing housing and urban development.

During the construction stage, there may be short-term increases in disturbance, but these will be confined to the proposed development site and will not cause significant disturbance in the surrounding area. Noise levels will be comparable to other residential development in the area during operation.

The construction phase of the project will temporarily increase noise and disturbance, however given the existing noise environment and the lack of suitable habitat for SCI species within the proposed development site, no significant impact on birds listed as qualifying interests for the Cork Harbour SPA is predicted to occur. Therefore, no likely significant effects from noise/disturbance on European sites have been identified.

8.3 Potential effects on water quality from surface water runoff

Potential impacts on aquatic habitats which can arise from surface water emissions during the construction phase or operation of the proposed development include increased silt levels in surface water run-off, inadvertent spillages of hydrocarbons from fuel and hydraulic fluid and leakage of stored chemical. Changes in pH which are associated with cement or chemical runoff into local waterbodies have the potential to cause localised die off among invertebrate communities within estuarine/mudflat habitats. This could potentially impact on the community distribution of mudflat and sandflat habitat within Great Island SAC. Mudflats and sandflats provide key foraging habitat for large numbers of birds within Cork Harbour SPA. A degradation in water quality caused by the runoff of hydrocarbons, cement or other chemicals can also affect fish, plant life and macroinvertebrates by altering pH levels of the water. This could potentially impact on the intensity of use of areas of foraging habitat by SCI birds.

Inadvertent spillages of hydrocarbon and/or other chemical substances could introduce toxic chemicals into the aquatic environment via surface water run-off or groundwater contamination. Aquatic plant communities may also be affected by increased siltation. Submerged plants may be stunted and photosynthesis may be reduced. Significant impacts on fish stocks or invertebrate prey could potentially impact the foraging range and intensity for SCI species.

As detailed in **Section 3.3**, during operation surface water will be managed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations the County Development Plan 2022 Advice Note 1 on Surface Water management and the CIRIA SuDS Manual C753. The following SuDS features are proposed: permeable paving, underdrained roadside swales and infiltration trenches, bio-retention tree pits, bio-retention raingardens and water butts. It is noted that these SuDS measures will keep runoff from the site at greenfield rates and maintain rates of runoff and water quality in compliance with the

WFD. It is noted that the SuDS measures have been built into the project designs as is standard for all new developments. These are not considered to be mitigation measures (see Eoin Kelly v An Bord Pleanála [2019] IEHC 84).

The OPW's online resource, Floodmaps.ie, was reviewed to assess the history and probability of all types of flooding at the proposed development site. The proposed development site lies outside any areas that have flooded in the past or have a probability of flooding in any event, whether fluvial, coastal or groundwater, up to and including a 1 in 1000-year storm. This places the site in flood zone C where residential development is appropriate without requiring a justification test.

OCB Geotechnical Ltd. were contracted by Cork County Council to carry out a site investigation on the site. Surface water design measures followed recommendations of this survey. The proposed surface water network has been tested with the Causeway Flow software, simulating rainfall events up to and including the 24-hour, 100 year storm with a 20% addition allowed for climate change. Modelling shows that no flooding occurs in any rainfall event tested. Therefore, there is no risk of increased flooding in areas outside the proposed development site, including Great Island Channel SAC and Cork Harbour SPA.

It is noted that environmental control measures will be implemented during construction in line with standard guidelines (i.e. Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (Department of Environment, Heritage and Local Government, July 2006), CIRIA document – 133 Waste Minimisation in Construction, CIRIA document – Guidelines Control of Water Pollution from Construction Sites – Guide to Good Practice)). Whilst the implementation of such measures during construction will assist in minimizing impacts on the local environment, the implementation of these measures has not been taken into consideration in this screening report when reaching a conclusion as to the likely impact of the development on Natura 2000 sites.

The proposed development is small in scale and there is no potential for significant chemical or hydrocarbon/silt spillage during construction works. There are no watercourses within or in the vicinity of the site, with the closest watercourse the Owenacurra River located c.550m west. During construction, surface water runoff would be largely absorbed to ground before reaching any watercourse/waterbody. Cork Harbour SPA and Great Island Channel SAC are located c.3.4km downstream of the proposed development site. Any minor runoff to surface waters would be diluted by Owenacurra River and the Owenacurra Estuary and there are no likely significant effects on QI/SCI species or habitats downstream. Given the small scale of the proposed development, there is no potential for significant silt or hydrocarbon spillages or potential to impact on the conservation objectives of the Cork Harbour SPA and Great Island Channel SAC.

Given the small scale of the proposed development, the project design measures, the robust nature of estuarine qualifying habitats, the dilution provided in the estuarine environment, no likely significant effects on European sites is predicted to occur from surface water runoff during the construction or operational phase.

8.4 Potential effects from wastewater discharges

The proposed development could potentially result in an increase in nutrients discharging to Upper Cork Harbour (at Rathcoursey) via the Midleton Wastewater Treatment Plant (WWTP).

Increased nutrients can potentially impact on estuarine habitats by changing baseline ecological conditions and increasing algal growth. This could in turn could impact on feeding success for birds listed as qualifying interests for the Cork Harbour SPA.

A review of the 2022 Annual Environmental Report for Midleton WWTP (EPA 2023) found that the WWTP was non-compliant for faecal coliforms. It is noted that the WWTP discharge is compliant with the ELV's set in the Urban Wastewater Treatment Directive however non-compliant with Faecal coliforms requirements set out in condition 4.17 of the licence. The AER noted the following:

- The WWTP discharge was non-compliant with the ELV's set in the wastewater discharge licence.
- The ambient monitoring results meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.
- The discharge from the wastewater treatment plant does not have an observable impact on the water quality.
- The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

It is noted in the County Development Plan (2022 to 2028) that the Midleton Wastewater Treatment Plant is currently at 15,000 Population Equivalent (PE) and has no spare capacity to cater for additional development. Irish Water are proposing some capital upgrade works to increase PE capacity to 19,000. The Plan goes on to note that other interim projects to increase capacity are proposed such as phased load diversion to Carrigtwohill.

Irish Water has noted that in partnership with Cork County Council the construction of new wastewater infrastructure in Midleton, to cater for future growth and development in the area, commenced in June 2022 with the construction of over 7km of new wastewater pipework and two new pumping stations. This project will provide the infrastructure for the planned load diversion to Carrigtwohill outlined in the Development Plan.

A confirmation of feasibility has been received from Uisce Eireann for the proposed development (See **Appendix 3**). This noted the following:

In order to accommodate the proposed connection at the Premises, upgrade works are required to increase the capacity of Midleton WWTP. Uisce Éireann currently has two projects underway which will provide the necessary upgrade and capacity. The first of these upgrades is scheduled for completion in Q4 2025 (this may be subject to change) and the proposed connection could be completed as soon as possibly practicable after this date

Works completed on the Midleton LIHAF project to date include the construction of 6km of wastewater pipeline from Knockgriffin to Carrigtwohill, and new gravity sewer pipeline from the Nordic Enterprise Park to the Northern Relief Road roundabout.

A new wastewater pumping station at Water Rock has also been constructed and is currently being commissioned. When the Midleton Local Infrastructure Housing Activation Fund (LIHAF) project is complete, this pumping station will carry wastewater flows from the planned pumping station in Midleton North to the Carrigtwohill Wastewater Treatment Plant. The works

are underway. Geda Construction Ltd. has been appointed to deliver construction works on behalf of Uisce Éireann. Site clearance works have been completed, with main construction works anticipated to commenced in June. The project is expected to be completed in 2025.

The applicant is aware that upgrades are required to increase wastewater capacity and as referenced in the pre-connection feasibility confirmation letter received from Uisce Eireann dated 22nd August 2024 the required upgrade projects are underway, the first of which is scheduled for completion in Q4 2025. It is noted that the applicant is willing to accept a condition that no connection be made until works are completed and that construction will be ongoing in the meantime. Therefore, proposed development will not connect to the foul network until capacity is available within the Midleton WWTP. The upgraded WWTP will ensure effluent to Upper Cork Harbour is of a high quality. Therefore, no likely significant impacts on water quality within Great Island Channel SAC and Cork Harbour SPA from foul effluent emissions are predicted to occur.

8.5 Invasive species

No high impact or other invasive species were recorded within the proposed development site. There is no risk to the Great Island Channel SAC or Cork Harbour SPA as a result of the spread of invasive species from the proposed development. Therefore, no likely significant effect from the spread of invasive species to Great Island Channel SAC and Cork Harbour SPA is predicted to occur.

8.6 In combination impacts

In-combination impacts refer to a series of individually modest impacts that may in combination produce a significant impact. 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. Other developments near site and potential in-combination impacts are identified in **Table 10**.

Table 10. Other developments near site and potential in-combination impacts

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	
River Basin Management Plan 2022-2027	The project should comply with the environmental objectives of the Irish RBMP which are to be achieved generally by 2027. Ensure full compliance with relevant EU legislation Prevent deterioration Meeting the objectives for designated protected areas Protect high status waters Implement targeted actions and pilot schemes in focus sub-catchments aimed at: targeting water bodies close to meeting their objective and	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 in Natura 2000 sites.

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	
	addressing more complex issues which will build knowledge for the third cycle.	
Inland Fisheries Ireland Corporate Plan 2021-2025	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. To develop and improve fish habitats and ensure that the conditions required for fish populations to thrive are sustained and protected. 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. 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.	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.
Irish Water Capital Investment Plan 2020-2024	Proposals to upgrade and secure water services and water treatment services countrywide.	Likely net positive impact due to water conservation and more effective treatment of water. It will not contribute to in-combination impacts with the proposed development.
Water Services Strategic Plan (WSSP, 2015)	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: Habitat loss and disturbance from new / upgraded infrastructure; Species disturbance; Changes to water quality or quantity; and Nutrient enrichment /eutrophication.	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

Plans and Projects the European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of	
		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. 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, significant in-combination effects can be ruled out.
WWTP discharges	Cloyne WWTP, Carrigtohill WWTP, Whitegate-Aghada WWTP, Midleton WWTP	Discharges from municipal WWTPs are required to meet water quality standards. Irish Water Capital Investment Plan 202-2024 proposes to upgrade water treatment services countrywide. Therefore, significant in-combination effects can be ruled out.
Other developments in the vicinity	Cork County Council, An Bord Pleanála, EPA planning database was consulted to identify any proposed or permitted developments in proximity to the proposed developments site (14/11/24)	
	Midleton Flood Relief Scheme (MFRS) The MFRS scheme is currently under Scheme Review following public participation. The MFRS includes a flood alleviation along the Owenacurra.	This development and future developments will only be granted permission where discharges from same meet with relevant water quality standards.

Plans and Projects the European Network	Key Policies/Issues/Objectives Directly Related to the Conservation of	
	This application is currently in the pre-planning stage.	This development and the proposed development site are located within a built-up urban setting and no in-combination disturbance is predicted to occur. Given the nature, extent and scale of the proposed project, it is not anticipated that it will act in-combination with the plans or projects outlined, or other plans or projects, to give rise to in-combination impacts on Natura 2000 sites.
	A search of new planning applications in the vicinity of the proposed development over the last 24 months was carried out. No projects with the potential to create in-combination effects were identified. 236277. Permission for the following large-scale residential development (LRD) comprising of the construction of 272 no. residential units, 3 ESB substations, 1 no. creche and community use building and all associated site development works including footpaths, car and bicycle parking, drainage, bicycle and bin stores, lighting and landscaping/amenity areas. Site development works include road widening works along the eastern side of the L7630 and the provision of a new foot path along the eastern side of the L7630 Broomfield Road together with a new pedestrian crossing. Access to the site will be via 4 new vehicle access points from the existing L7630 Broomfield Road and a new pedestrian connection to Blossom Hill. Located to the immediate east of proposed development site. 245432 Demolition of existing sheds and construction of 41 no. residential units. The proposed development includes the demolition of existing sheds (2 no. agricultural sheds) and the construction of 2 and 3 storey detached and semi-detached houses and the provision of landscaping, car parking all associated infrastructural and site development works. All associated infrastructure and services to include the widening of the existing L-7630 Broomfield Road including the provision of a pedestrian footpath. The proposed development includes provision for internal roads and footpaths and 2 no. new vehicular entrance off the L-7630	This development and future developments will only be granted permission where discharges from same meet with relevant water quality standards. These developments are located within a built-up urban setting and no in-combination disturbance is predicted to occur. Given the nature, extent and scale of the proposed development, it is not anticipated that it will act in-combination with the plans or projects outlined, or other plans or projects, to give rise to in-combination impacts on Natura 2000 sites.

Plans and Projects	Key Policies/Issues/Objectives Directly Related to the Conservation of the European Network	
	Broomfield Road to serve the development. Extension of duration to permission granted under planning Ref. No 18/7236. Located to northeast of proposed development site. 235277. The construction of a residential development consisting of 12 No. residential housing units, the proposed development consists of 5 house types with a mix of 2 and 3 bedroom unit typologies [11 No. 3 bed units and 1 No. 2 bed units] including detached, semi-detached & terraced units. All dwelling houses are 2-storey in height. 26 No. parking spaces [2 No. spaces designated as visitor parking spaces from the scheme granted under Pl.Reg.No. 18/7236 are proposed for a change of use from visitor parking to designated residential parking and the 2 No. visitor spaces being lost are being replaced in the proposed scheme]. All associated drainage, landscaping and all associated site development and infrastructural works. The site is adjacent to and accessed from the development known as 'The Steeples' a development of 41 No. houses permitted under Pl.Reg.No. 18/7236. Located northeast of proposed development site. 249008. Construction of 100 no. dwellings, a creche and all ancillary site development works. Broomfield Village, Broomfield East and Broomfield West, Location southeast of proposed development site.	

The potential for the proposed development to indirectly impact the Great Island Channel SAC and Cork Harbour SPA has been assessed. No significant in-combination impacts were identified. In the absence of any significant potential impacts on the qualifying interests and conservation interests for these European sites, no potential in-combination impact from the proposed development has been identified.

9. Screening conclusion and statement

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

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

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

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

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

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Appendices

Appendix 1 Site synopses

Cork Harbour Special Protection Area (Site Code 004030)

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay and the Rostellan and Poulnabibe inlets.

Owing to the sheltered conditions, the intertidal flats are often muddy in character. These muds support a range of macro-invertebrates, notably Macoma balthica, Scrobicularia plana, Hydrobia ulvae, Nepthys hombergi, Nereis diversicolor and Corophium volutator. Green algae species occur on the flats, especially Ulva lactua and Enteromorpha spp. Cordgrass (Spartina spp.) has colonised the intertidal flats in places, especially where good shelter exists, such as at Rossleague and Belvelly in the North Channel. Salt marshes are scattered through the site and these provide high tide roosts for the birds. Salt marsh species present include Sea Purslane (Halimione portulacoides), Sea Aster (Aster tripolium), Thrift (Armeria maritima), Common Saltmarsh-grass (Puccinellia maritima), Sea Plantain (Plantago maritima), Laxflowered Sea-lavender (Limonium humile) and Sea Arrowgrass (Triglochin maritima). Some shallow bay water is included in the site. Cork Harbour is adjacent to a major urban centre and a major industrial centre. Rostellan Lake is a small brackish lake that is used by swans throughout the winter. The site also includes some marginal wet grassland areas used by feeding and roosting birds.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Little Grebe, Great Crested Grebe, Cormorant, Grey Heron, Shelduck, Wigeon, Teal, Pintail, Shoveler, Red-breasted Merganser, Oystercatcher, Golden Plover, Grey Plover, Lapwing, Dunlin, Blacktailed Godwit, Bar-tailed Godwit, Curlew, Redshank, Black-headed Gull, Common Gull, Lesser Black-backed Gull and Common Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

Cork Harbour is an internationally important wetland site, regularly supporting in excess of 20,000 wintering waterfowl, for which it is amongst the top five sites in the country. The two-year mean of summed annual peaks for the entire harbour complex was 55,401 for the period 1995/96 and 1996/97. Of particular note is that the site supports internationally important populations of Black-tailed Godwit (905) and Redshank (1,782) - all figures given are average winter means for the two winters 1995/96 and 1996/97. At least 18 other species have populations of national importance, as follows: Little Grebe (51), Great Crested Grebe (204), Cormorant (705), Grey Heron (63), Shelduck (2,093), Wigeon (1,852), Teal (922), Pintail (66), Shoveler (57), Red-breasted Merganser (88), Oystercatcher (1,404), Golden Plover (3,653), Grey Plover (84), Lapwing (7,688), Dunlin (10,373), Bartailed Godwit (417), Curlew (1,325) and Greenshank (26). The Shelduck population is the largest in the country (over 10% of national total). The site has regionally or locally important populations of a range of other species, including Whooper Swan (10), Pochard (145) and Turnstone (79). Other species using the site include Gadwall (13), Mallard (456), Tufted Duck (113), Goldeneye (31), Coot (53), Mute Swan (38), Ringed Plover (34) and Knot (38). Cork Harbour is a nationally important site for gulls in winter and autumn, especially Black-headed Gull (4,704), Common Gull (3,180) and Lesser Black-backed Gull (1,440).

A range of passage waders occurs regularly in autumn, including such species as Ruff (5-10), Spotted Redshank (1-5) and Green Sandpiper (1-5). Numbers vary between years and usually a few of each of these species over-winter.

The wintering birds in Cork Harbour have been monitored since the 1970s and are counted annually as part of the I-WeBS scheme.

Cork Harbour has a nationally important breeding colony of Common Tern (3-year mean of 69 pairs for the period 1998-2000, with a maximum of 102 pairs in 1995). The birds have nested in Cork Harbour since about 1970, and since 1983 on various artificial structures, notably derelict steel barges and the roof of a Martello Tower. The birds are monitored annually and the chicks are ringed.

Extensive areas of estuarine habitat have been reclaimed since about the 1950s for industrial, port-related and road projects, and further reclamation remains a threat. As Cork Harbour is adjacent to a major urban centre and a major industrial centre, water quality is variable, with the estuary of the River Lee and parts of the Inner Harbour being somewhat eutrophic. However, the polluted conditions may not be having significant impacts on the bird populations. Oil pollution from shipping in Cork Harbour is a general threat. Recreational activities are high in some areas of the harbour, including jet skiing which causes disturbance to roosting birds.

Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, there are at least 18 wintering species that have populations of national importance, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Golden Plover, Bar-tailed Godwit, Ruff and Common Tern. The site provides both feeding and roosting sites for the various bird species that use it.

Site Name: Great Island Channel SAC Site Code: 001058

The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest. Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and, compared to the rest of Cork Harbour, is relatively undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel.

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):

[1140] Tidal Mudflats and Sandflats [1330] Atlantic Salt Meadows

The main habitats of conservation interest in Great Island Channel SAC are the sheltered tidal sand and mudflats and the Atlantic salt meadows. Owing to the sheltered conditions, the intertidal flats are composed mainly of soft muds. These muds support a range of macro-invertebrates, notably *Macoma balthica*, *Scrobicularia plana*, *Hydrobia ulvae*, *Nepthys hombergi, Nereis diversicolor* and *Corophium volutator*. Green algal species occur on the flats, especially *Ulva lactua* and *Enteromorpha* spp. Cordgrass (*Spartina* spp.) has colonised the intertidal flats in places, especially at Rossleague and Belvelly.

The saltmarshes are scattered through the site and are all of the estuarine type on mud substrate. Species present include Sea Purslane (*Halimione portulacoides*), Sea Aster (*Aster tripolium*), Thrift (*Armeria maritima*), Common Saltmarsh-grass (*Puccinellia maritima*), Sea Plantain (*Plantago maritima*), Greater Sea-spurrey (*Spergularia media*), Lax-flowered Sea-lavender (*Limonium humile*), Sea Arrowgrass (*Triglochin maritimum*), Sea Mayweed (*Matricaria maritima*) and Red Fescue (*Festuca rubra*).

