May 2024

Uisce Éireann
Irish Water

Draft Cork Wastewater Strategy

Appropriate Assessment Screening Report

Safeguarding our water for our future

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1 Introduction and Background

1.1 Introduction

On the 1st of January 2014, through the Water Services Act (No. 1) 2013, Uisce Éireann (at that time known as Irish Water) assumed statutory responsibility for the provision of public water services and management of water and wastewater investment. Uisce Éireann's responsibility is to ensure that all of its customers (households and businesses) receive a safe and reliable water supply and have their wastewater collected, appropriately treated and returned safely to the environment.

Uisce Éireann have identified the need for a strategic approach for the assessment of wastewater treatment and network infrastructure for the Cork Metropolitan Area (CMA). The CMA is a major regional metropolitan area, identified as such in the National Planning Framework (NPF) (DHPLG, 2018a) and in the Regional Spatial and Economic Strategy (RSES) 2020-2032 (Southern Regional Assembly, 2020) to ensure long term economic, environmental, and social progress. The NPF 2040 envisages that Cork will become the fastest-growing city region in Ireland with a projected 50% to 60% increase of its population in the period up to 2040. This projected population and associated economic growth will result in a significant increase in water supply and as a result demands on the existing wastewater infrastructure within the area which is now being challenged to keep pace with this growth and an increased demand for new serviced lands.

Uisce Éireann have identified the need for a wastewater strategy for the CMA based on the increase in population identified above, current compliance challenges at a number of wastewater treatment plants and sewerage networks, wastewater treatment capacity requirements to deal with current and future loads from the CMA and associated pressures on the receiving waters from wastewater discharges within the CMA. Particular challenges facing the CMA can be summarised as:

- Impact on wastewater systems as a result of rapid growth;
- Non-compliance challenges associated with existing Wastewater Treatment Plants (WwTP) and sewerage networks;
- Pressure on installed wastewater treatment capacity;
- Deterioration of receiving waters;
- Impact of new Urban Wastewater Treatment Directive (UWTD) on existing wastewater systems; and
- Climate change.

The delivery of a sustainable, integrated wastewater strategy for the CMA requires a strategic approach to wastewater infrastructure planning which incorporates needs of stakeholders, supports economic growth, allows for climate change and meets the demand of a growing population. A sustainable wastewater strategy must be consistent with statutory obligations and regulatory drivers designed to meet