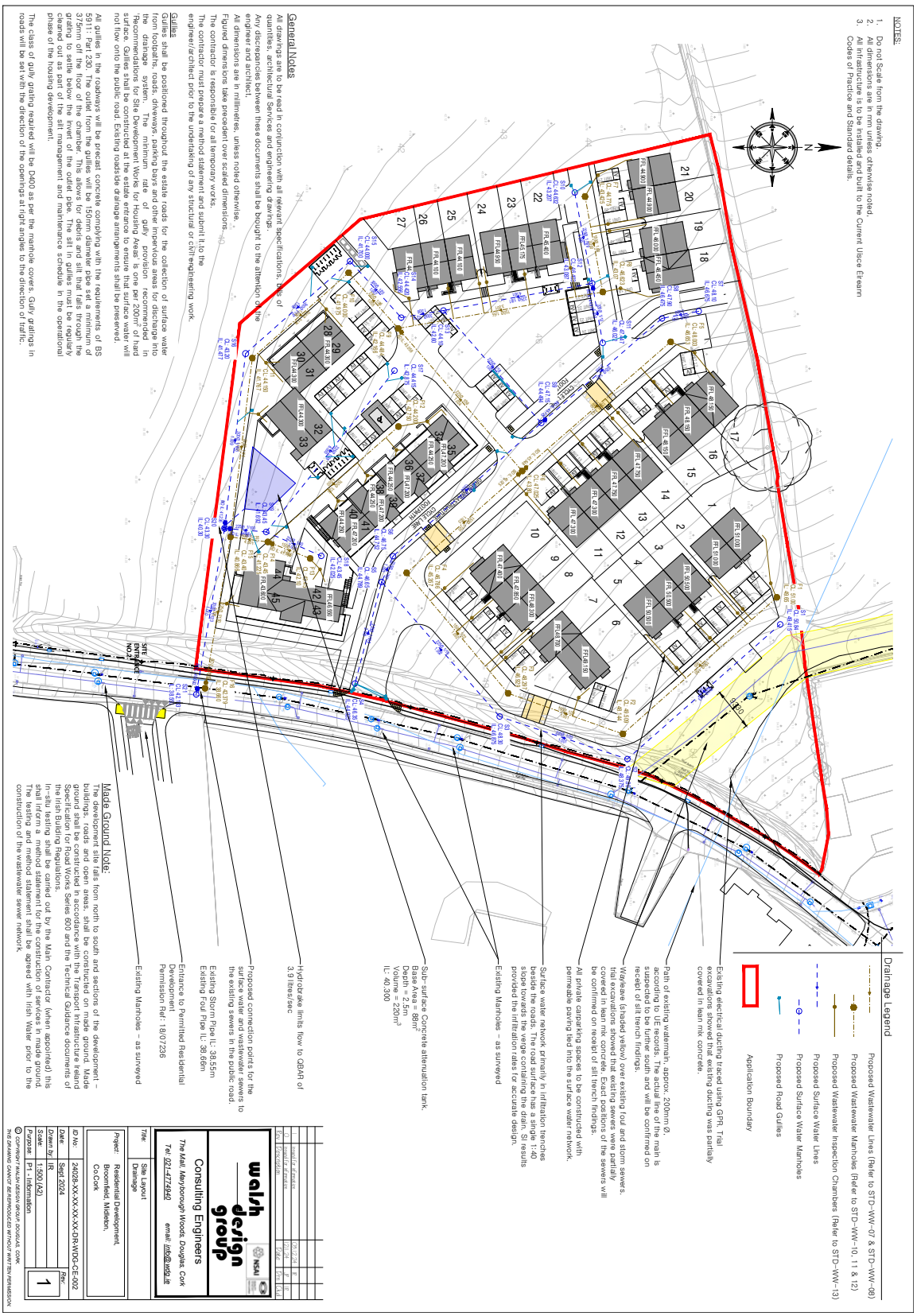
The site is extremely important for wintering waterfowl and is considered to contain three of the top five areas within Cork Harbour, namely North Channel, Harper's Island and Belvelly-Marino Point. Shelduck is the most frequent duck species with 800-1,000 birds centred on the Fota/Marino Point area. There are also large flocks of Teal and Wigeon, especially at the eastern end. Waders occur in the greatest density north of Rosslare, with Dunlin, Godwit, Curlew and Golden Plover the commonest species. A population of about 80 Grey Plover is a notable feature of the area. All the mudflats support feeding birds; the main roost sites are at Weir Island and Brown Island, and to the north of Fota at Killacloyne and Harper’s Island. Ahanesk supports a roost also but is subject to disturbance. The numbers of Grey Plover and Shelduck, as given above, are of national importance.

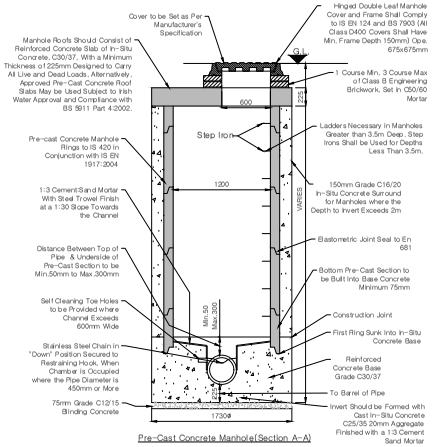
The site is an integral part of Cork Harbour which is a wetland of international importance for the birds it supports. Overall, Cork Harbour regularly holds over 20,000 waterfowl and contains internationally important numbers of Black-tailed Godwit (1,181) and Redshank (1,896), along with nationally important numbers of nineteen other species. Furthermore, it contains large Dunlin (12,019) and Lapwing (12,528) flocks. All counts are average peaks, 1994/95 – 1996/97. Much of the site falls within Cork Harbour Special Protection Area, an important bird area designated under the E.U. Birds Directive.

While the main land use within the site is aquaculture (oyster farming), the greatest threats to its conservation significance come from road works, infilling, sewage outflows and possible marina developments.

The site is of major importance for the two habitats listed on Annex I of the E.U. Habitats Directive, as well as for its important numbers of wintering waders and wildfowl. It also supports a good invertebrate fauna.

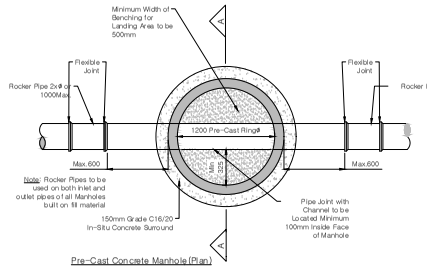
Appendix 2. Drawings





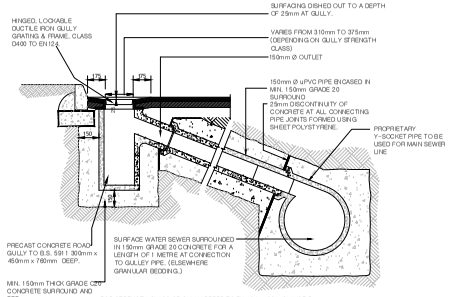
Pre-Cast Concrete Manhole(Section A-A)

Scale 1:25



Pre-Cast Concrete Manhole(Plan)

Scale 1:25



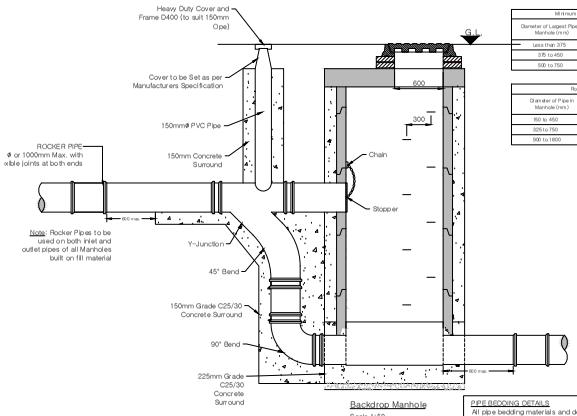
FOR STRENGTH CLASS OF GULLY REFER TO EN 124 : 1994, CLAUSE 5

NOTE 1 :- PLACE OF INSTALLATION & FIGURES 9A AND 9B PROPRIETARY FITTINGS TO BE USED ON ALL PIPEWORK CONNECTIONS

NOTE 2 :
GROUP 1 – MIN. CLASS A15 GROUP 4 – MIN. CLASS D400
GROUP 2 – MIN. CLASS B125 GROUP 5 – MIN. CLASS E600
GROUP 3 – MIN. CLASS C250 GROUP 6 – MIN. CLASS F900

PRECAST CONCRETE GULLY IN MACADAM AREA

SCALE 1:20



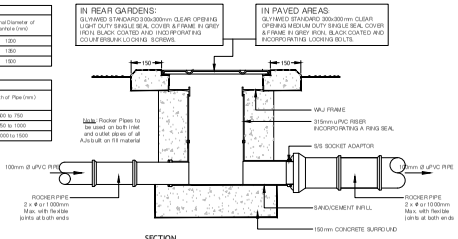
Note: Rocker Pipes to be used on both inlet and outlet pipes of all Manholes built on fill material

Backdrop Manhole

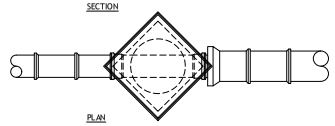
Scale 1:50

Minimum Manhole Diameter	
Diameter of Largest Pipe in Manhole (mm)	Internal Diameter of Manhole (mm)
Less than 375	1200
375 to 450	1350
500 to 750	1800

Rocker Pipe Lengths	
Diameter of Pipe in Manhole (mm)	Length of Pipe (mm)
150 to 450	900 to 750
525 to 750	750 to 1000
900 to 1800	1000 to 1500



SECTION

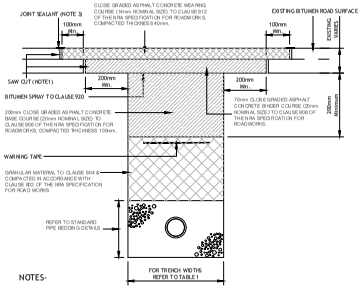


PLAN

ACCESS JUNCTION DETAIL

SCALE 1:10

PIPE BEDDING DETAILS
All pipe bedding materials and details shall be in accordance with Recommendations for Site Development Works for Housing Areas (DoELG 1998) & Sewers for Adoption 6 – A Design and Construction Guide for Developers.



NOTES-

1. ALL EDGES OF EXCAVATED AREA TO BE SAW CUT AS DETAILED.
2. 100°C HOT BITUMEN BINDER 50 PEN OR COLD THROPIC BITUMEN 50-70 PEN TO BE APPLIED TO ALL VERTICAL CUTS IN ACCORDANCE WITH BS 594 PRIOR TO THE APPLICATION OF SURFACE LAYERS.
3. JOINTS SEALED WITH HOT BITUMEN AND TOPPED WITH FINE SAND/GRIT TO GET A MINIMUM SKID RESISTANCE VALUE AS DETERMINED BY THE PORTABLE SKID RESISTANCE PENDULUM SHALL NOT EXCEED 3mm THICKNESS AND AVOID IN OF 40mm.

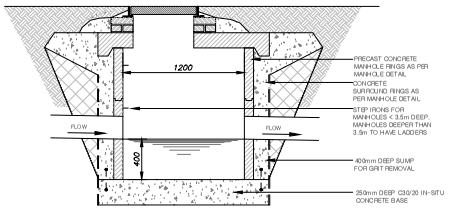
RIGID PIPES	NOMINAL PIPE DIAMETER (mm)	100	150	225	300	375	450	525	600	750	900	1050	1200	1200
	TRENCH WIDTH MIN (mm)	450	500	600	700	950	1050	1150	1250	1400	1950	2100	2300	3450
	TRENCH WIDTH MAX (mm)	650	700	800	900	1150	1250	1350	1450	1600	2150	2300	2500	3650

FLEXIBLE PIPES	NOMINAL PIPE DIAMETER (mm)	100	150	200	250	300
	TRENCH WIDTH MIN (mm)	450	450	600	600	700
	TRENCH WIDTH MAX (mm)	600	600	700	700	850

TABLE 1 - TRENCH WIDTHS

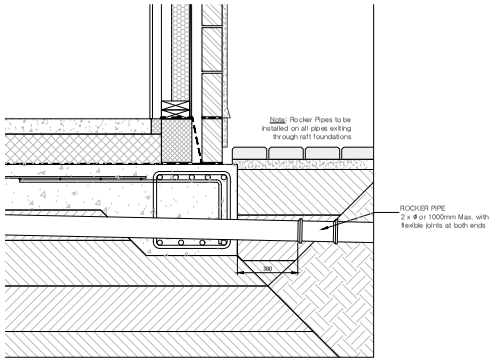
PAVEMENT REINSTATEMENT DETAILS

NOT TO SCALE



TYPICAL SUMP MANHOLE

SCALE 1:20



RAFT FOUNDATION - ROCKER PIPE DETAIL

Scale 1:10

NOTES – General Pre-Cast Manhole

1. All dimensions are in millimetres, unless noted otherwise.
2. Pre-Cast Manhole Units: Complying with requirements of IS EN 1917 and BS 5911-Part 3.
3. Thicker Manhole bases required for sewers in excess of 3m deep where the size is greater than the standard minimum size.
4. Approved Pre-Cast Concrete Bases may be used incorporating channels, benching etc. subject to Irish Water for review.
5. Manhole roofs should consist of reinforced concrete slab of in-situ concrete, C30/37, with a minimum thickness of 225mm designed to carry all live and dead loads. Alternatively, approved pre-cast concrete roof slabs may be used subject to Irish Water approval and compliance with BS 5911 Part 4:2002.
6. Covers and Frames shall be suitable for road and traffic conditions subject to approval from Cork County Council.
7. 200mm all around, 100mm deep concrete plinth with protective stainless steel metal band around covers in green areas.
8. All chambers to be checked for uplift by the developer based on ground conditions within the site. Should anti-flotation measures be required they shall be subject to approval from Irish Water.
9. All Concrete to be in Accordance with IS EN 206:2013.
10. Benching to to be formed of Grade 20/40 concrete and finished with a rendering of 25mm of Class 'B' cement mortar.
12. Concrete surround to be provided to manhole rings where depth to invert exceeds 2.0m or as directed by the Engineer.

NOTES – Backdrop Manhole

1. All dimensions are in millimetres, unless noted otherwise.
2. Rodding eye chamber shall be covered with approved heavy duty metal covers to IS 261 and BS 5834. Cover and frame shall be suitable for road and traffic conditions and is subject to the approval of Irish Water.
3. Manhole details to be in accordance with STD-WW-10 & 12 as set out in "Irish Water Connection and Developer Service (Wastewater Infrastructure Standard Details)"

P1	Issued For Information	11.12.24	JB
Rev	Revision	Date	By / Chkd

walsh design group

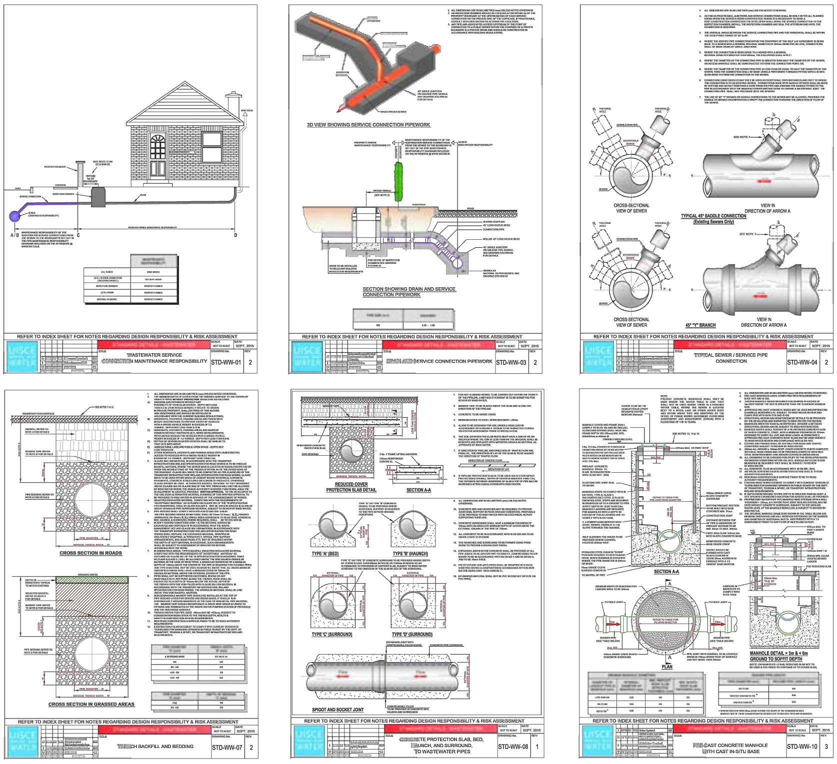
Consulting Engineers

The Mall, Wandesford Quay, Cork.

Tel: 021-4277 4000 email: info@walsh.ie

Title	Surface Water Drainage Typical Details
Project	Residential Development, Broomfield, Midleton, Co.Cork
File No.	24028-XX-XX-XX-XX-DR-WDG-CE-500
Date	Nov 2024
Drawn by	JB
Scale	As shown
Status	P1 - Information
Rev	0

DIMENSIONS NOT TO BE SCALED OFF DRAWING. USE FIGURED DIMENSIONS ONLY. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE WORKS.



Standard Uisce Éireann Detail References:

STD-WW-01 Waste water service connection responsibility
STD-WW-03 Drain & Service connection pipework
STD-WW-04 Typical Sewer/ Service pipe connection
STD-WW-05 Typical Service layout indicating separation distances
STD-WW-07 Trench Backfill & Bedding
STD-WW-08 Concrete bed, Haunch & surround to wastewater pipes
STD-WW-10 Pre-cast concrete manhole with cast in-situ base

Refer to dwg no. 24028-XX-XX-XX-XX-DR-WDG-CE-002 for plan layout

Rev	Description	Date	Drn	Ckd
0	Issued for information	15.11.24	IR	

walsh design group

Consulting Engineers

The Mall, Maryborough Woods, Douglas, Cork

Tel: 021-4774940 email: info@wdg.ie

Title:	Uisce Éireann Standard Details Wastewater
Project:	Residential Development, Broomfield, Midleton, Co.Cork
ID No:	24028-XX-XX-XX-XX-DR-WDG-CE-501
Date:	Nov 2024
Drawn by:	IR
Scale:	As shown
Purpose:	P1 - Information
Rev:	0

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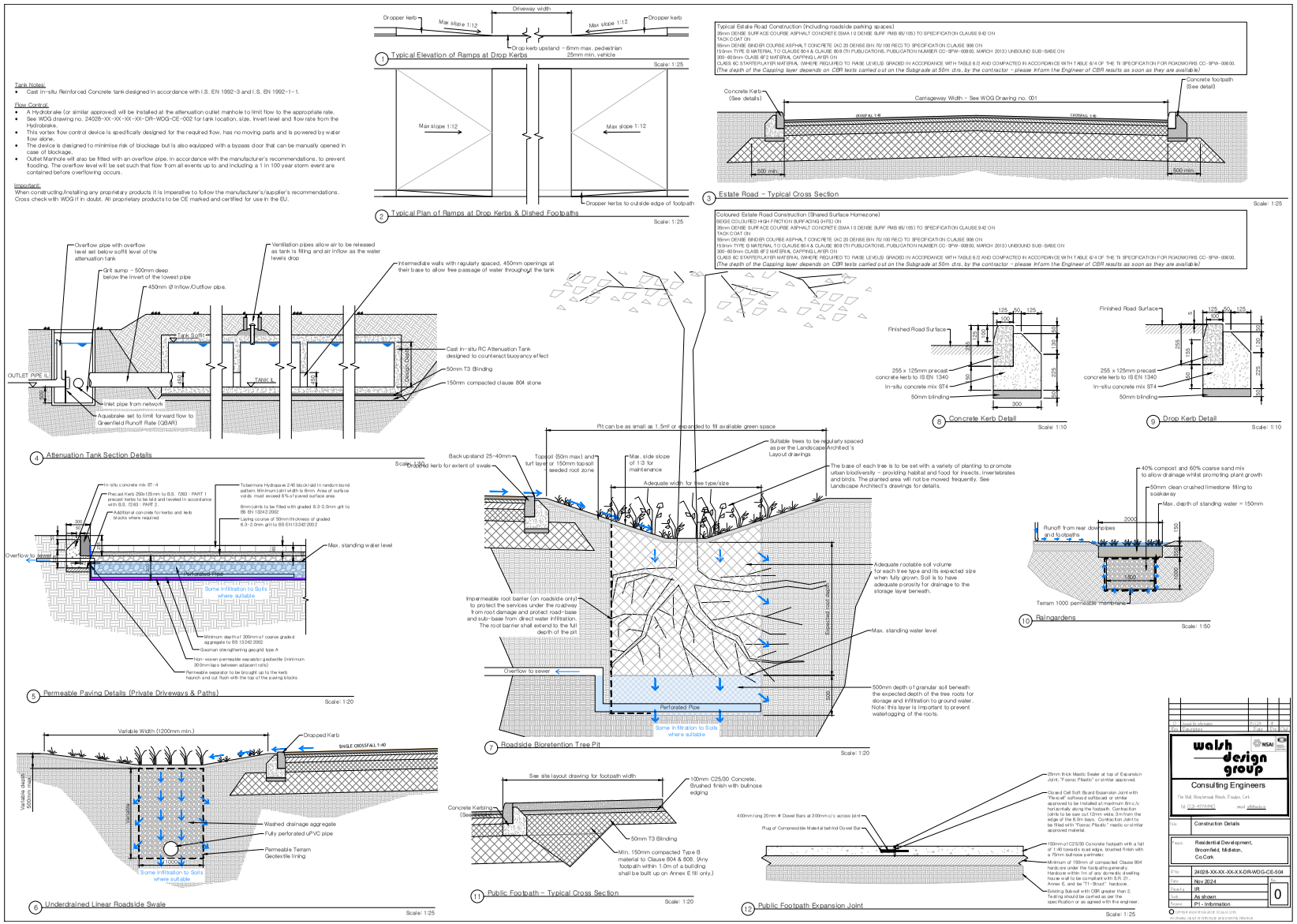
THIS DRAWING CANNOT BE REPRODUCED WITHOUT WRITTEN PERMISSION.


Tank Notes:
Cast in-situ Reinforced Concrete tank designed in accordance with I.S. EN 1992-3 and I.S. EN 1992-1-1.
Flow Control:
A Hydrobrake (or similar approved) will be installed at the attenuation outlet manhole to limit flow to the appropriate rate.
See WDG drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-002 for tank location, size, invert level and flow rate from the Hydrobrake.
This vortex flow control device is specifically designed for the required flow, has no moving parts and is powered by water flow alone.
The device is designed to minimise risk of blockage but is also equipped with a bypass door that can be manually opened in case of blockage.
Outlet Manhole will also be fitted with an overflow pipe, in accordance with the manufacturer's recommendations, to prevent flooding. The overflow level will be set such that flow from all events up to and including a 1 in 100 year storm event are contained before overflowing occurs.
Important:
When constructing/installing any proprietary products it is imperative to follow the manufacturer's/supplier's recommendations. Cross check with WDG if in doubt. All proprietary products to be CE marked and certified for use in the EU.
Dropper kerb
Max slope 1:12
Driveway width
Max slope 1:12
Dropper kerb
Drop Kerb upstand - 6mm max. pedestrian
25mm min. vehicle
1 Typical Elevation of Ramps at Drop Kerbs
Scale: 1:25
Max slope 1:12
Max slope 1:12
Dropper kerbs to outside edge of footpath
2 Typical Plan of Ramps at Drop Kerbs & Dished Footpaths
Scale: 1:25
Typical Estate Road Construction (including roadside parking spaces)
35mm DENSE SURFACE COURSE ASPHALT CONCRETE (SMA 10 DENSE SURF PMB 65/105) TO SPECIFICATION CLAUSE 942 ON
TACK COAT ON
95mm DENSE BINDER COURSE ASPHALT CONCRETE (AC 20 DENSE BIN 70/100 REC) TO SPECIFICATION CLAUSE 906 ON
150mm TYPE B MATERIAL TO CLAUSE 804 & CLAUSE 808 (TII PUBLICATIONS, PUBLICATION NUMBER CC-SPW-00800, MARCH 2013) UNBOUND SUB-BASE ON
300-450mm CLASS 6F2 MATERIAL CAPPING LAYER ON
CLASS 6C STARTER LAYER MATERIAL (WHERE REQUIRED TO RAISE LEVELS) GRADED IN ACCORDANCE WITH TABLE 6.2 AND COMPACTED IN ACCORDANCE WITH TABLE 6/4 OF THE TII SPECIFICATION FOR ROADWORKS CC-SPW-00800.
(The depth of the Capping layer depends on CBR tests carried out on the Subgrade at 50m c/s, by the contractor - please inform the Engineer of CBR results as soon as they are available)
Concrete Kerb (See details)
Carriageway Width - See WDG Drawing no. 001
Concrete footpath (See detail)
crossfall 1:40
crossfall 1:40
500 min.
500 min.
3 Estate Road - Typical Cross Section
Scale: 1:25
Coloured Estate Road Construction (Shared Surface Homezone)
EDGE COLOURED HIGH FRICTION SURFACING (HRS) ON
35mm DENSE SURFACE COURSE ASPHALT CONCRETE (SMA 10 DENSE SURF PMB 65/105) TO SPECIFICATION CLAUSE 942 ON
TACK COAT ON
95mm DENSE BINDER COURSE ASPHALT CONCRETE (AC 20 DENSE BIN 70/100 REC) TO SPECIFICATION CLAUSE 906 ON
150mm TYPE B MATERIAL TO CLAUSE 804 & CLAUSE 808 (TII PUBLICATIONS, PUBLICATION NUMBER CC-SPW-00800, MARCH 2013) UNBOUND SUB-BASE ON
300-450mm CLASS 6F2 MATERIAL CAPPING LAYER ON
CLASS 6C STARTER LAYER MATERIAL (WHERE REQUIRED TO RAISE LEVELS) GRADED IN ACCORDANCE WITH TABLE 6.2 AND COMPACTED IN ACCORDANCE WITH TABLE 6/4 OF THE TII SPECIFICATION FOR ROADWORKS CC-SPW-00800.
(The depth of the Capping layer depends on CBR tests carried out on the Subgrade at 50m c/s, by the contractor - please inform the Engineer of CBR results as soon as they are available)
Overflow pipe with overflow level set below soffit level of the attenuation tank
Grit sump - 500mm deep below the invert of the lowest pipe
450mm Ø Inflow/Outflow pipe.
Ventilation pipes allow air to be released as tank is filling and air inflow as the water levels drop
Intermediate walls with regularly spaced, 450mm openings at their base to allow free passage of water throughout the tank
Tank Soffit
OUTLET PIPE I.L.
TANK I.L.
Cover Depth
Cast in-situ RC Attenuation Tank designed to counteract buoyancy effect
50mm T3 Blinding
150mm compacted clause 804 stone
Inlet pipe from network
Aquabrake set to limit forward flow to Greenfield Runoff Rate (QBAR)
4 Attenuation Tank Section Details
Scale: 1:50
Finished Road Surface
255 x 125mm precast concrete kerb to to IS EN 1340
In-situ concrete mix ST4
50mm bilinding
8 Concrete Kerb Detail
Scale: 1:10
Finished Road Surface
255 x 125mm precast concrete kerb to to IS EN 1340
In-situ concrete mix ST4
50mm bilinding
9 Drop Kerb Detail
Scale: 1:10
In-situ concrete mix ST-4
Precast Kerb 255x125mm to B.S. 7263 : PART 1 precast kerbs to be laid and leveled in accordance with B.S. 7263 : PART 2.
Additional concrete for kerbs and kerb blocks where required
Tobermore Hydropave 240 block laid in random bond pattern. Minimum joint width is 6mm. Area of surface voids must exceed 6% of paved surface area
6mm clrshs to be filled with graded 6.3-2.0mm grit to BS EN 13242:2002
Laying course of 50mm thickness of graded 6.3-2.0mm grit to BS EN 13242:2002
Overflow to sewer
Max. standing water level
Perforated Pipe
Some Infiltration to Soils where suitable
Minimum depth of 300mm of coarse graded aggregate to BS 13242:2002
Geomon strengthening geogrid type A
Non-woven permeable separator geotextile (minimum 300mm laps between adjacent rolls)
Permeable separator to be brought up to the kerb haunch and cut flush with the top of the paving blocks
5 Permeable Paving Details (Private Driveways & Paths)
Scale: 1:20
Variable Width (1200mm min.)
Dropped Kerb
SINGLE CROSSFALL 1:40
Variable depth 350mm min
Washed drainage aggregate
Fully perforated uPVC pipe
Permeable Terram Geotextile lining
Some Infiltration to Soils where suitable
6 Underdrained Linear Roadside Swale
Scale: 1:25
Pit can be as small as 1.5m² or expanded to fill available green space
Back upstand 25-40mm
Dropped kerb for extent of swale
Topsoil (50m max) and turf layer or 150mm topsoil seeded root zone
Max. side slope of 1:3 for maintenance
Adequate width for tree type/size
Suitable trees to be regularly spaced as per the Landscape Architect's Layout drawings
The base of each tree is to be set with a variety of planting to promote urban biodiversity - providing habitat and food for insects, invertebrates and birds. The planted area will not be mowed frequently. See Landscape Architect's drawings for details.
Adequate rootable soil volume for each tree type and its expected size when fully grown. Soil is to have adequate porosity for drainage to the storage layer beneath.
Impermeable root barrier (on roadside only) to protect the services under the roadway from root damage and protect road-base and sub-base from direct water infiltration. The root barrier shall extend to the full depth of the pit.
Max. standing water level
Overflow to sewer
500mm depth of granular soil beneath the expected depth of the tree roots for storage and infiltration to ground water. Note: this layer is important to prevent waterlogging of the roots.
Perforated Pipe
Some Infiltration to Soils where suitable
7 Roadside Bioretention Tree Pit
Scale: 1:20
40% compost and 60% coarse sand mix to allow drainage whilst promoting plant growth
50mm clean crushed limestone filling to soakaway
Max. depth of standing water = 150mm
Runoff from rear downpipes and footpaths
2000
1500
Terram 1000 permeable membrane
10 Raingardens
Scale: 1:50
See site layout drawing for footpath width
100mm C25/30 Concrete, Brushed finish with bullnose edging
Concrete Kerbing (See details)
50mm T3 Blinding
Min. 150mm compacted Type B material to Clause 804 & 808. (Any footpath within 1.0m of a building shall be built up on Annex E fill only.)
11 Public Footpath - Typical Cross Section
Scale: 1:20
25mm thick Mastic Sealer at top of Expansion Joint, "Fosroc Flexcis" or similar approved.
Closed Cell Soft Board Expansion Joint with "Flexcell" softwood softboard or similar approved to be installed at maximum 6m c/c horizontally along the footpath. Contraction joints to be cut 10mm wide, 3m from the edge of the 6.0m bays. Contraction Joint to be filled with "Fosroc Flexcis" mastic or similar approved material.
400mm long 20mm Ø Dowel Bars at 300mm c/c across joint
Plug of Compressible Material behind Dowel Bar
150mm of C25/30 Concrete footpath with a fall of 1:40 towards road edge, brushed finish with a 75mm bullnose perimeter.
Minimum of 150mm of compacted Clause 804 hardcore under the footpaths generally. Hardcore within 1m of any domestic dwelling house wall to be compliant with S.R. 21 - Annex E, and be "TI - Struct" hardcore.
Existing Subsoil with CBR greater than 2. Testing should be carried as per the specification or as agreed with the engineer.
12 Public Footpath Expansion Joint
Scale: 1:25
walsh design group
Consulting Engineers
The Mall, Rockmall Beals, Passage, Cork
Tel 021-4774962 email: all@walsh.ie
Construction Details
Residential Development, Broomfield, Midleton, Co.Cork
24028-XX-XX-XX-X-DR-WDG-CE-504
Nov 2024
JR
As shown
P1 - Information
0

CONFIRMATION OF FEASIBILITY

Ciaran Galvin

Cork County Council
The Courthouse
Skibbereen
Cork
P81DX52

22 August 2024

Uisce Éireann
Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

Our Ref: CDS24001272 Pre-Connection Enquiry
Broomfield, Midleton, Cork for 135 units

Dear Applicant/Agent,

We have completed the review of the Pre-Connection Enquiry.

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 135 unit(s) at Broomfield, Midleton, Cork, (the **Development)**.

Based upon the details provided we can advise the following regarding connecting to the networks;

- **Water Connection** - Feasible without infrastructure upgrade by Uisce Éireann
- **Wastewater Connection** - Feasible Subject to upgrades
  - In order to accommodate the proposed connection at the Premises, upgrade works are required to increase the capacity of Midleton WWTP. Uisce Éireann currently has two projects underway which will provide the necessary upgrade and capacity. The first of these upgrades is scheduled for completion in Q4 2025 (this may be subject to change) and the proposed connection could be completed as soon as possibly practicable after this date

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann infrastructure. Before the Development can be connected

Stiúrthóirí / Directors: Tony Keohane (Cathaoirleach / Chairman), Niall Gleeson (POF / CEO), Christopher Banks, Fred Barry, Gerard Britchfield, Liz Joyce, Patricia King, Eileen Maher, Cathy Mannion, Michael Walsh.
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a design activity company, limited by shares. Cláraithe in Éirinn Uimh.: 530363 / Registered in Ireland No.: 530363.

UE / LH / OP448 / 0323

to our network(s) you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at www.water.ie/connections/get-connected/

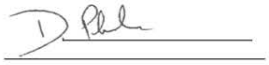
Where can you find more information?

- **Section A -** What is important to know?
- **Section B -** Details of Uisce Éireann's Network(s)

This letter is issued to provide information about the current feasibility of the proposed connection(s) to Uisce Éireann's network(s). This is not a connection offer and capacity in Uisce Éireann's network(s) may only be secured by entering into a connection agreement with Uisce Éireann.

For any further information, visit **www.water.ie/connections**, **email** **newconnections@water.ie** or contact 1800 278 278.

Yours sincerely,



Dermot Phelan
Connections Delivery Manager

Habitats Directive Appropriate Assessment
Screening Determination

Proposed Housing Development at Residential Development at Broomfield West Midleton.

Cork County Council
Comhairle Contae Chorcaí

Completed by: Joy Barry
Cork County Council.

Date: March 2025

This document contains the Habitats Directive Screening Determination of Cork County Council in respect of a housing scheme for 45 no. residential units, parking area and associated works at a site located in Broomfield West in Midleton, Co. Cork. The assessment is based on project drawings and details prepared by the project design team.

In accordance with Regulation 250 of the Planning and Development Regulations, Local Authorities are required to carry out screening for appropriate assessment of proposed development 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 one or more European[1] sites. The Local Authority is required to determine that appropriate assessment of the proposed development 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 one or more European sites.

These requirements derive from Article 6(3) of the Habitats Directive which states 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. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.*

EU and National Guidance sets out two main stages to the assessment process which are as follows:

Stage One: Screening

> The process which identifies what might be likely impacts arising from a plan or project on a European site, either alone or in combination with other projects or plans and considers whether these impacts are likely to be significant. No further assessment is required where the risk of significant impacts on European sites can be objective ruled out during the screening stage.

Stage Two: Appropriate Assessment

Where the possibility of significant impacts has not been discounted by the screening process, a more detailed assessment is required. This is called an Appropriate Assessment and requires the compilation of a **Natura Impact Statement** by the project proponent, which is a report of scientific evidence and data relating to European sites for which significant negative impacts have not been previously screened out. This is used to identify and classify any implications of the plan or project for these sites in view of their Conservation Objectives. The Appropriate Assessment must include a determination as to whether or not the project would adversely affect the integrity of any European site or sites. The plan or project may only be consented if adverse effects on the integrity of European sites can be objectively ruled out during the Appropriate Assessment process. The plan or project may not be consented on foot of an Appropriate Assessment, if it is found that it will give rise to adverse impacts on one or more European sites, or if uncertainty remains in relation to potential impacts on one or more European sites.

[1]"European Site" means— (*a) a candidate site of Community importance; (b) a site of Community importance; (c) a candidate special area of conservation; (d) a special area of conservation; (e) a candidate special protection area, or (f) a special protection area*.

Name of the project

Proposed Housing Development at Broomfield West, Midleton, Co. Cork.

Description of the project

The proposed project 45 dwelling units including 8 No. 2 Bed Apartment Units, 10 No. 1 Bed Apartment Units, 3 No. 4 Bed Semi-detached Houses, 10No.3 Bed End of Terrace Houses, 5 No. 3 Bed Terraced, 1 No. 3 bed Detached House and 8 No. 2 Bed Terrace Houses as well as associated green areas, estate roads, boundary treatments, services and all other infrastructure required to develop a housing project.

The foul wastewater from the scheme is proposed to connect to the public foul sewer and according to the scheme confirmation of Feasibility from Uisce Éireann which states that in order to accommodate the proposed connection upgrade works are required to increase the capacity of Midleton WWTP noting that UÉ currently has two projects underway which will provide the necessary upgrade and capacity. The first of these upgrades is scheduled for completion in Q4 2025 (this may be subject to change) and the proposed connection could be completed as soon as possibly practicable after this date.

The surface water system for the development is a single network falling generally from north to south, exiting the site in its south-eastern corner where it is proposed to connect to the existing surface water sewer in the L7360 via an underground reinforced attenuation tank The following SuDS features are proposed: permeable paving, under drained roadside swales and infiltration trenches, bio-retention tree pits, bio-retention raingardens and water butts. Surface water will be discharged at greenfield rates of run off and pollution controls including a hydrocarbon bypass separator will be installed within the surface water drainage system.

Site Context

The site is located on a greenfield site (see Figure 1 below) to the north of Midleton Town. The subject site measures 1.45ha in total. The site generally slopes downwards from the north east to southwest. A local road (L7360) runs along the eastern boundary and provides access to the site. This road has been recently upgraded. The site is bounded to the south and west by adjacent agricultural land and to the north by a new housing estate (The Steeples).

There are no watercourses on or near the proposed development site. The closest watercourse is the Owenacurra River located c.550m southwest, which is hydrologically connected to Great Island Channel SAC and Cork Harbour SPA). The Great Island Channel SAC and Cork Harbour SPA are located approximately 1.8km south of the site.

The site is not identified to be located within an area susceptible to flooding according to the Cork County Development Plan 2022. Therefore, there are no issues in relation to flood-risk associated with the proposed development.

Figure 1: Site Context (Site Location – RED)

Source: CCC Internal Planning Viewer accessed 18/03/2025

Name and location of EU sites subject to screening

The subject site does not overlap with any European site. The Great Channel Island Special Area of Conservation (SAC) (Site Code: 1058) and Cork Harbour Special Protection Area (SPA) (Site Code: 4030 (are located c. 1.8km to the south of the proposed development site. The Owenacurra River, is located 550m southwest of the site which is hydrologically connected to Great Island Channel SAC and Cork Harbour SPA). A potential source-pathway-receptor link has been identified between the source (proposed development site) and the receptor (Great Island Channel SAC / SPA) via a potential pathway (impacts on water quality disturbance (SPA only) and spread of invasive species during construction or operational phase, wastewater water discharges during operation).

Although the Blackwater River (Cork/Waterford) SAC (Site Code: 002170) and Ballycotton Bay SPA (Site Code: 4022) are located 12.2km and 13.5km respectively from the development site, these sites have no ecological connectivity to the proposed development site. No other EU sites have been identified with ecological connectivity to the proposed development site.

Is the project directly connected with or necessary to the management of the sites listed above?

No.

Describe how the project (alone or in combination) is likely to affect the Natura 2000 Site(s)

Natura 2000 sites with a potential source-pathway connection to the application site are assessed for potential significant effects below having regard to qualifying interests, conservation objectives and existing threats and pressures in relation to these designated sites.

Describe how the project (alone or in combination) is likely to affect the Natura 2000 Site(s)

Natura 2000 sites with a potential source-pathway connection to the application site are assessed for potential significant effects below having regard to qualifying interests, conservation objectives and existing threats and pressures in relation to these designated sites.

The submitted screening report considers potential impacts on the Great Island Channel SAC and Cork Harbour Special Protection Area as follows:

- Potential effects from loss of habitat
- Potential effects from noise and disturbance
- Potential effects from surface water runoff
- Potential effects from wastewater water discharges
- Potential effects from spread of invasive species

There will be no direct interventions within the SAC or SPA and accordingly the potential for the project to give rise to direct impacts on habitats which are qualifying interests of these designated sites is screened out.

No risk of disturbance related impacts on qualifying interests are identified, taking account of the distance of the site from the Owenacurra River / Estuary or Natura 2000 sites, its location within an urban area and limited ecological and habitat value for qualifying interests of these European sites.

Due to the location of the development and distance from any watercourse connected to the SAC / SPA and urban environment occurring between the site and the SAC / SPA, there is very little risk of nutrients/pollutants in surface water run-off to accidently impact on the Owenacurra River/Estuary or Natura 2000 sites. During construction, water will discharge to the public surface water system and/or will percolate to ground. During operation, surface water will pass through a hydrocarbon interceptor and attenuation tank prior to discharge to the public surface water sewer. There will be no impact to water quality within the Owenacurra River and to the designated sites.

The applicant is aware that upgrades are required to increase wastewater capacity and as referenced in the pre-connection feasibility confirmation letter received from Uisce Eireann dated 22nd August 2024 required upgrade projects are underway to the Midleton waste water treatment network, the first of which is scheduled for completion in Q4 2025. It is noted that the applicant no connection to the Midleton waste water treatment network until works are completed. Therefore, proposed development will not connect to the foul network until capacity is available within the Midleton WWT network. Therefore, no likely significant impacts on water quality within Great Island Channel SAC and Cork Harbour SPA from foul effluent emissions are predicted to occur. Therefore, waste water discharges from the proposed development will not have significant effects on the qualifying interests of the SPA or SAC.

No high impact or other invasive species were recorded within the proposed development site. There is no risk to the Great Island Channel SAC or Cork Harbour SPA as a result of the spread of invasive species from the proposed development. Therefore, no likely significant effect from the spread of invasive species to Great Island Channel SAC and Cork Harbour SPA is predicted to occur.

Are there other projects or plans that together with the project being assessed that could affect these sites (provide details)?

No potential for impacts identified, therefore the proposed project does not pose a threat of contributing to effects which could be significant when considered in combination with other impact sources.

Cork County Council evaluation and overall conclusion that there are no significant effects on European Sites foreseen as a result of the proposal.

In accordance with Section 177S of the Planning and Development Act 2000 (as amended) and on the basis of the objective information provided in this report, it is concluded that the proposed project does not pose a risk of causing significant negative any EU site for the following reasons:

- No works are proposed within any of the listed European sites above.
- No direct loss, alteration or fragmentation of habitats will occur within any EU sites;
- There are no hydrological linkages between the project site and any EU site;
- The site is located sufficiently distant from any EU site to be satisfied that there is no risk of activities associated with the project causing disturbance to qualifying habitats or species.

It is therefore determined that a Stage 2 Appropriate Assessment under Section 177V of the Planning and Development Act 2000 is not required.

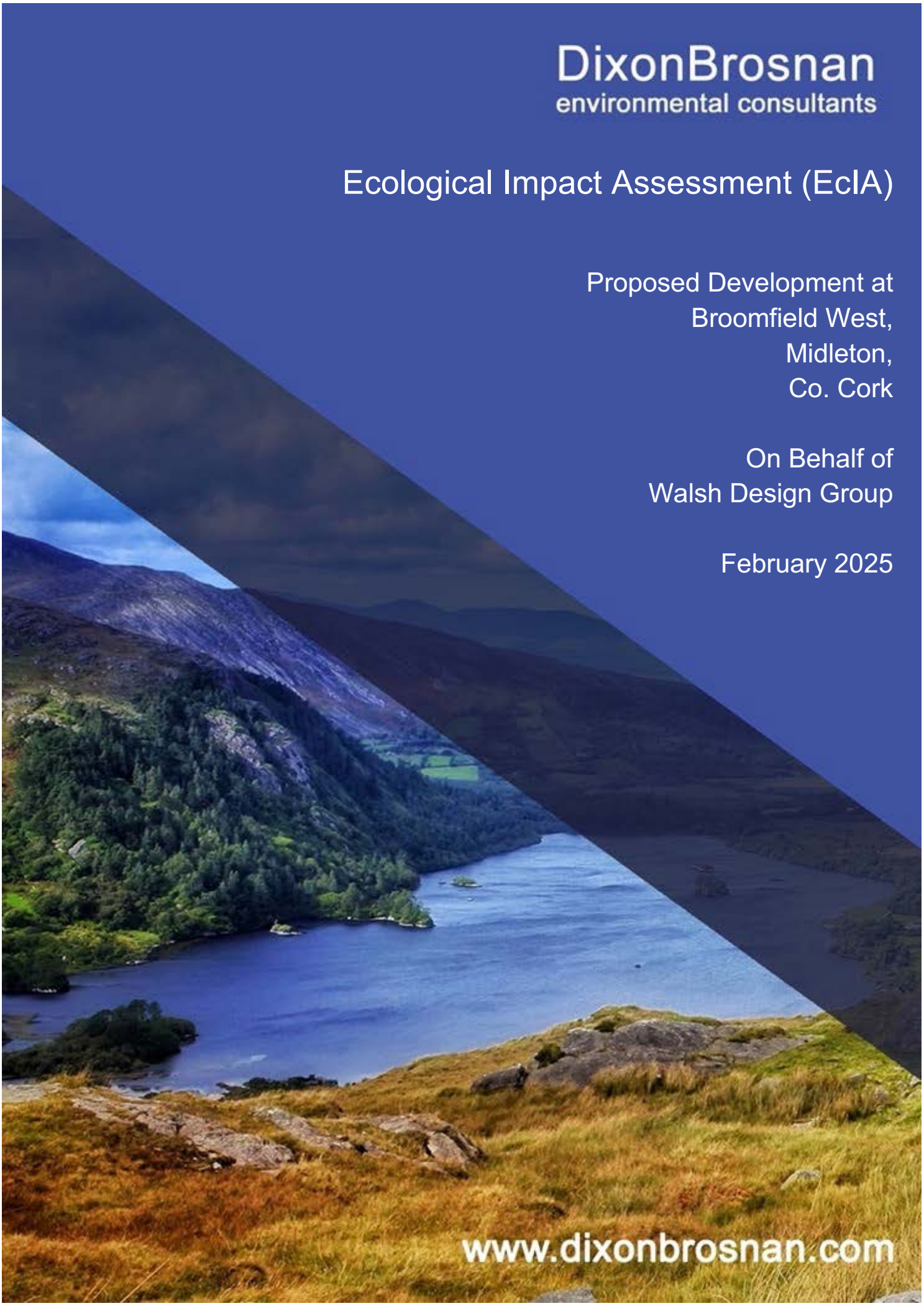
DixonBrosnan
environmental consultants

Ecological Impact Assessment (EcIA)

Proposed Development at
Broomfield West,
Midleton,
Co. Cork

On Behalf of
Walsh Design Group

February 2025



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environmental consultants

Project	Ecological Impact Assessment (EclA) Proposed Development at Broomfield West, Midleton, Co. Cork	
Client	Walsh Design Group	
Project Ref.	25005	
Report No.	25005.01	
Client Ref.	-	
Date	**Revision**	**Prepared By**
20/01/25	First Draft	Sorcha Sheehy BSc PhD
17/02/25	Issue to client	Carl Dixon BSc MSc

DixonBrosnan Lios Ri Na hAoine, 1 Redemption Road, Cork.

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Table of Contents

1. Introduction

DixonBrosnan Environmental Consultants were commissioned to assess the potential impacts from a proposed development and all associated site works at the Broomfield West, Midleton, Co. Cork, on terrestrial and aquatic flora and fauna.

This report describes and evaluates the habitats with their representative flora and fauna and addresses the potential impacts of the development on the ecology of the site and the surrounding area.

2. Methodology

2.1 Introduction

This appraisal is based on surveys of the proposed works area and a review of desktop data. Although not part of an environmental impact assessment report (EIAR) this report follows the structure and protocols detailed in *Advice notes for preparing Environmental Impact Statements* (EPA Draft, 2015) and *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'* (EPA, May 2017). This report has been prepared in accordance with CIEEM Guidelines for Impact Assessment in the UK and Ireland (January 2018) Version 1.2.

2.2 Desktop Review

A desktop study was carried out identify features of ecological value occurring within the proposed development site and those occurring in close proximity to it. A desktop review also allows the key ecological issues to be identified early in the appraisal process and facilitates the planning of surveys. Sources of information utilised for this report include the following:

- National Parks & Wildlife Service (NPWS) - www.npws.ie
- Environmental Protection Agency (EPA) – www.epa.ie
- National Biodiversity Data Centre (NBDC) – www.biodiversityireland.ie
- Cork County Biodiversity Action Plan 2009-2014;
- *Cork County Development Plan 2022*-2028;
- 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 and

- Midleton D0056-01 Wastewater Treatment Plant (WWTP) Annual Environmental Report 2022 (Irish Water 2023).

The appraisal of impacts follows the protocols outlined in guidelines for Assessment of Ecological Impacts of National Road Schemes (National Roads Authority, 2009) and CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine*.

2.2.1 Relevant Legislation

Flora and fauna in Ireland are protected at a national level by the Wildlife Acts, 1976 to 2000 and the European Communities (Birds and Natural Habitats) Regulations 2011. They are also protected at a European level by the EU Habitats Directive (92/43/EEC) and the EU Birds Directive (79/409/EEC) amended in 2009 as the Directive 2009/147/EC.

Under this legislation, sites of nature conservation importance are then designated in order to legally protect faunal and floral species and important/vulnerable habitats.

The categories of designation are as follows:

- Special Areas of Conservation (SAC) are designated under the European Communities (Birds and Natural Habitats) Regulations 2011 to comply with the EU Habitats Directive (92/43/EEC);
- Special Protection Areas (SPAs) and designated under the EU Birds Directive (79/409/EEC) amended in 2009 as the Directive 2009/147/EC; and
- Proposed Natural Heritage Areas (pNHA) are listed under the Wildlife (Amendment) Act, 2000. They have limited legal protection under Local Authority Development Plans.

2.3 Survey Overview

A site inspection was carried out on the 6th November 2024. The following surveys were carried out at the site:

- Habitats were mapped according to the classification scheme outlined in the Heritage Council publication '*A Guide to Habitats in Ireland (Fossitt, 2000)'* and following the guidelines contained in '*Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011)'.*

- The proposed development area was surveyed for invasive species.

- All bird species recorded during the walkover survey and habitat survey were recorded.

- A general mammal survey was carried out in conjunction with the habitat survey and a preliminary roost assessment for bats was also carried out.

This report was prepared by Sorcha Sheehy PhD (Ecology/ornithology) and Carl Dixon MSc (Ecological Monitoring).

Sorcha Sheehy PhD (ecology/ornithology) is an ecologist and ornithologist who has worked for 15 years in environmental consultancy. She has worked on Screening/NISs for a range of small and large-scale projects with expertise in assessing impacts on birds.

Sorcha's PhD research focused on bird behaviour at airports, where she studied bird avoidance behaviour and collision risk to aircraft. Her research involved field observations, post-mortem analysis and radar surveys. Sorcha has worked on bird collision risk assessments at airports throughout Ireland including Dublin airport, Cork airport, Shannon airport and Kerry airport.

During her consultancy work Sorcha carried out field-based surveys and environmental reports including NIS, AA screening and EIARs. Notable projects include the Arklow Bank Wind Park, Indaver Ireland Waste Management Facility at Ringaskiddy, Irving Oil Whitegate Refinery (IOWR), Shannon LNG and Greenlink Interconnector.

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.

3. Receiving Environment

3.1 Existing site

The proposed development site is located on a greenfield site to the north of Midleton town centre (**Figure 1**). A local road (L7360) runs along the eastern boundary and provides access to the site. This road has been recently upgraded. The site is bounded to the south and west by adjacent agricultural land and to the north by a new housing estate (The Steeples).

The proposed development site covers an area of approximately 1.45ha. The site generally slopes southwest with a high point of approximately 58.000m in the northeast of the site and the low point of approximately 41.620m at its southwest boundary.

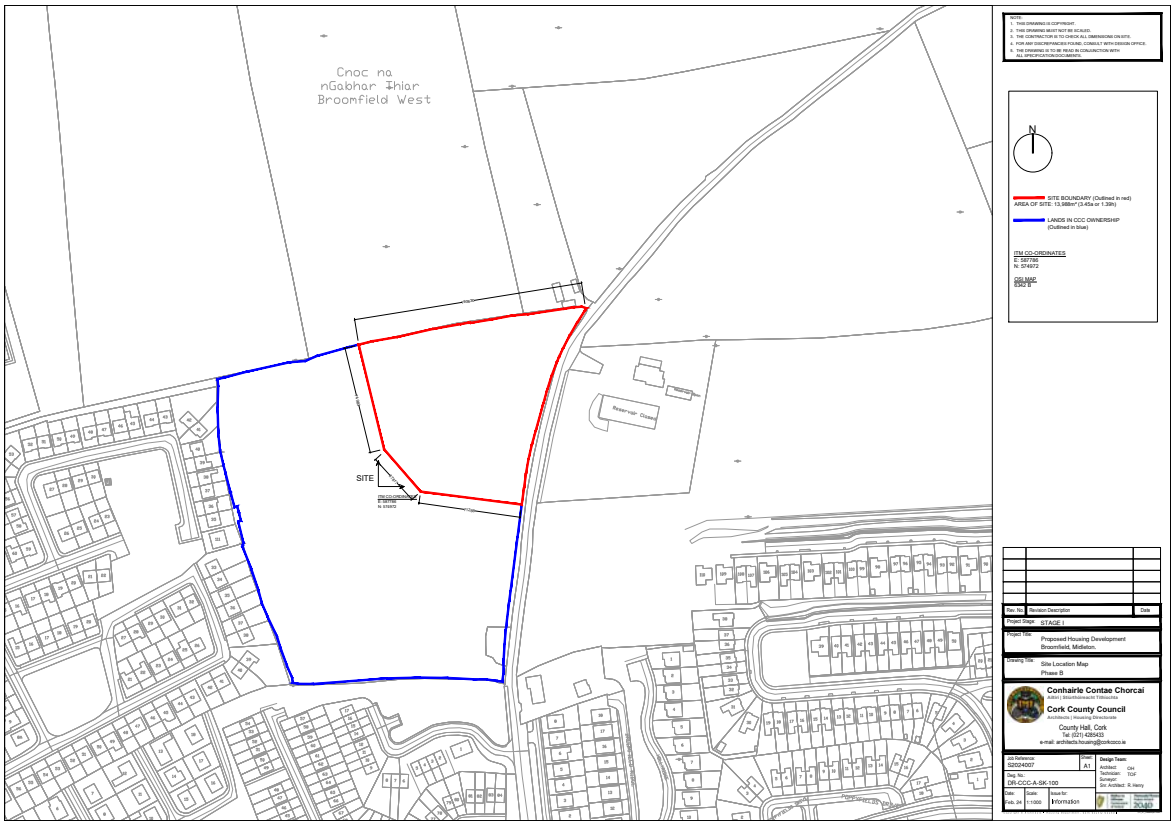

Figure 1. Site location | Source Cork County Council

3.2 Proposed Development

The proposed development on the site is for consist of 45 dwelling units including 8 No. 2 Bed Apartment Units, 10 No. 1 Bed Apartment Units, 3 No. 4 Bed Semi-detached Houses, 10No.3 Bed End of Terrace Houses, 5 No. 3 Bed Terraced, 1 No. 3 bed Detached House and 8 No. 2 Bed Terrace Houses as well as associated green areas, estate roads, boundary treatments, services and all other infrastructure required to develop a housing project.

An overview of the proposed development is shown in **Figure 2**.

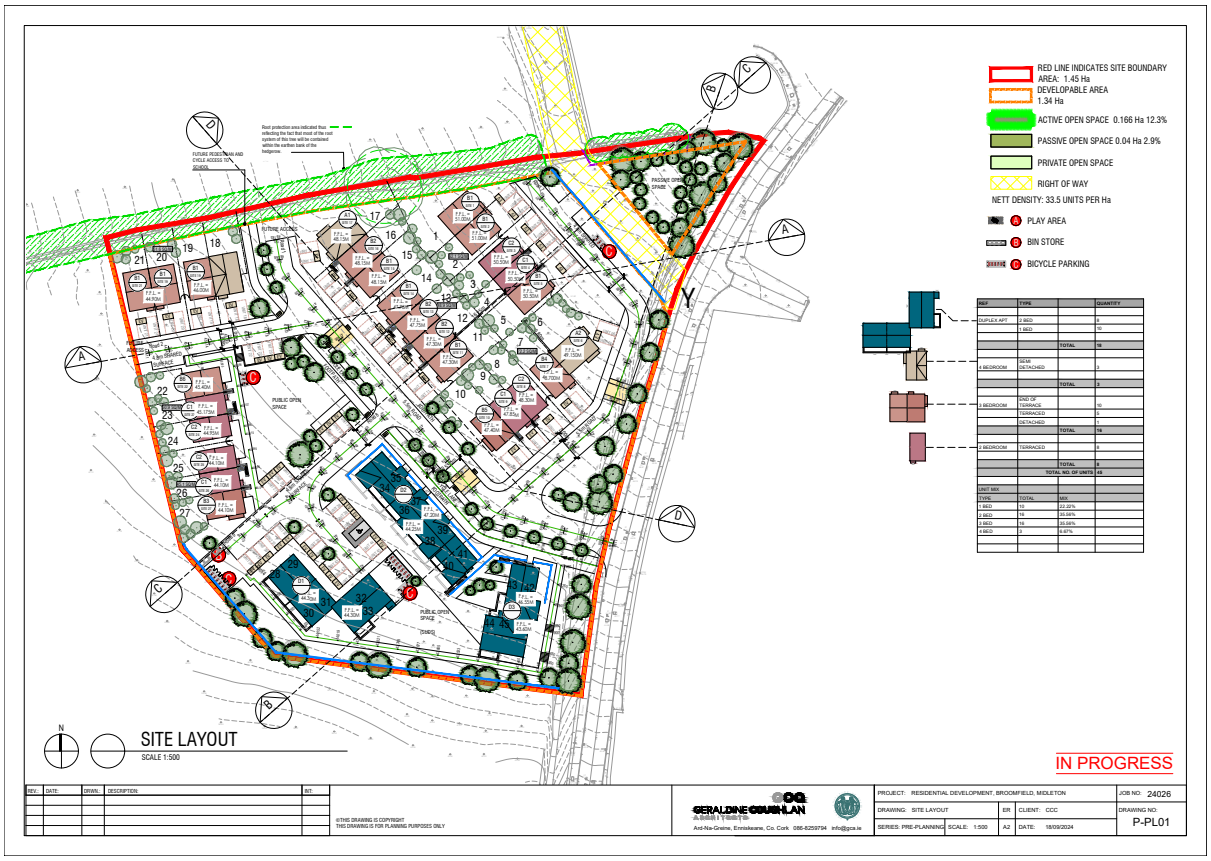

Figure 2. Proposed site layout plan | Source Geraldine Coughlan

3.3 Flood Risk

A desktop study of the history of flooding and the probability of flooding at the site was carried out with the intention of assessing the flood risk in accordance with *The Planning System and Flood Risk Management Guidelines* as published by the Department of the Environment, Heritage and Local Government give guidelines on flood risk and development planning (Walsh Design Group).

Midleton town centre and the low-lying areas adjacent to the Owenacurra River are prone to flooding from Ballyedmond to the north and south as far as Ballynacora, as the river overtops its banks in sustained heavy rainfall events. The OPW has recorded several past and recurring flood events along the river. Cork County Council is currently planning a flood relief scheme for Midleton to defend properties at risk from all four sources of flooding, i.e. tidal, fluvial, pluvial and groundwater.

The proposed development site near the top of a hill in Broomfield West and the ground levels on site are significantly higher than the river. The predicted high-water levels along the Oweracurra River in a 0.1% AEP flood event range from 13.87m OD to the north of Broomfield to 5.44m OD to the South of Midleton Town Centre. The lowest ground level in the proposed development site is 41.6m OD.

The proposed development site lies outside any areas that have flooded in the past or have a probability of flooding in any event, whether fluvial, coastal or groundwater, up to and including

a 1 in 1000-year storm. This places the site in flood zone C where residential development is appropriate without requiring a justification test.

3.4 Surface Water Drainage

The proposed storm sewer collection system consists of a 100mm diameter pipe collection network around each house in accordance with TGD part H discharging to 225mm diameter uPVC sewer or larger in the public areas of the development. The surface water network layout is shown in drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-002 and the typical details for the surface water infrastructure are shown on drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-500. Details of SuDS are included in drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-504.

The surface water sewers have been designed using the Causeway Flow design software and the Wallingford procedure for the design and analysis of urban drainage. The surface water system for the development is a single network falling generally from north to south, exiting the site in its south-eastern corner where it is proposed to connect to the existing surface water sewer in the L7360.

The storm network's design criteria included:

- Return period of 5 years,
- maximum rainfall of 50 mm/hr,
- maximum time of concentration of 30 minutes,
- minimum cover of 1.2m to pipes under roads,
- M5-60 of 18.8mm (Met Éireann),
- SPR of 0.3. (https://www.uksuds.com/tools/members/greenfield-runoff-rate-estimation-members)

OCB Geotechnical Ltd. were contracted by Cork County Council to carry out a site investigation on the site. The soil was noted as being a generally shallow layer of sandy gravelly silty clay and glacial till consisting of sandy gravelly clayey silt. The soil infiltration rates recorded after BRE Digest 365 testing were good. To classify this soil, Table 5/1 of the NRA, DMRB, Volume 4, Section 2, Part 1 – NRA HD 106/15, was used to cross check the UKSuDS value. The soil would be considered Class S2 with a corresponding SPR of 0.3 which is consistent with the UKSuDS figure.

The surface water sewer networks have been modelled and each individual pipe run has been designed such that no flooding will occur to individual elements during any storm up to and including 24-hour 100-year return period, summer, and winter storms. In all storm simulations an additional flow of 20% was added to account for future climate change.

This single network is designed to fall generally from north to south and exit the development in the southeastern corner to tie into the existing sewer in the L7360. To reduce the forward flow from the developed site to a maximum of the QBAR greenfield runoff rate of 3.9 l/s a hydrobrake shall be constructed in a manhole prior to the sewer exiting the site. Choking the flow to this rate will result in the requirement for temporary attenuation storage. A certain

amount of attenuation storage shall be provided in the roadside infiltration trenches, but the primary storage element shall be an underground reinforced concrete tank in the southeastern green area of the site.

SuDS measures are proposed for the development in both public and private areas in accordance with the guidance from the County Development Plan 2022 Advice Note 1 on Surface Water management and the CIRIA SuDS Manual C753. The measures proposed will decrease the impact of the development on the receiving environment and also provide amenity and biodiversity in many cases. Regular maintenance of the SuDS measures will be required to ensure that they are effective throughout their design life. The following SuDS features are proposed: permeable paving, underdrained roadside swales and infiltration trenches, bio-retention tree pits, bio-retention raingardens and water butts.

3.5 Wastewater Drainage

The layout of the proposed wastewater drainage network for the development is shown on WDG drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-002 and the typical details for the wastewater infrastructure are shown on drawing no. 24028-XX-XX-XX-XX-DR-WDG-CE-501. 1 conventional piped, gravity sewer network is proposed. The network will generally fall from the north to the south where it will connect to existing Irish Water infrastructure in the L7360 near the southeast corner of the site.

All sewers within the curtilage of individual houses are to be installed in accordance with TGD Part H (2010) and will consist of 100 mm diameter uPVC Sewers from individual houses laid to falls of min 1:60 to connect to a 150mm and 225mm uPVC sewer to be laid under the estate road. Inspection chambers will be constructed within 1m of the boundary of each private property in accordance with Uisce Éireann Standard Details.

All wastewater sewers in the public realm have been designed in compliance with Uisce Éireann's Code of Practice for Wastewater Infrastructure – A Design and Construction Guide for Developers (Revision 2) July 2020. All construction details within the public realm will be in accordance with Uisce Éireann's Wastewater Infrastructure Standard Details (Revision 4), July 2020.

A pre-connection enquiry was submitted to Uisce Éireann to assess the feasibility of providing a connection to the site and Irish Water subsequently issued a confirmation of feasibility for the development. Uisce Éireann responded to confirm that a wastewater connection for the site is feasible subject to upgrades.

In order to accommodate the proposed connection at the Premises, upgrade works are required to increase the capacity of Midleton WWTP. Uisce Éireann currently has two projects underway which will provide the necessary upgrade and capacity. The first of these upgrades is scheduled for completion in Q4 2025 (this may be subject to change) and the proposed connection could be completed as soon as possibly practicable after this date.

4. Designated Conservation Areas

4.1 European (Natura 2000) Sites

Special Areas of Conservation (SACs) and candidate SACs are protected under the Habitats Directive 92/43/EEC and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Special Protection Areas (SPAs) are protected under the Birds Directive 2009/147/EC and European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Collectively, these sites are referred to as Natura 2000 or European sites.

The proposed development site does not overlap with any Natura 2000 site. The Great Island Channel SAC and Cork Harbour SPA are located approximately 1.8km south of the site. The proposed development site is located within the zone of influence of a number of designated sites and a potential source-pathway-receptor link has been identified with two Natura 2000 sites i.e. Great Island Channel SAC, and Cork Harbour SPA (**Table 1**). Relevant Natura 2000 sites are shown in **Figure 3**.

Cork Harbour is a large, sheltered bay system, with several river estuaries - principally those of the Rivers Lee, Douglas, Owenboy and Owennacurra. The SPA site comprises most of the main intertidal areas of Cork Harbour, including all of the North Channel, the Douglas River Estuary, inner Lough Mahon, Monkstown Creek, Lough Beg, the Owenboy River Estuary, Whitegate Bay, Ringabella Creek and the Rostellan and Poulnabibe inlets. Cork Harbour is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, it supports nationally important wintering populations of 22 species, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive.

The Great Island Channel stretches from Little Island to Midleton, with its southern boundary being formed by Great Island. It is an integral part of Cork Harbour which contains several other sites of conservation interest. Geologically, Cork Harbour consists of two large areas of open water in a limestone basin, separated from each other and the open sea by ridges of Old Red Sandstone. Within this system, Great Island Channel forms the eastern stretch of the river basin and, compared to the rest of Cork Harbour, is relatively undisturbed. Within the site is the estuary of the Owennacurra and Dungourney Rivers. These rivers, which flow through Midleton, provide the main source of freshwater to the North Channel. The site is a Special Area of Conservation (SAC) for two habitats listed on Annex I; [1140] Tidal Mudflats and Sandflats [1330] Atlantic Salt Meadows.

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

Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
Special Area of Conservation (SAC)			
Great Island Channel SAC	001058	1.8km south. A potential source-pathway-receptor link has been identified between the source (proposed	**Habitats**

Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
		development site) and the receptor (Great Island Channel) via a potential pathway (impacts on water quality and spread of invasive species during construction or operational phase, wastewater water discharges during operation).	1140 Mudflats and sandflats not covered by seawater at low tide 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
Blackwater River (Cork/Waterford) SAC	002170	12.2km north. No hydrological or other pathway exists. No viable source-pathway-receptor link will occur.	**Habitats** 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide 1220 Perennial vegetation of stony banks 1310 Salicornia and other annuals colonising mud and sand 1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) 1410 Mediterranean salt meadows (Juncetalia maritimi) 3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation 91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles 91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* **Species** 1096 Brook Lamprey (*Lampetra planeri*) 1106 Salmon (*Salmo salar*) 1421 Killarney Fern (*Trichomanes speciosum)* 1095 Sea Lamprey (*Petromyzon marinus)* 1355 Otter (*Lutra lutra)* 1103 Twaite Shad (*Alosa fallax fallax)* 1092 White-clawed Crayfish (*Austropotamobius pallipes*)

Natura 2000 Sites	Site Code	Distance at closest point and potential source-pathway-receptor link	Qualifying Interests (* denotes a priority habitat)
			1029 Freshwater Pearl Mussel (*Margaritifera margaritifera)* 1099 River Lamprey (*Lampetra fluviatilis)*
Special Protection Area (SPA)			
Cork Harbour SPA	004030	1.8km south. A potential source-pathway-receptor link has been identified between the source (proposed development site) and the receptor (Cork Harbour SPA) via a potential pathway (impacts on water quality, disturbance or spread of invasive species during construction or operational phase, wastewater discharges during operation).	**Birds** A056 Shoveler *(Anas clypeata)* A149 Dunlin *(Calidris alpina)* A140 Golden Plover *(Pluvialis apricaria)* A050 Wigeon *(Anas penelope)* A028 Grey Heron *(Ardea cinerea)* A069 Red-breasted Merganser *(Mergus serrator)* A142 Lapwing *(Vanellus vanellus)* A130 Oystercatcher *(Haematopus ostralegus)* A141 Grey Plover *(Pluvialis squatarola)* A052 Teal *(Anas crecca)* A054 Pintail *(Anas acuta)* A157 Bar-tailed Godwit *(Limosa lapponica)* A162 Redshank *(Tringa totanus)* A183 Lesser Black-backed Gull *(Larus fuscus)* A179 Black-headed Gull *(Chroicocephalus ridibundus)* A004 Little Grebe *(Tachybaptus ruficollis)* A160 Curlew *(Numenius arquata)* A182 Common Gull *(Larus canus)* A048 Shelduck *(Tadorna tadorna)* A017 Cormorant *(Phalacrocorax carbo)* A193 Common Tern *(Sterna hirundo)* A005 Great Crested Grebe *(Podiceps cristatus)* A156 Black-tailed Godwit *(Limosa limosa)* **Habitats** Wetlands

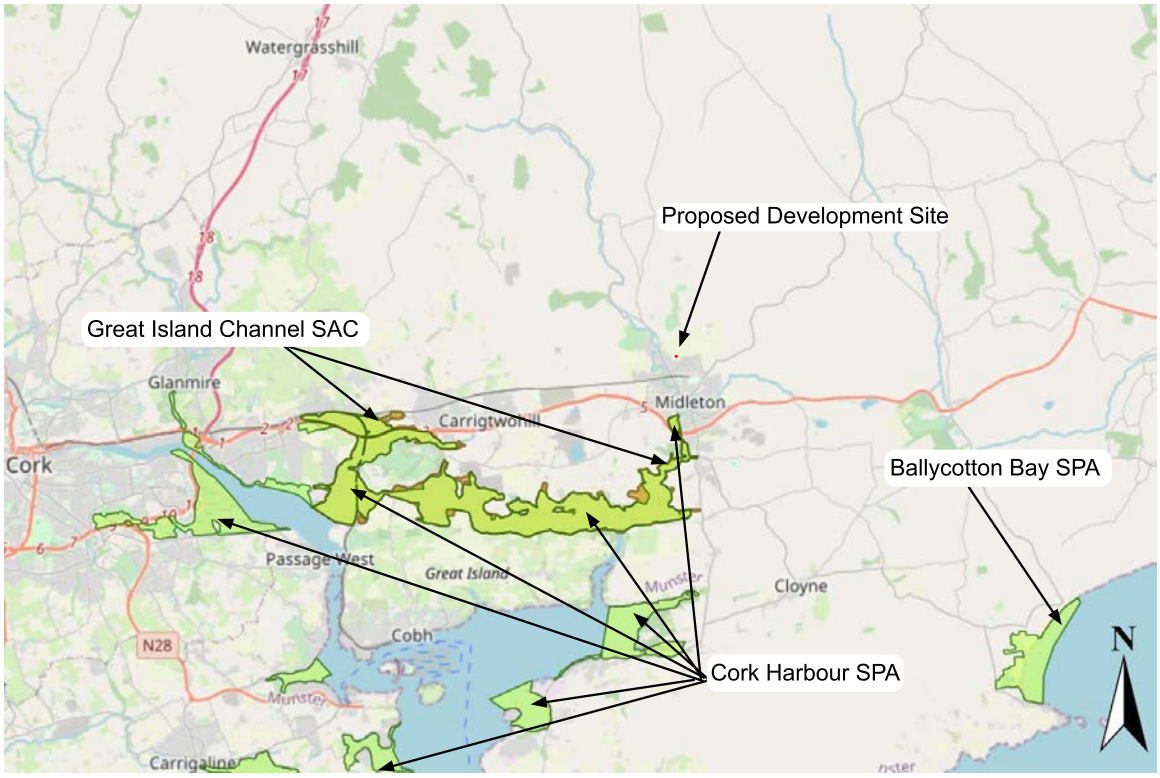

Figure 3. Natura 2000 sites within likely zone of impact of the proposed development site | Source EPA Envision Mapping | Not to scale

Figure 4. Great Island Channel SAC, Cork Harbour SPA and Owenacurra River locations in proximity to proposed development site | Source EPA Envision Mapping | Not to scale

An Appropriate Assessment (AA) Screening has been prepared for and submitted with this application: *Report in Support of Appropriate Assessment (AA) Screening for the Proposed Development Broomfield West, Midleton, Co. Cork.* (DixonBrosnan 2024). This is discussed further below.

4.2 Nationally Protected Sites

Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) are national designations under the Wildlife Act 1976, as amended. A Natural Heritage Area (NHA) is designated for its wildlife value and receives statutory protection. These areas are considered nationally important for the habitats present or which holds species of plants and animals whose habitats needs protection. Under the Wildlife Amendment Act (2000), NHAs are legally protected from damage from the date they are formally proposed for designation.

Proposed Natural Heritage Areas (pNHA) were published on a non-statutory basis in 1995 and have not since been statutorily proposed or designated. These sites are also of significance for wildlife and habitats. Prior to statutory designation, pNHAs are still subject to limited protection, in the form of:

- Agri-environmental farm planning schemes support the objective of maintaining and enhancing the conservation status of pNHAs;
- There is a requirement for the Forest Service to gain NPWS approval before they will pay afforestation grants on pNHA lands; and,
- A recognition of the ecological value of pNHAs by Planning and Licencing Authorities.

The NHAs and pNHAs located in the vicinity of the proposed development site are listed in **Table 2** and are shown in **Figure 5.**

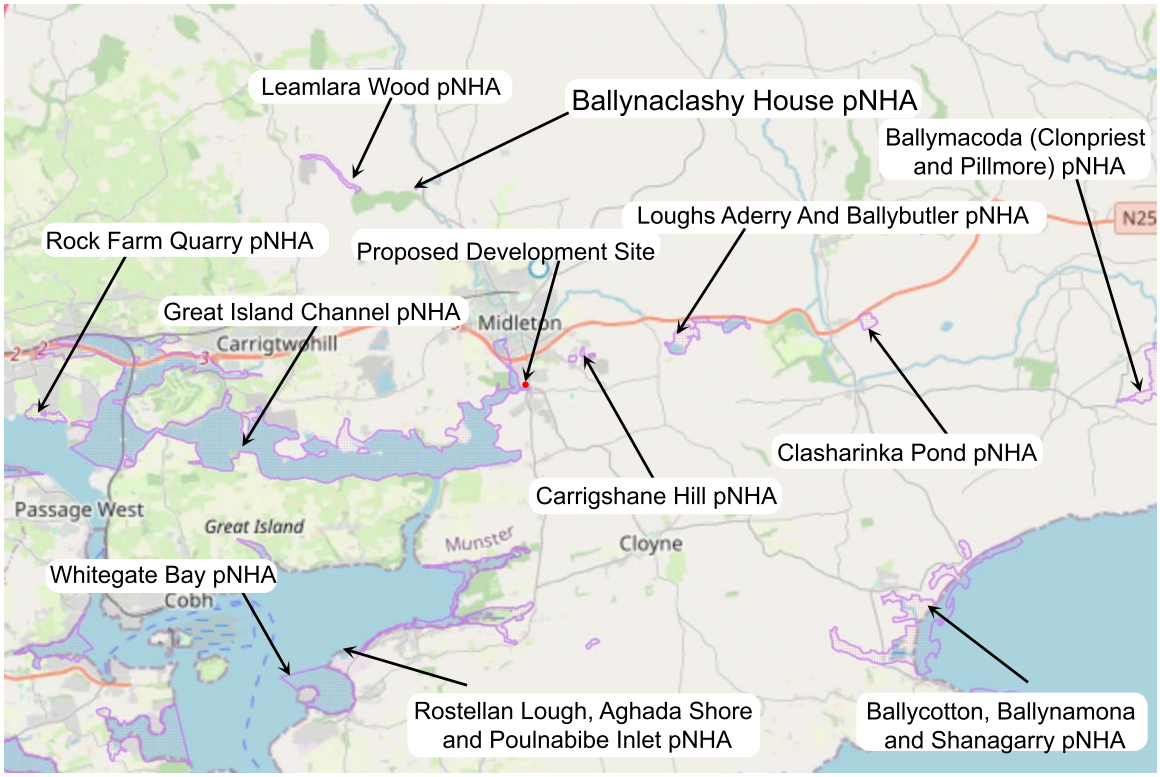

Figure 5. Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHAs) in the vicinity of the proposed development site | Source EPA envision mapping | Not to scale

Table 2. Natural Heritage Area (NHA)/proposed Natural Heritage Area (pNHA) in the vicinity of the proposed development site

NHA/pNHA	Site Code	Overlapping with Natura 2000 site	Distance at closest point and potential source-pathway-receptor link
Great Island Channel pNHA	001058	Great Island Channel SAC and Cork Harbour SPA	1.8km south. See Great Island Channel SAC and Cork Harbour SPA. Potential hydrological connection via the Owenacurra River. A viable source pathway connector link has been identified.
Carrigshane Hill pNHA	001042	None	2.7km southwest. This area is important as a representative of the herb rich community grassland community found near the exposed limestone – a habitat under threat from quarrying. The presence of Thick- leaved Stonecrop adds further interest to this site. No pathway identified.
Ballynaclashy House pNHA	000099	None	2.9km northwest. A maternity roost of Whiskered Bat (*Myotis mystacinus*) has been recorded at Ballynaclahsy House pNHA. The foraging range of Whiskered Bat is normally 3.5km from nursery colonies and therefore the proposed development could potentially be inside the foraging range of this bat colony. No pathway identified
Leamlara Wood pNHA	001064	None	4.1km northwest. This site is situated 6km north-west of Midleton in the steep sided valley of the Leamlara River. This area is of local importance as there are few areas of semi-natural oak woodland in east Cork, and it is a good example of this community. No pathway identified.
Loughs Aderry and Ballybutler pNHA	000446	None	4.5km southeast This site includes two rich lakes surrounded by farmland and marshy ground. This site is of particular interest because of the presence of two rare plant species and nationally important numbers of birds. No pathway identified.
Rostellan Lough, Aghada Shore And Poulnabibe Inlet pNHA	001076	Cork Harbour SPA	7.1km south. See Cork Harbour SPA. Potential hydrological connection via the Dungourney River, however given the distance from proposed development site this is not significant. No pathway identified.

NHA/pNHA	Site Code	Overlapping with Natura 2000 site	Distance at closest point and potential source-pathway-receptor link
Clasharinka Pond pNHA	001183	None	7.1km northeast. The rare species Orange Foxtail (*Alopecurus aequalis*) is found on peaty mud around the pond at the summer water level. It is important to protect this site for conservation and to monitor the rare species' population, which is at present, very healthy. No pathway identified.
Carrigacrump Caves pNHA	001408	None	8.9km south. This site is located in an area of outcropping limestone in east Co. Cork. The core system has eight entrances and most of the passages are of the canyon type and water floored. The entrances of the caves are in a disused quarry which contains some areas of undisturbed limestone grassland that includes some locally rare plants such as Carline Thistle (*Carlina vulgaris*) and Long-stalked Crane's-bill (*Geranium columbinum*). In addition, the naturalised flora is unusual. No pathway Identified.
Cuskinny Marsh pNHA	001987	None	9.6km southwest. This site is located 2.5km east of the centre of Cobh on the shores of Cork Harbour. Cuskinny Marsh is of interest because it contains a nice mix of habitats, within a small area, and supports locally important numbers of wildfowl. No pathway identified.
Whitegate Bay pNHA	001084	Cork Harbour SPA	11.1km southwest. See Cork Harbour SPA. Potential hydrological connection via the Owenacurra Estuary, however given the distance from proposed development site and the dilution available within the Cork Harbour water, this is not significant. No viable pathway for impact
Ballycotton, Ballynamona And Shanagarry pNHA	000076	Ballycotton Bay SPA	12.5km southeast See Cork Harbour SPA. Potential hydrological connection via the Owenacurra Estuary, however given the distance from proposed development site and the dilution available within the Cork Harbour water, this is not significant. No viable pathway for impact

The proposed development site is potentially hydrologically connected to the Great Island Channel pNHA via the Owenacurra Estuary. While other pNHAs within Cork Harbour (e.g. Whitegate Bay pNHA) are potentially hydrologically connected, given the distance from proposed development site and the dilution available within Cork Harbour at this distance there is no viable pathway for impact. It is noted that a maternity roost of Whiskered Bat (*Myotis mystacinus*) has been recorded at Ballynaclashy House pNHA, approximately 2.9km northwest of the proposed development site. The foraging range of Whiskered Bat is normally 3.5km from nursery colonies and therefore the proposed development is considered to be inside the foraging range of this bat colony. Potential impacts of the proposed development on local bat populations are discussed further in **Sections 9.4** below. No other significant pathways to NHA/pNHA sites in the vicinity have been identified.

4.3 Ramsar Sites

The Convention on Wetlands, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. A key commitment of Ramsar Contracting Parties is to identify and place suitable wetlands onto the List of Wetlands of International Importance. Cork Harbour, which is located approximately 190m southwest of the site is listed as a Ramsar site, which is a non-statutory designation.

4.4 Important Bird Areas – Cork Harbour

Important Bird and Biodiversity Areas (IBAs) are sites selected as important for bird conservation because they regularly hold significant populations of one or more globally or regionally threatened, endemic or congregator bird species or highly representative bird assemblages. The European IBA programme aims to identify, monitor and protect key sites for birds all over the continent. It aims to ensure that the conservation value of IBAs in Europe (now numbering more than 5,000 sites or about 40% of all IBAs identified globally to date) is maintained, and where possible enhanced. The programme aims to guide the implementation of national conservation strategies, through the promotion and development of national protected-area programmes. Through their designation they aim to form a network of sites ensuring that migratory species find suitable breeding, stop-over and wintering places along their respective flyways.

The function of the Important Bird Area (IBA) Programme is to identify, protect and manage a network of sites that are important for the long-term viability of naturally occurring bird populations, across the geographical range of those bird species for which a site-based approach is appropriate. The proposed development site has a potential hydrological connection via the Owenacurra River and Owenacurra Estuary to the Cork Harbour IBA (Site Code: IE088).

The site qualifies for designation under the following IBA Criteria (2000):

- A4iii - The site is known or thought to hold, on a regular basis, ≥ 20,000 waterbirds or ≥ 10,000 pairs of seabird of one or more species.
- B1i - The site is known or thought to hold ≥ 1% of a flyway or other distinct population of a waterbird species

- B2 - The site is one of the most important in the country for a species with an unfavourable conservation status in Europe and for which the site-protection approach is thought to be appropriate.
- C3 - The site is known to regularly hold at least 1% of a flyway population or of the EU population of a species threatened at the EU level (not listed on Annex 1 of The Birds Directive).
- C4 - The site is known to regularly hold at least 20,000 migratory waterbirds and/or 10,000 pairs of migratory species of one or more species.
- C6 - The site is one of the five most important in the European region in question for a species or subspecies considered threatened in the European Union.

Table 3. Provides a summary of the Cork Harbour IBA trigger species.

Species	Current IUCN Red List Category	Season	Year(s) of estimate	Population estimate	IBA Criteria Triggered
Eurasian Curlew (*Numenius arquata*)	NT	winter	1995	1,669 individuals	B2
Bar-tailed Godwit (*Limosa lapponica*)	NT	winter	1996	456 individuals	B2
Black-tailed Godwit (*Limosa limosa*)	NT	winter	1996	1,399 individuals	B1i, C3
Dunlin (*Calidris alpine*)	LC	winter	1995	12,050 individuals	B1i, B2, C3
Common Redshank (*Tringa tetanus*)	LC	winter	1996	1,344 individuals	B1i, C3
Common Tern (*Sterna hirundo*)	LC	breeding	1995	102 breeding pairs	C6
A4iii Species group - waterbirds	n/a	winter	-	20,000 individuals	A4iii, C4

5. Habitats

Site surveys were carried out on the 6th of November 2024. Habitat mapping was carried out in line with the methodology outlined in the Heritage Council Publication, *Best Practice Guidance for Habitat Survey and Mapping* (Heritage Council, 2011). The terrestrial and aquatic habitats within or adjacent to the proposed development site was classified using the classification scheme outlined in the Heritage council publication *A Guide to Habitats in Ireland* (Fossitt, 2000) and cross referenced with Annex I Habitats where required. The habitats recorded on site are described below in **Table 4** and mapped in **Figure 6.** Site photographs are also included below.

The ecological value of habitats has been defined using the classification scheme outlined in the *Guidelines for Assessment of Ecological Impacts of National Road Schemes* (National Roads Authority, 2009) which is included in **Appendix 1**. It should be noted that the value of a habitat is site specific and will be partially related to the amount of that habitat in the surrounding landscape. Habitats that are considered to be good examples of Annex I and Priority habitats are classed as being of International or National Importance. Semi-natural habitats with high biodiversity in a county context and that are vulnerable, are considered to be of County Importance. Habitats that are semi-natural, or locally important for wildlife, are considered to be of Local Importance (higher value) and sites containing small areas of semi-

natural habitat or maintain connectivity between habitats are considered to be of Local Importance (lower value).

No Annex I habitats were recorded within the proposed development site. No protected species were recorded during the site visits.

Table 4. Habitats recorded within proposed development site boundary

Habitats	Comments	Ecological value (NRA Guidelines)
Improved agricultural grassland GA1	The site is dominated by improved agricultural grassland. In the absence of intensive management the grassland is moderately diverse. Species recorded include Sorrel, Ragweed, Cocksfoot, Common bent, Dandelion, Nettle, Creeping buttercup, Ragweed, Curled dock, Hawkweed, Ribwort plantain, Common mouse-ear and Red fescue. The area is located on the boundary of residential/urban developments and there are relatively high levels of disturbance from walkers and dogs.  Plate 1. Improved agricultural grassland dominates the site (view looking north over site)	Local importance (Lower value)

Habitats	Comments	Ecological value (NRA Guidelines)
	 Plate 2. Improved agricultural grassland dominates the site (view looking south over site)	
Hedgerow WL1/Scrub WS1 /Dense bracken HD1	Along the northern boundary of the a patchy band of Bracken, Gorse and Bramble scrub is intruding into the field. An overgrown, gappy hedgerow bounds this scrub to the north. Within the hedgerow, Hawthorn, Blackthorn and Elder are present with Foxglove, Nettle, Bramble, Bracken and Gorse in the understorey. One semi-mature to mature Ash is present along this hedgerow. A number of semi-mature and mature Hawthorn are also present along this hedgerow.  Plate 3. Scrub encroaching into the field along the northern boundary	Local importance (Lower value)

Habitats	Comments	Ecological value (NRA Guidelines)
	 Plate 4. Patchy hedgerow along the northern boundary  Plate 5. Mature/semi-mature Ash along northern boundary	
Earth bank BL2	Running along the eastern boundary of the site is a newly created earth bank which is colonised by early successional and common grass species. There is also a newly created entrance into the site along this boundary. One dead Sycamore and an Elm with some regrowth from the base are present along the boundary. There are no other trees or shurbs present along the eastern boundary. Species noted on the earth bank include Spearthistle, Dock, Stitchwort, White clover, Oxeye daisy, Foxglove, Scarlet pimpernel, Perennial ryegrass, Common mouse-ear, Pineapple weed.	Local importance (Lower value)

Habitats	Comments	Ecological value (NRA Guidelines)
	 Plate 6. Earth bank on eastern boundary with dead Sycamore  Plate 7. Earth bank along eastern boundary	

Habitats	Comments	Ecological value (NRA Guidelines)
	 Plate 8. New entrance along eastern boundary  Plate 9. View or earth bank looking south along L7360 road	

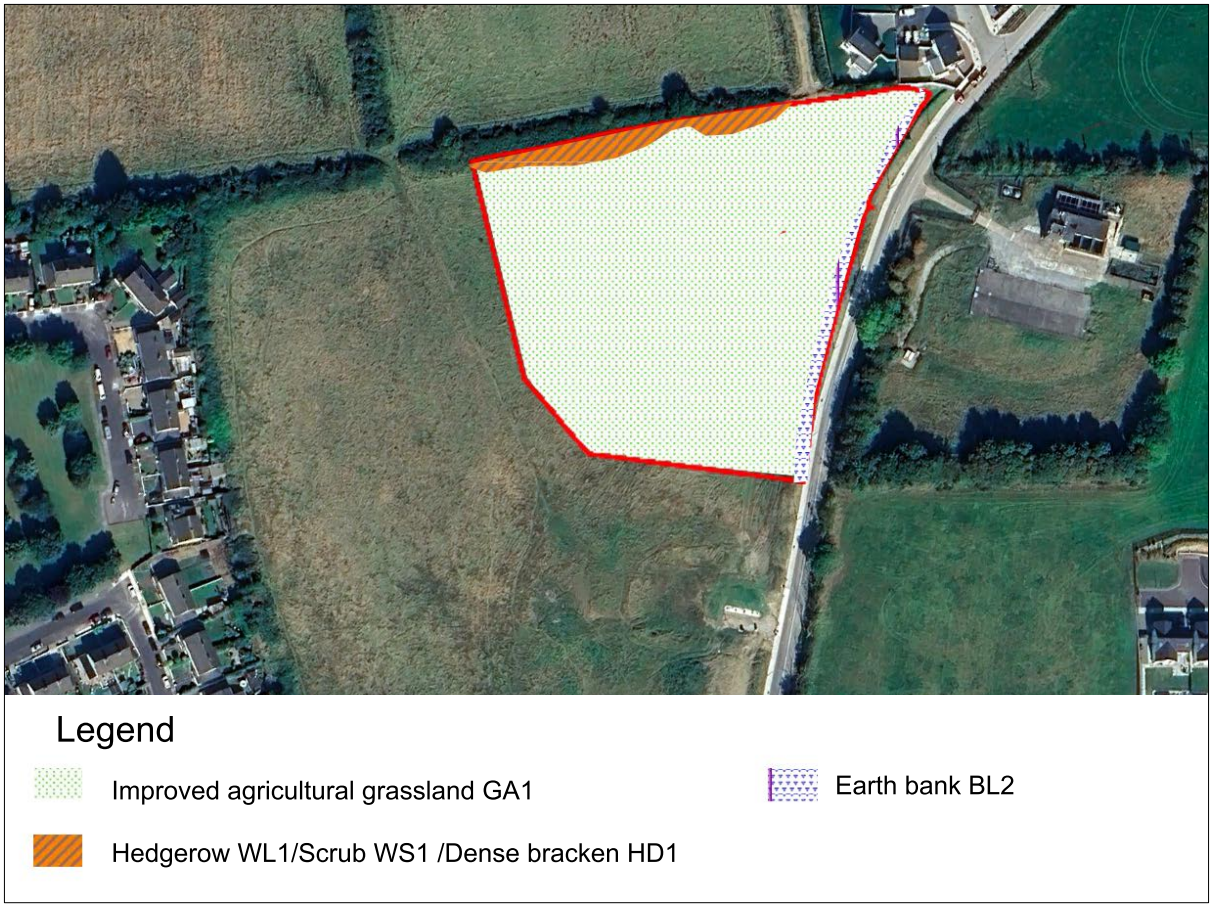

Figure 6. Habitats recorded within proposed development site

6. Flora

The National Biodiversity Data Centre's (NBDC) online database provides data on the distribution of species within 10km OS grid squares. The site of the proposed development lies within 10km grid square (hectad) W87 of Ordnance Survey Ireland's National Grid System. The NBDC lists some 316 flora species as being present within grid square W87. Endangered and protected flowering plants recorded by the NBDC are listed in **Table 5**. No species recorded within W87 are listed under the Flora (Protection) Order, 2022 (S.I. No. 235/2022).

Table 5. NBDC listed endangered and protected flowering species for hectad W87

Flowering plant Species	Latin Name	Designations/Status (Wyse Jackson *et al.* 2016)
Dropwort	*Filipendula vulgaris*	Red list (least concern)
Cornflower	*Centaurea cyanus*	Red list (waiting list)
Round-leaved Cranesbill	*Geranium rotundifolium*	Red list (least concern)
Common Toadflax	*Linaria vulgaris*	Red list (Near threatened)
Pale Flax	*Linum bienne*	Red list (Near threatened)
Yellow Bartsia	*Parentucellia viscosa*	Red list (Near threatened)

Source NBDC 06/01/25

Round-leaved Crane's-bill *Geranium rotundifoliumis* is noted as being an annual of hedgerows, dry roadside-banks and wall-tops, especially close to the sea, but spreading to roadside verges, rubble heaps, railway ballast and waste ground. Cornflower *Centaurea cyanus* considered a weed of cornfields, the Cornflower was nearly wiped out by intensive agricultural practices. Today, it can be found in deliberately seeded areas, and on roadside verges and waste ground. Dropwort *Filipendula vulgaris* grows best in dry grassland and is well suited to chalk and limestone soils on sites where there is plenty of sunlight, although it is quite adaptable and can still be grown on heavier soils. Pale Flax *Linum bienne* is usually found on dry banks and roadsides. Yellow Bartsia *Parentucellia viscosa* is usually found on damp meadows. Common Toadflax *Linaria vulgaris* largely grows on old stone walls, a habitat absent from the proposed development.

The agricultural grassland habitats which dominate the proposed development site are largely unsuitable for these species and no rare flora was recorded during the site survey.

7. Fauna

7.1 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 Direct 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. Otters are solitary and nocturnal and as such are rarely seen. Thus, surveys for Otters rely on detecting signs of their presence. These include spraints (faeces), anal gland secretions, paths, slides, footprints and remains of prey items. Spraints are of particular value as they are used as territorial markers and are often found on prominent

locations such as grass tussocks, stream junctions and under bridges. In addition, they are relatively straightforward to identify.

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

In contrast natal holts which are used by breeding females can be extremely difficult to locate. They are often located a considerable distance from any aquatic habitats and Otters may also use habitats adjoining small streams with minimal or no fish populations. In addition, natal holts are usually carefully hidden and without obvious sprainting sites. Otters do not have a well-defined breeding season.

It is noted that Otters are largely nocturnal, particularly in areas subject to high levels of disturbance as evidenced by the presence of Otters in the centre of Cork and Limerick City. Thus, Otters are able to adapt to increased noise and activity levels; however, breeding holts are generally located in areas where disturbance is lower.

A review of existing NBDC records showed that Otter or signs of Otter have been recorded on 30 occasions within grid square W87, the most recent being in November 2017. There are several records of Otter along the Owenacurra River and Owenacurra Estuary to the south of the proposed development site. There are no watercourses on or near the proposed development site. The closest watercourse is the Owenacurra River located c.550m southwest (See **Figure 4**).

No holts or evidence of Otter were recorded within 150m of the proposed development boundary. There are no potential foraging areas for Otter within the proposed development site.

7.2 Bats

In Ireland, nine species of bat are currently known to be resident. These are classified into two Families: the *Rhinolophidae* (Horseshoe bats) and the *Vespertilionidae* (Common bats). The lesser horseshoe bat *Rhinolophus hipposideros* is the only representative of the former Family in Ireland. All the other Irish bat species are of the latter Family and these include three pipistrelle species: common *Pipistrellus pipistrellus*, soprano *Pipistrellus pygmaeus* and Nathusius’ *Pipistrellus nathusii*, four *Myotids*: Natterer’s *Myotis nattereri*, Daubenton’s *Myotis daubentonii*, whiskered *Myotis mystacinus*, Brandt’s *Myotis brandtii*, the brown long-eared *Plecotus auritus* and Leisler’s *Nyctalus leisleri* bats.

Near threatened status is applied to those taxa that are close to being listed as vulnerable (facing a high risk of extinction in the wild in the medium-term future on the basis of a range of criteria defined by the IUCN). All bat species is Ireland, with the exception of Leisler’s Bat are listed as “Least Concern”. Leisler’s bat which is “Near-threatened” (Marnell *et al*. 2009). The Irish population of the Lesser Horseshoe Bat is estimated at 14,000 individuals and is considered of International Importance because the species has declined dramatically and

become extinct in many other parts of Europe. Data collected shows that the species increased significantly between from the early 1990s to present.

A review of existing bat records within grid square W87 (sourced NBDC) showed that seven bat species have been recorded locally (**Table 6**). It is noted that other species which have not been included within this database are also likely to occur. The Lesser Horseshoe bat does not occur within 10km of the proposed development site. Nathusius' pipistrelle (and Brandt's bat) are rarer Irish species, which are less likely to occur.

Table 6. Presence of Irish bat species within W87

Common name	Scientific name	Presence
Brown Long Eared Bat	*Plecotus auritus*	Present
Daubenton's Bat	*Myotis daubentoniid*	Present
Leisler's Bat/ Lesser Noctule	*Nyctalus leisleri*	Present
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Absent
Nathusius' Pipistrelle	*Pipistrellus nathusii*	Absent
Natterer's Bat	*Myotis nattereri*	Present
Pipistrelle	*Pipistrellus pipistrellus sensu lato*	Present
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Present
Whiskered Bat	*Myotis mystacinus*	Present

NBDC 06/01/25

All bat species are protected under the Wildlife Acts 1976, as amended which make it an offence to wilfully interfere with or destroy the breeding or resting place of all species; however, the Acts permit limited exemptions for certain kinds of development. All species of bats in Ireland are listed in Schedule 5 of the 1976 Act and are therefore subject to the provisions of Section 23 which make it an offence to:

- Intentionally kill, injure or take a bat
- Possess or control any live or dead specimen or anything derived from a bat
- Wilfully interfere with any structure or place used for breeding or resting by a bat
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose.

In addition to domestic legislation bats are also protected under the EU Habitats Directive (92/43/EEC) with all bat species are listed in Annex IV of the Directive. Lesser Horseshoe Bat is s further listed in Annex II of the EU Habitats Directive The level of protection offered to Lesser Horseshoe Bats effectively means that areas important for this species are designated as Special Areas of Conservation. The domestic legislation that implements this Directive gives strict protection to individual bats and their breeding and resting places. It should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to

derogate under the European Communities (Birds and Natural Habitats) Regulations 2011 (which transposed the EU Habitats Directive into Irish law) issued by the National Parks and Wildlife Service (NPWS).

The Irish government is also a signatory to the 1979 Bonn convention (Convention on the conservation of migratory species of wild animals) and the 1982 Bern convention (The convention on the conservation of European wildlife and natural habitats) and has a commitment to the 1991 Eurobats agreement (Agreement on the conservation of bats in Europe).

A study by Lundy et al. (2011) examined the relative importance of landscape and habitat associations across Ireland. Maximum Entropy Models (MEM) were constructed for each bat species using records from the National Bat Database from 2000-2009. This method allows species' records that have not been collected in a systematic survey to be analysed. The results help explain patterns of species' occurrence and predict where species might occur. Landcover (CORINE), topography, climate, soil pH, riparian habitat and human bias factors were incorporated into the models. The analyses provide a picture of the broad scale geographic patterns of occurrence and local roosting habitat requirements for Irish bat species. This also provides a 'habitat suitability' index. The index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The habitat indices for all Irish bats for the landscape around the proposed development site is shown in **Table 7**.

Table 7. Model Predicted Habitat suitability indices for All Irish bat species

Bat species	Common Name	Habitat indices
All Bats		31.22
Pipistrellus pygmaeus	Soprano pipistrelle	46
Plecotus auratus	Brown long-eared bat	44
Pipistrellus pipistrellus	Common pipistrelle	39
Rhinolophus hipposideros	Lesser horseshoe	0
Nyctalus leisleri	Leisler's bat	44
Myotis mystacinus	Whiskered bat	35
Myotis daubentoniid	Daubenton's bat	30
Pipistrellus nathusii	Nathusius' pipistrelle	6
Myotis nattereri	Natterer's bat	37

Source: NBDC 06/01/25

Evidence of bat activity associated with potential roost sites includes bat droppings, urine staining, feeding remains and dead/alive bats. Indicators that potential roost locations and access points are likely to be inactive include the presence of cobwebs and general detritus within the apertures. Potential roost features associated with trees include cracks, crevices, loose bark, woodpecker holes and splits. Evidence indicating bat presence, includes dark stains running below holes or cracks, bat droppings, odours, or scratch marks.

Bats generally make use of large mature trees that contain natural holes, cracks/splits in major limbs, loose bark, hollows/cavities, dense epicormic growth (bats may roost within it) and bird and bat boxes. The importance of trees to bats varies with species, season and foraging behaviour. For Leisler's bats, trees are essential for both summer and winter roosts while Daubenton's and Natterer's bats utilise trees more often during the summer months. Other species such as brown long-eared bats and pipistrelle bats avail of trees in the winter months. In general, individual males throughout the season use tree roosts, more often, while females will use trees for temporary night roosts or night perches for consuming prey. Hollow trees are widely used by bats for both summer and winter roosts (weather dependent) and bats will roost in 'sound' trees in crevices, holes and under split bark. Bats rest, give birth, raise young and hibernate in tree holes, crevices and beneath loose bark. Species of trees utilised by bats include oak, ash, beech and Scots pine. Trees, especially native ones also play host to numerous insect species which are prey items for bat species. Trees also provide shelter for swarming insects which bats will avail of. In addition, trees are important commuting routes for bats. A gap in a hedge/treeline of greater than 10m may force some species of bats to seek an alternative commuting route.

There are no continuous treelines or hedgerows within the proposed development site. There is a small area of low growing, loose, scrub/hedgerow along the northern boundary of the site. According to Bat Conservation Guidelines (2015), this type of habitat provides little shelter (or foraging/commuting opportunities) for bats. The open grassland habitats are also of negligible value for foraging or commuting bats.

There is one semi-mature/mature Ash tree along the northern boundary of the site. A preliminary roost assessment of trees found that it lacks the structural elements that would provide significant roosting habitat for bats. Ivy cover is minimal, the stem diameter of the ivy is not suitable for roosting bats. Two mature Hawthorn along the northern boundary do not provide potential roosting habitat for bats. No signs of roosting bats were recorded during the site survey. However, bats can use trees as temporary roosts and therefore the presence of occasional bats cannot be altogether excluded.

7.3 Other terrestrial mammals

Eighteen other species of terrestrial mammal have been recorded within grid square W87. Eight of which are protected under the Irish Wildlife Act; namely Badger, Pygmy Shrew, Red Squirrel, Fallow Deer, Sika Deer, Irish Hare, Irish Stoat and Hedgehog.

7.3.1 Badger (*Meles meles*) and their setts are protected under the provisions of the Wildlife Act 1976, as amended, and it is an offence to intentionally, knowingly or unknowingly kill or injure a protected species, or to wilfully interfere with or destroy the breeding site or resting place of a protected wild animal. Badger setts are formed by a complex group of interlinked tunnels, and therefore works in proximity to setts can potentially cause damage a protected species. Badgers are also protected under Appendix III of the Berne. Badgers are known to occur within the wider landscape (NBDC). The NBDC has 31 records of badger within W87, the most recent sighting in July 2016. While grassland habitats do provide valuable foraging habitat for Badgers, no signs of Badger were recorded during the proposed development site survey.

7.3.2 Pygmy Shrew (*Sorex minutus*) is common throughout mainland Ireland and has a preference for habitats such as hedgerows and grasslands. Due to the habitats present within the proposed site Pygmy Shrew could potentially occur.

7.3.3 The Irish hare (*Lepus timidus hibernicus*) is one of three lagomorphs found on the Island of Ireland and the only native lagomorph. It is listed on Appendix III of the Berne Convention, Annex V(a) of the EC Habitats Directive (92/43/EEC) and as an internationally important species in the Irish Red Data Book. No signs of Irish Hare were recorded during the proposed development site surveys although this species could potentially occur.

7.3.4 Hedgehog (*Erinaceus europaeus*), also listed on Appendix III of the Berne Convention can be found throughout Ireland, with male hedgehogs having an annual range of around 56 hectares. Generally, hedgehogs prefer edge habitat and pasture but in recent years have begun to colonize urban areas. Due to the habitats present within the proposed site Hedgehog, this species could potentially occur

7.3.5 Irish Stoat (*Mustela erminea hibernica*) is one of the species protected under regulations (Protection of Wild Animals) in 1980 which enabled Ireland to comply with the provisions of the Bern Convention of European Wildlife and Natural Habitats, which was ratified by Ireland in April 1982. Due to the habitats present within the proposed site this species this species could potentially occur.

7.3.6 Red Squirrel (*Sciurus vulgaris*) also listed on Appendix III of the Berne Convention can be found throughout Ireland. Red squirrels feed mainly on tree seeds, although they can utilise fungi, fruit and buds as they become available in the woodland. This species has been recorded on 28 occasions in W87, the most recent in August 2018. There are no suitable habitats for Red Squirrel within the proposed development site.

7.3.7 Sika Deer (*Cervus nippon*)/Fallow (*Dama dama*) are both non-native species to Ireland. Both species prefer forest with dense understorey, thickets, natural woodlands and commercial plantations, but will also forage in open grassy areas with dense cover nearby. Sika and Fallow Deer are highly opportunistic feeders, foraging on grasses to a range of shrubs and tree species. The isolated nature of the site within an urban setting means this species is unlikely to occur.

7.4 Reptiles and Amphibians

According to records held by the NBDC, Common Frog (*Rana temporaria)* is the only amphibian recorded from grid square W87. Common Frog is listed on Annex V of the EU Habitats Directive and is protected under the Wildlife Acts. There are no suitable habitats for amphibians within the proposed development site.

Common Lizard (*Zootoca vivipara*) is Ireland's only native terrestrial reptile and is so protected under the Wildlife Act. Ideal habitats for the species are south-facing, damp tussocky grassland, scrub covered hillsides, dunes or banks, and woodland tracks, and it also resides in peat bogs, dry grasslands and heathlands. Due to the habitats present within the proposed site this species is unlikely to occur. The proposed development site is of negligible for reptiles.

7.5 Birds

During the site walkover survey on the 6th of November 2024, all birds seen or heard within the development site were recorded. The majority of birds utilising the proposed works areas were common in the local landscape.

Bird species listed in Annex I of the Birds Directive are considered a conservation priority. During the survey, all birds seen or heard within the development site were recorded. Certain bird species are listed by BirdWatch Ireland as Birds of Conservation Concern in Ireland (BOCCI). These are bird species suffering declines in population size. BirdWatch Ireland and the Royal Society for the Protection of Birds have identified and classified these species by the rate of decline into Red and Amber lists (Gilbert *et al.* 2021). Red List bird species are of high conservation concern and the Amber List species are of medium conservation. Green listed species are regularly occurring bird species whose conservation status is currently considered favourable.

No Annex I bird species were recorded during the site surveys. Species recorded during the survey are shown in **Table 8**.

Table 8. Bird Species recorded during site surveys

Species		Birds Directive Annex	BOCCI*	
		I	Red List	Amber List
Turdus merula	Blackbird			
Turdus merula	Blackbird			
Parus caeruleus	Blue Tit			
Periparus ater	Coal Tit			
Prunella modularis	Dunnock			
Carduelis carduelis	Goldfinch			
Corvus monedula	Jackdaw			
Pica pica	Magpie			
Anthus pratensis	Meadow pipit		x	
Erithacus rubecula	Robin			
Troglodytes troglodytes	Wren			

*Gilbert *et al.* 2021

The proposed development site supports a mix of common bird species. One BOCCI species, Meadow Pipit, was recorded during the site survey. Meadow Pipit are red listed due to significant declines at global level due to agricultural intensification. Meadow Pipit are a ground nesting species which makes them particularly vulnerable to disturbance and egg damage during the breeding season. Meadow Pipits are an increasing rare species throughout Ireland

but are especially rare in urban areas due to the absence of low maintenance grassland habitats which this species require for breeding and foraging. The extensively managed grassland at the site could potentially provide breeding habitat for this species.

Nesting habitats for common, woodland edge species are largely absent from the site. Pockets of scrub on the boundary are likely to provide nesting habitat for small numbers of common breeding birds.

No birds listed as SCIs for the Cork Harbour SPA were recorded. The overgrown grasslands are sub-optimal for SCI birds and/or wading birds.

7.6. 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 W87 (the 10km OS grid square which overlaps with the proposed development site) (**Table 9**).

Table 9. High impact Invasive species recorded by NDBC in grid square W87

Species group	Species name
Bird	Canada Goose (*Branta canadensis*)
Bird	Ruddy Duck (*Oxyura jamaicensis*)
Flowering plant	Cherry Laurel (*Prunus laurocerasus*)
Flowering plant	Common Cord-grass (*Spartina anglica*)
Flowering plant	*Fallopia japonica x sachalinensis = F. x bohemica*
Flowering plant	Indian Balsam (*Impatiens glandulifera*)
Flowering plant	Japanese Knotweed (*Fallopia japonica*)
Flowering plant	Nuttall's Waterweed (*Elodea nuttallii*)
Flowering plant	*Rhododendron ponticum*
Insect - beetle (Coleoptera)	Harlequin Ladybird (*Harmonia axyridis*)
Terrestrial mammal	American Mink (*Mustela vison*)
Terrestrial mammal	Brown Rat (*Rattus norvegicus*)
Terrestrial mammal	Fallow Deer (*Dama dama)*
Terrestrial mammal	Feral Ferret (*Mustela furo)*
Terrestrial mammal	House Mouse (*Mus musculus*)

Species group	Species name
Terrestrial mammal	Sika Deer (*Cervus nippon*)

Source NBDC 06/01/25

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, as follows: "*any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow [….] shall be guilty of an offence."*

No third schedule invasive species or other invasive species (as identified by O'Flynn et al (2014)) were recorded during the site survey.

7.7 Other species

The Owenacurra River/Estuary is listed under the Wild Salmon and Sea Trout Tagging Scheme (Amendment) Regulations 2022. Kurz and Costello (1999) report the presence of unspecified lamprey ammocoetes in the Owenacurra River.

The NBDC lists one threatened invertebrate species for W87S, the 2km OS grid square in which the proposed development site is located ie. Large Red Tailed Bumble Bee (*Bombus (Melanobombus) lapidarius*). Whilst no site is without invertebrate interest, it is considered unlikely that the proposed development site would support protected invertebrate species given the common habitats which dominate the site.

8. Water Quality

8.1 River Basin Management Plan (3rd 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 EPA has published an updated draft Catchment Assessment for each of the 46 catchments. These assessments provide an overview of the situation in the catchment, draw comparison between Cycle 2 and Cycle 3, and will help support the draft River Basin Management Plan 2022-2027 public consultation process. The third cycle RBMP, which was published in July 2022, aims to build on the progress made during the second cycle. Key measures during the first cycle included the licensing of urban waste-water discharges (with an associated investment in urban waste-water treatment) and the implementation of the Nitrates Action Programme (Good Agricultural Practice Regulations). The former measure has

resulted in significant progress in terms both of compliance levels and of the impact of urban wastewater on water quality. The latter provides a considerable environmental baseline which all Irish farmers must achieve and has resulted in improving trends in the level of nitrates and phosphates in rivers and groundwater. It is acknowledged, however, that sufficient progress has not been made in developing and implementing supporting measures during the first and second cycles.

Overall, RBMP assesses the quality of water in Ireland and presents detailed scientific characterisation of water bodies. The characterisation process also takes into account wider water quality considerations, such as the special water-quality requirements of protected areas. The characterisation process identifies those water bodies that are *At Risk* of not meeting the objectives of the WFD, and the process also identifies the significant pressures causing this risk. Based on an assessment of risk and pressures, a programme of measures has been developed to address the identified pressures and work towards achieving the required objectives for water quality and protected areas. Data relating to the watercourses within the study area is provided in **Table 10** and the location of these shown in **Figure 7**.

Table 10. RBMP data

Catchment: Lee, Cork Harbour and Youghal Bay				
This catchment includes the area drained by the River Lee and all streams entering tidal water in Cork Harbour and Youghal Bay and between Knockaverry and Templebreedy Battery, Co. Cork, draining a total area of 2,153km². The largest urban centre in the catchment is Cork City. The other main urban centres in this catchment are Ballincollig, Macroom, Carrigaline, Crosshaven, Blarney, Glanmire, Midleton, Carrigtohill, Cobh, Passage West and Belvelly. The total population of the catchment is approximately 328,854 with a population density of 153 people per km². There were 51 (54%) river and lake water bodies at Good or High status, and 19 (20%) at less than Good status in 2015. Twenty-five (26%) river and lake water bodies are unassigned. Twenty-two river water bodies and sites have a high ecological status objective. In 2015, 20 (90%) of these water bodies were at High status and two were at Good status. There are four Transitional and coastal water bodies at Good status, five at Moderate status, one at Poor status and nine unassigned. There are no High ecological status objective water bodies or sites. **2nd Cycle Summary** The proposed development site is located within the Owenacurra _SC_010 sub-catchment and on the Transitional waters of the Owenacurra Estuary. Within the Owennacurra_SC_010 sub-catchment, two out of seven river water bodies are: AT RISK-Dungourney_020 due to Poor biological status and Owennacurra_040 due to Moderate biological status. Within Dugourney_020, agriculture is a significant pressure in the upper reaches while a licenced facility is a significant pressure in the lower reaches. Diffuse urban sources from Midleton is the likely significant pressure within Owennacurra_040.				
3rd Cycle Summary				
Name	**WFD Risk**	**WFD Status (2016-2021)**	**Pressure category**	**Pressure sub category**
Owenacurra Estuary	At risk	Moderate	Industry, Urban run -off Urban waste water	IE, Diffuse Sources Run-Of, Combined Sewer Overflows
DUNGOURNEY_020	At risk	Poor	Agriculture, industry	Pasture, IE

Catchment: Lee, Cork Harbour and Youghal Bay				
OWENNACURRA_040	At risk	Moderate	Urban run-off	Diffuse Sources Run-Of

Source: EPA envision mapping and www.catchments.ie

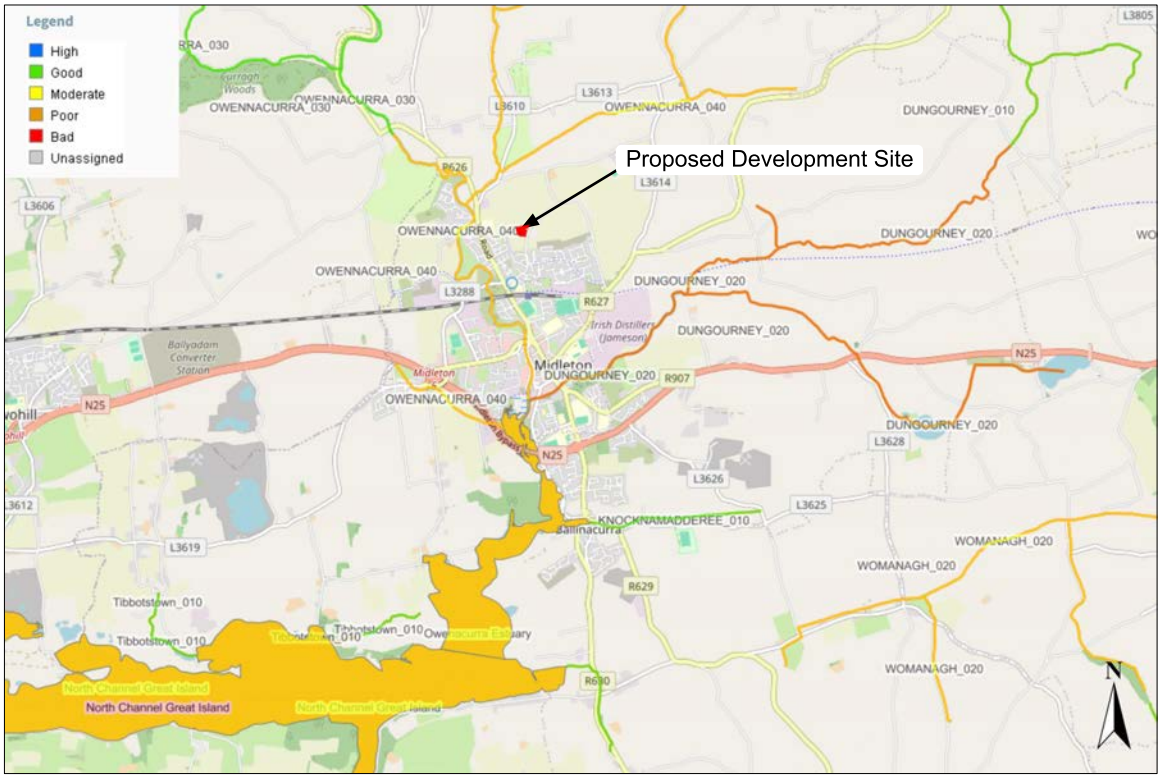

Figure 7. WFD status (2016-2021) of waterbodies in the vicinity of the proposed development (approximate site boundary) | Source: EPA Envision mapping https://gis.epa.ie/EPAMaps/) | not to scale

8.2 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 wastewater and specifies the quality standards which must be met — based on agglomeration size — before treated wastewater 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, shellfish waters and Freshwater Pearl-Mussel sites) or high-status waters are at risk from urban waste-water pressures.

As part of the proposed development foul wastewater discharging from the proposed development will be conveyed to the Midleton WWTP (D0056-01) for treatment prior to discharging into Upper Cork Harbour at Rathcoursey.

9. Evaluation of Potential Impacts

During construction, potential impacts could arise from increased noise and disturbance which could result in the disturbance/displacement of birds and mammals. There will be a nett, permanent loss of terrestrial habitats. Increased traffic and noise associated with the site could potentially increase levels of disturbance which could result in the disturbance/displacement of birds and mammals. Increased dust levels during construction could have localised impacts on vegetation and habitats.

Discharges of silt, were they to occur through inadequate control of surface water run-off, could impact on fisheries habitat and aquatic ecology in the Owenacurra River. Minor spills of hydrocarbons during construction could impact on surface water quality with resultant impacts on aquatic ecology. Wastewater discharges during the operational phase could impact on the water quality of the Owenacurra Estuary.

9.1 Do Nothing' Impact

Most of the habitats to be affected have been significantly modified from the natural state by human activity. If habitats were left unmanaged a general pattern of succession from recolonising bare ground to scrub would be expected to occur. If sufficient time elapsed without development, the unused areas of the proposed development area would be expected to develop a covering of woodland with a mix of native and introduced species.

9.2 Impact Appraisal

When describing changes/activities and impacts on ecosystem structure and function, important elements to consider include positive/negative, extent magnitude, duration, frequency and timing, and reversibility (IEEM, 2018).

Section 3.7 of the *Draft Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'*, (EPA, August 2017) provides standard definitions which have been used to classify the effects in respect of ecology. This classification scheme is outlined below in **Table 11**.

Table 11. EPA Impact Classification

Impact Characteristic	Term	Description
Quality	Positive	A change which improves the quality of the environment.
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error.
	Negative	A change which reduces the quality of the environment.
	Imperceptible	An effect capable of measurement but without significant consequences.
	Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
	Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
	Moderate	An effect that alters the character of the environment in a manner consistent with existing and emerging trends.
	Significant	An effect, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.

Impact Characteristic	Term	Description
Significance	Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters most of a sensitive aspect of the environment.
	Profound	An effect which obliterates sensitive characteristics.
Duration and Frequency	Momentary Effects	Effects lasting from seconds to minutes.
	Brief Effects	Effects lasting less than a day.
	Temporary Effects	Effects lasting less than a year.
	Short-term	Effects lasting one to seven years.
	Medium-term	Effects lasting seven to fifteen years.
	Long-term	Effects lasting fifteen to sixty years.
	Permanent	Effects lasting over sixty years.
	Reversible Effects	Effects that can be undone.
	Frequency	Describe how often the effect will occur. (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
	Irreversible	When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost.
	Residual	Degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic	Where the resultant effect is of greater significance than the sum of its constituents.
	'Worst Case'	The effects arising from a development in the case where mitigation measures substantially fail.

9.3. Potential Impacts on Terrestrial Habitats

Impacts on terrestrial habitats are generally restricted to direct removal of habitats. Indirect impacts may occur via damage and disturbance arising from vehicular activities and storage of overburden and materials. Levels of dust during construction are predicted to be low and effectively managed by mitigation. The impact on vegetation in adjoining habitats from wind-blown dust is predicted to be imperceptible. No rare floral species were recorded within the study area. Based on the criteria outlined by EPA, 2017, as described above, the predicted impacts are detailed in **Table 12.**

Table 12. Predicted impacts as a result of the proposed development

Habitats	Ecological value (NRA Guidelines)	Predicted Impacts
Improved agricultural grassland GA1	Local importance (Lower value)	This habitat will be removed. Negative, imperceptable, long-term.
Hedgerow WL1/Scrub WS1 /Dense bracken HD1	Local importance (Lower value)	This habitat will be largely retained and enhanced as part of the landscape masterplan. Positive, imperceptible, long-term.
Earth bank BL2	Local importance (Lower value)	There may be some short-term impacts to this habitat during construction works. However, in the medium to long-term this area will be allowed to naturally recolonize.

Habitats	Ecological value (NRA Guidelines)	Predicted Impacts
		Positive, slight, long-term

9.4 Potential Impacts on Fauna

9.4.1 Bats

A preliminary roost assessment of trees within the proposed development trees found that while mature trees are present, these lack the structural elements that would provide significant roosting habitat for bats. Mature trees along the northern hedgerow will be retained and protected as part of the landscape masterplan. Additional planting along this boundary will provide continuous hedgerow along the northern boundary. This is likely to provide low value foraging/commuting habitat for bats as these habitats mature. An area of woodland edge planting will be created at the north-east corner of the site and the southern boundary of the site. These will create potentially high value foraging/commuting habitat for bats as they mature.

Lighting deters some bat species in particular Myotis species, from foraging. Studies have shown that illumination levels as low as 0.06 lux can influence the behaviour of bats. Even a full moon night (0.02 lux) can reduce bat activity within more sheltered, darker wildlife corridors and foraging areas (e.g., woodlands). It is noted that pipistrelle species appear to be more tolerant of light and disturbance (Speakman 1991; Stones et al. 2009; Haffner 1986). Leisler's Bats will also opportunistically feed on such insect gatherings in lit areas (Bat Conservation Ireland 2010).

As construction works will largely be confined to daytime hours, lighting during the construction phase will be minimal and there will no impact on foraging bats. During operation, lighting at the site will increase from current levels. Proposed lighting will follow bat mitigation guidelines to reduce impacts on foraging/commuting bats. Lighting will be confined to roads and paths and centred away from retained and newly planted boundary habitats. Given the location of the site within an urban setting with existing light spillage from roads and adjoining housing, the impacts on local bat populations during operation will not be significant. Bats are likely to continue to forage in dark areas within and adjacent to the proposed development site.

The effect of the proposed development on local bat populations will be positive, imperceptible and long-term at a local level.

9.4.2 Otter

The proposed works will result in an increase in noise and disturbance during the construction phase during daytime hours. However, given Otter's largely nocturnal habits, ability to move away from short-term disturbance and ability to habituate to anthropogenic noise and disturbance, the impact on Otter during construction will not be significant. The proposed development site is located within an existing urban setting. No signs of Otter were recorded during the site survey and there are no watercourses in the vicinity of the proposed development site. Any Otters which use habitats near the proposed development site will be habituated to existing noise and disturbance levels.

Following construction, noise and disturbance is likely to increase. However, given the existing levels of noise and disturbance in this urban area, Otters which use the area are likely to be habituated to a similar level of disturbance and Otter are expected to continue to use habitats adjacent the planning boundary following construction. Overall, the impact on Otter is predicted to be neutral and imperceptible.

9.4.3 Other Mammals

Badger, Hedgehog, Irish Stoat etc have all been recorded within grid square W87. Mammal species which are protected under the Irish Wildlife Act 1976, as amended, such as Pygmy Shrew could potentially occur within the proposed development site, although no signs of these species were recorded. Although the habitats to be directly affected may form part of the territories of various mammal species, they do not provide critical resources and direct impacts on these habitats will be localised and temporary. Whilst increased noise and disturbance is predicted to occur during construction and to a lesser degree during operation. The predicted noise level will not be excessive in the context of normal domestic and road traffic levels. The impact on other mammals is predicted to be slight in the short-term and imperceptible in the long-term.

9.4.4 Birds

The terrestrial bird species recorded within the proposed development site are typical for the habitats onsite and are generally common. One BOCCI species i.e. Meadow Pipit, was recorded and they are unlikely to use the site following development. However, overall there will be a nett gain of nesting habitat and foraging habitat for common breeding birds i.e. new woodland and hedgerow planting as well as naturally recolonised areas.

Some displacement of feeding birds may occur during construction due to increased noise and disturbance. Disturbance can cause sensitive species to deviate from their normal, preferred behaviour, resulting in stress, increased energy expenditure and, in some cases, species mortality.

It is noted that the area in proximity to the proposed development is subject to disturbance from existing residential and retail developments and therefore any birds which utilise this area will have habituated to high levels of daytime disturbance. Whilst works could potentially disrupt feeding patterns, given the availability of similar habitat in the surrounding area and the ability of birds to move away from disturbance, the impact on the feeding behaviour of these species is predicted to be imperceptible.

It is noted that the area in proximity to the proposed development is subject to disturbance from existing dwellings and roads and therefore any birds which utilise this area will have habituated to moderate levels of daytime disturbance. During the operational phase, the levels of activity will stabilise and birds in the surrounding landscape will be expected to habituate to any increased noise and disturbance levels. Landscape planting includes native hedgerow, trees and pollinator friendly planting will provide new nesting opportunities for birds. The impact on terrestrial birds, in habitats adjoining the proposed development site is therefore predicted to be negative and slight in the short-term reducing to positive, slight and long-term.

9.4.5 Other species

No signs of amphibians were recorded and there are no wetland habitats suitable for these species within the site boundary. The site is negligible value for amphibians and reptiles. No impact on reptiles and amphibians is predicted to occur.

The proposed development area is only likely to support common invertebrate species at present, as the site is dominated by low diversity grassland habitat. The landscape plan in includes planting of native tree and hedgerow species and pollinator friendly plants alongside areas of natural recolonisation which increase habitats for invertebrates on site. The impact invertebrate species is predicted to be positive and slight in the medium to long-term.

Fish species including Brown Trout and Atlantic Salmon are known to occur in the Owenacurra River. Mitigation measures outlined below (**Section 10.2**) will ensure there is no impact on water quality from the proposed development. Given that the habitats which will be affected are relatively common in the surrounding landscape, any impact on these species will be slight to not significant. The impact on fish and aquatic species is predicted to be neutral and not significant.

9.5 Potential impact on water quality

9.5.1 Impacts on water quality from surface water runoff

Potential impacts on aquatic habitats which can arise from this type of development include increased silt levels in surface water run-off, inadvertent spillages of hydrocarbons from fuel and hydraulic fluid and increased nutrients from treated wastewater.

In the absence of appropriate design and mitigation, high levels of silt in surface water run-off from construction works, could theoretically impact on fish species. If of sufficient severity, adult fish could theoretically be affected by increased silt levels as gills may become damaged by exposure to elevated suspended solids levels. Excessive siltation can cause eggs and fry to be smothered. In particular impacts on spawning salmonids can be significant. If of sufficient severity, aquatic invertebrates may be smothered by excessive deposits of silt from suspended solids. In areas of stony substrate, silt deposits may result in a change in the macro-invertebrate species composition, favouring less diverse assemblages and impacting on sensitive species. Aquatic plant communities may also be affected by increased siltation. Submerged plants may be stunted and photosynthesis may be reduced.

Inadvertent spillages of hydrocarbons during construction could introduce toxic chemicals into the aquatic environment via surface water run-off or groundwater contamination and have a direct toxicological impact on habitats and fauna.

As detailed in **Section 3.3**, during operation surface water will be managed in accordance with the principles of Sustainable Drainage Systems (SuDS) as embodied in the recommendations the County Development Plan 2022 Advice Note 1 on Surface Water management and the CIRIA SuDS Manual C753. The following SuDS features are proposed: permeable paving, underdrained roadside swales and infiltration trenches, bio-retention tree pits, bio-retention raingardens and water butts. It is noted that these SuDS measures will keep runoff from the site at greenfield rates and maintain rates of runoff and water quality in compliance with the WFD. It is noted that the SuDS measures have been built into the project designs as is

standard for all new developments. These are not considered to be mitigation measures (see Eoin Kelly v An Bord Pleanála [2019] IEHC 84).

The OPW's online resource, Floodmaps.ie, was reviewed to assess the history and probability of all types of flooding at the proposed development site. The proposed development site lies outside any areas that have flooded in the past or have a probability of flooding in any event, whether fluvial, coastal or groundwater, up to and including a 1 in 1000-year storm. This places the site in flood zone C where residential development is appropriate without requiring a justification test.

OCB Geotechnical Ltd. were contracted by Cork County Council to carry out a site investigation on the site. Surface water design measures followed recommendations of this survey. The proposed surface water network has been tested with the Causeway Flow software, simulating rainfall events up to and including the 24-hour, 100 year storm with a 20% addition allowed for climate change. Modelling shows that no flooding occurs in any rainfall event tested. Given the above no potential impacts from flood risk to surrounding habitats have been identified.

Mitigation measures during construction works will ensure there is no significant effects on local water quality.

Given the operational drainage arrangements and the distance from local watercourses, there is no potential for direct surface water discharges to the Owenacurra River. Surface water runoff rates will remain at greenfield rates and there no negative effects on local watercourses.

9.5.2 Impacts on water quality from foul discharge

The proposed development could potentially result in an increase in nutrients discharging to Upper Cork Harbour (at Rathcoursey) via the Midleton Wastewater Treatment Plant (WWTP). Increased nutrients can potentially impact on estuarine habitats by changing baseline ecological conditions and increasing algal growth. This could in turn could impact on feeding success for birds listed as qualifying interests for the Cork Harbour SPA.

A review of the 2022 Annual Environmental Report for Midleton WWTP (EPA 2023) found that the WWTP was non-compliant for faecal coliforms. It is noted that the WWTP discharge is compliant with the ELV's set in the Urban Wastewater Treatment Directive however non-compliant with Faecal coliforms requirements set out in condition 4.17 of the licence. The AER noted the following:

- The coastal/transitional ambient monitoring results meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.
- The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.
- The ambient monitoring results meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Wate Regulations 2009.
- The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

- The discharge from the wastewater treatment plant does have an observable negative impact on the Water Framework Directive status.

It is noted in the County Development Plan (2022 to 2028) that the Midleton Wastewater Treatment Plant is currently at 15,000 Population Equivalent (PE) and has no spare capacity to cater for additional development. Irish Water are proposing some capital upgrade works to increase PE capacity to 19,000. The Plan goes on to note that other interim projects to increase capacity are proposed such as phased load diversion to Carrigtwohill.

Irish Water has noted that in partnership with Cork County Council the construction of new wastewater infrastructure in Midleton, to cater for future growth and development in the area, commenced in June 2022 with the construction of over 7km of new wastewater pipework and two new pumping stations. This project will provide the infrastructure for the planned load diversion to Carrigtwohill outlined in the Development Plan.

A confirmation of feasibility has been received from Uisce Eireann for the proposed development. This noted the following:

In order to accommodate the proposed connection at the Premises, upgrade works are required to increase the capacity of Midleton WWTP. Uisce Éireann currently has two projects underway which will provide the necessary upgrade and capacity. The first of these upgrades is scheduled for completion in Q4 2025 (this may be subject to change) and the proposed connection could be completed as soon as possibly practicable after this date

Works completed on the Midleton LIHAF project to date include the construction of 6km of wastewater pipeline from Knockgriffin to Carrigtwohill, and new gravity sewer pipeline from the Nordic Enterprise Park to the Northern Relief Road roundabout.

A new wastewater pumping station at Water Rock has also been constructed and is currently being commissioned. When the Midleton Local Infrastructure Housing Activation Fund (LIHAF) project is complete, this pumping station will carry wastewater flows from the planned pumping station in Midleton North to the Carrigtwohill Wastewater Treatment Plant. The works are underway. Geda Construction Ltd. has been appointed to deliver construction works on behalf of Uisce Éireann. Site clearance works have been completed, with main construction works anticipated to commenced in June. The project is expected to be completed in 2025.

The applicant is aware that upgrades are required to increase wastewater capacity and as referenced in the pre-connection feasibility confirmation letter received from Uisce Eireann dated 22nd August 2024 the required upgrade projects are underway, the first of which is scheduled for completion in Q4 2025. It is noted that the applicant is willing to accept a condition that no connection be made until works are completed and that construction will be ongoing in the meantime. Therefore, proposed development will not connect to the foul network until capacity is available within the Midleton WWTP. The upgraded WWTP will ensure effluent to Upper Cork Harbour is of a high quality.

9.6 Cumulative Impacts

Cumulative impacts on fauna chiefly relate to increased noise and activity levels and potential impacts on water quality. In-combination impacts from noise/disturbance are likely to be most pronounced during construction. This is a short-term impact which will be localised. During

operation, small volumes of traffic will be generated and noise levels are unlikely to be significantly above existing levels. As this proposed development is not predicted to significantly increase long-term noise and disturbance levels or impact significantly on water quality, no significant cumulative impacts have been identified.

10. Mitigation Measures

The mitigation measures have been drawn up in line with current best practice and include an avoidance of sensitive habitats at the design stage. It is clear that the mitigation measures are designed to achieve a lowering or reducing of the risk of impact to acceptable levels. The risk that the mitigation measures will not function effectively in preventing significant ecological impacts is low. The likely success of the proposed mitigation measures is high. The following mitigation measures will be implemented.

10.1 Construction measures - guidelines

All personnel involved with the project will receive an on-site to re-emphasize the precautions that are required as well as the mitigation to be implemented. Site managers, foremen and workforce, including all subcontractors, will be suitable trained in pollution risks and preventative measures,

Construction best practice measures (of relevance in respect of any potential ecological impacts) will be implemented throughout the project, including the preparation and implementation of detailed method statements. The works will incorporate the relevant elements of the guidelines outlined below:

- *Control of Water Pollution from construction Sites, Guidance for consultants and contractors (C532)*
- *Environmental Good Practice on Site (3rd edition) (C692)*
- *Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016)*

Copies of the Construction and Environmental Management Plan (CEMP) will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the CEMP and informed of the responsibilities which fall upon them as a consequence of its provisions.

10.1.1 Surface Water

The subject site is on high ground that falls generally from Northeast to Southwest over the site. Surface water will naturally tend to flow away from the higher ground towards the southern boundary.

During construction works, run-off into excavations/earthworks cannot be prevented entirely and is largely a function of prevailing weather conditions. Care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. All exposed soil surfaces will be within the main excavation site which limits the potential for any offsite impacts. All run-off will be prevented from directly entering any water courses as no construction will be undertaken directly adjacent to open water.

No significant dewatering will be required during the construction phase which would result in the localised lowering of the water table. There may be localised pumping of surface run-off from the excavations during and after heavy rainfall events to ensure that the excavations are kept safe and relatively dry.

The measures outlined in the following sections will be put in place during the construction phase to ensure protection of surface waterbodies. Construction works will be informed by best practice guidance from Inland Fisheries Ireland on the prevention of pollution during development projects.

10.1.2 Pollution Control Suspended Solids

Prior to the commencement of topsoil stripping and earthworks operations, the following site-specific surface water management measures will be put in place:

Where possible, significant earthworks operations should be limited to the summer months.

Silt fencing will be installed along the southern boundary of the site. The exact location of the silt fencing will be determined in the construction stage CEMP and will be subject to a detailed assessment of each area or phase to be developed. The purpose of the silt fencing is to prevent silt laden water leaving the site and entering neighbouring land with the potential to impact nearby watercourses. A typical silt fencing arrangement is shown below in **Figure 8**. It will consist of a double layer of geotextile membrane fixed to wooden stakes approximately 600mm high. The membrane will be anchored into the ground to form a continuous barrier to silt laden water from the works site. Silt fences will be monitored via a silt inspection log (to be maintained by the Environmental Manager/ECoW) and periodically maintained during the construction period. Typical maintenance will consist of repairs to damaged sections of membrane and removal of a build-up of silt on the upslope side of the fence. Daily silt fence inspections are recommended as part of their operation ensuring that any necessary repairs can be expedited.

Drainage ditches will be installed to intercept surface water where there is a risk of significant water flow into excavations or onto adjoining lands. There will also be a requirement to periodically pump water from excavations. All collected and pumped water will have to be treated prior to discharge. The run-off will be directed through appropriately sized settlement ponds in series to remove suspended solids before being discharged, see **Figure 9.**

Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the site compound. These agencies will be notified immediately in the event of a pollution incident.

Site personnel will be trained in the importance of preventing pollution and the mitigation measures described here to ensure same.

The Environmental Manager or ECoW will be responsible for the implementation of these measures. They will be inspected on at least a daily basis for the duration of the works, and a record of these inspections will be maintained.

Any temporary storage of soil, hardcore, crushed concrete or similar material will be stored 50m from any surface water drains. All temporary storage areas should also have surface

runoff controls in place to prevent migration of possible materials. There can be no direct pumping of silty water from the works directly to any watercourse. All water from excavations must be treated by infiltration over lands or via settlement ponds, silt busters etc.

10.1.3 Flooding

The flood extent maps drawn up as part of the Eastern CFRAM Study (floodinfo.ie) show that Midleton is prone to flooding. However, the subject site is elevated and sloping to a degree that flooding is not anticipated in any event.

10.1.4 Control of Cement Run-off

The washing out of concrete delivery vehicles is a potential source of pollution and shall be carried out in designated wash out areas only.

Wash-out areas on site will be located more than 50m from any natural watercourse and properly designed with an impermeable liner to contain all cement laden water. No wash-out of ready-mix concrete vehicles shall be located within 10 metres of any temporary or permanent drainage features. Signage shall be erected to clearly identify the wash-out areas. Sufficient wash-out areas shall be provided to cater for all vehicles at peak delivery times.

On-site batching of concrete is not envisaged, but ready to use mortar silos are often used for housing developments. These systems involve the delivery and storage of dry cement and aggregates in silos, water is added at the point of delivery to make mortar or plaster. The following controls shall be put in place for the on-site batching of concrete, mortar and render:

- The plant shall be maintained in good condition,
- Delivery of cement shall be means of a sealed system to prevent escape of cement,
- The plant shall be situated on a paved area at least 20m from any temporary or permanent drainage features,
- Emergency procedures shall be in place to deal with accidental spillages of cement or mortar.

10.1.5 Accidental Leaks or Spills

No bulk chemicals will be stored within the active construction areas. Temporary oil and fuel storage tanks may be kept in the material storage area in suitable containers and will be stored on appropriately bunded spill pallets as required. Any fuel and oil stored on site shall be stored on bunded spill pallets (approved under BS EN 1992-3:2006). All bunds will be impermeable and capable of retaining a volume of equal to or greater than 1.1 times (>110%) capacity of the containers stored on them. In the event of a spillage, excess oil or fuel will be collected in the bund.

Refuelling of vehicles and the addition of hydraulic oils or lubricants to vehicles will be undertaken off site where possible. Where this is not possible, filling and maintenance will take place in a designated material storage compound, which is located at least 10 metres from any temporary or permanent drainage features. Spill protection equipment such as absorbent mats, socks and sand will be available in clearly marked bins/silos and in construction vehicles

to be used in the event of an accidental release during refuelling. Training will be given to site workers in how to manage a spill event.

The following mitigation measures will be taken at the construction site to prevent any spillages to ground of fuels during machinery activities and prevent any resulting soil and/or groundwater quality impacts:

- Refuelling will be undertaken off site where possible, Where mobile fuel bowsers are used the following measures will be taken:
- Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use,
- Any pump or valve will be fitted with a lock and will be secured when not in use,
- All bowsers to carry a spill kit and operatives must have spill response training; and
- Portable generators or similar fuel containing equipment will be placed on suitable drip trays,
- Weekly checks of spill kits will be carried out to ensure they are sufficiently stocked.

10.1.6 Monitoring

Daily checks will be carried out and recorded in a Surface Water Management Log to ensure surface water drains are not blocked by silt, or other items, and that all storage is located the required distance from surface water receptors. A daily log of inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.

Figure 8. Silt fence example

Figure 9. Settlement pond examples

10.3 Ecology

The Wildlife Amendment Act 2000 (S.46.1) provides that it is an offence to cut, grub, burn or destroy any vegetation on uncultivated land or such growing in any hedge or ditch from the first of March to the 31st of August. Exemptions include the clearance of vegetation in the course of road or other construction works or in the development or preparation of sites on which any building or other structure is intended to be provided. None the less it is recommended that vegetation be removed outside of the breeding season where possible. In particular, removal during the peak-breeding season (April-June inclusive) should be avoided. Such a timeframe would also minimise the potential disturbance of breeding birds outside of the proposed development site boundary.

All trees/hedgerows to be retained to be protected in accordance with BS 5837:2012, Trees in relation to design, demolition & construction. Prior to the commencement of any work, or any materials being brought on site, existing trees to be retained are to be protected with temporary fencing. This shall be maintained in good and effective condition until the work is completed. Allow for stabiliser struts to secure fence for duration of construction. Fully remove when construction is complete/site demobilised.

Habitats that are damaged and disturbed will be left to regenerate naturally or will be rehabilitated and/or landscaped, as appropriate, once construction is complete. A landscape plan has been submitted with the proposed development and includes native tree and shrub planting for the site (DRLA).

10.4 Bats

Bat boxes will be erected under ecological supervision to provide roosting habitat within the proposed development site. It is proposed that three bat boxes will be located on mature trees (overhanging the site) along the northern site boundary. (https://www.wildcare.co.uk/vincent-pro-bat-box-10651.html for box proposed or similar).

External lighting should be kept to a minimum during construction and operation, at locations where it is likely to disturb bats, and where possible will follow the *Bat Conservation Ireland*

*Lighting Guidelines and the Bat Conservation Trust 'Bats and artificial lighting in the UK' 2018 Guideline*s, if applicable. The following have been included in the lighting design

- LED type lanterns, of the Warm White type have been utilised. Colour Temperature of 3,000 kelvin, as is considered least disruptive to the emergence of bats from roosts at dusk, and subsequent movement from habitats to foraging locations.
- Lanterns are of the fully cut off type with no light output above the horizontal plane.
- Height of columns kept possible taking cognisance of need to make lanterns vandal resistant
- Lighting faced away from the retained boundary habitats to minimise the impact on bats foraging along these areas.

11. Conclusions

Overall, the development will impact primarily on habitats of low local importance i.e. improved agricultural grassland. There will also be a loss of common habitats which have limited use as foraging grounds for common bird and mammal species. No impact on aquatic habitats have been identified and there are no watercourses within or in the vicinity of the proposed development site. No particular difficulties in the effective implementation of the prescribed mitigation measures have been identified. No impact from the spread of invasive species will occur.

During construction, there will be increased noise and disturbance which could potentially impact on birds and mammals including birds and other fauna including otter, however the impact will not be significant. Given the availability of alternative nesting habitat in the vicinity, the impact on nesting birds is likely to be slight and short-term. With the exception of localised impacts and short-term impacts during construction, no significant impacts on fauna will occur.

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Appendices

Appendix 1. NRA 2009 Guidelines

Table 1: Examples of valuation at different geographical scales

Ecological valuation: Examples
International Importance: • 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation. • Proposed Special Protection Area (pSPA). • Site that fulfills the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). • Features essential to maintaining the coherence of the Natura 2000 Network.[4] • Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive. • Resident or regularly occurring populations (assessed to be important at the national level)5 of the following: o Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or o Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. • Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). • World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). • Biosphere Reserve (UNESCO Man & The Biosphere Programme). • Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). • Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). • Biogenetic Reserve under the Council of Europe. • European Diploma Site under the Council of Europe. • Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).[6]
National Importance: • Site designated or proposed as a Natural Heritage Area (NHA). • Statutory Nature Reserve. • Refuge for Fauna and Flora protected under the Wildlife Acts. • National Park. • Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park. • Resident or regularly occurring populations (assessed to be important at the national level)7 of the following: o Species protected under the Wildlife Acts; and/or o Species listed on the relevant Red Data list. • Site containing 'viable areas'[8] of the habitat types listed in Annex I of the Habitats Directive.
County Importance: • **Area of Special Amenity.[9]** • **Area subject to a Tree Preservation Order.** • **Area of High Amenity, or equivalent, designated under the County Development Plan.** • **Resident or regularly occurring populations (assessed to be important at the County level)[10] of the following:** o **Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;** o **Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;** o **Species protected under the Wildlife Acts; and/or** o **Species listed on the relevant Red Data list.** • **Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.** • **County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP, 11 if this has been prepared.**

- **Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.**
- **Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.**

Local Importance (higher value):

- Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;
- Resident or regularly occurring populations (assessed to be important at the Local level)12 of the following:
    - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
    - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
    - Species protected under the Wildlife Acts; and/or
    - Species listed on the relevant Red Data list.
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;
- Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.

Local Importance (lower value):

- Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;
- Sites or features containing non-native species that are of some importance in maintaining habitat links.

4 See Articles 3 and 10 of the Habitats Directive.
5 It is suggested that, in general, 1% of the national population of such species qualifies as an internationally important population. However, a smaller population may qualify as internationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.
6 Note that such waters are designated based on these waters' capabilities of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and whitefish (*Coregonus*).
7 It is suggested that, in general, 1% of the national population of such species qualifies as a nationally important population. However, a smaller population may qualify as nationally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.
8 A 'viable area' is defined as an area of a habitat that, given the particular characteristics of that habitat, was of a sufficient size and shape, such that its integrity (in terms of species composition, and ecological processes and function) would be maintained in the face of stochastic change (for example, as a result of climatic variation).
9 It should be noted that whilst areas such as Areas of Special Amenity, areas subject to a Tree Preservation Order and Areas of High Amenity are often designated on the basis of their ecological value, they may also be designated for other reasons, such as their amenity or recreational value. Therefore, it should not be automatically assumed that such sites are of County importance from an ecological perspective.
10 It is suggested that, in general, 1% of the County population of such species qualifies as a County important population. However, a smaller population may qualify as County important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle.
11 BAP: Biodiversity Action Plan
12 It is suggested that, in general, 1%of the local population of such species qualifies as a locally important population. However, a smaller population may qualify as locally important where the population forms a critical part of a wider population or the species is at a critical phase of its life cycle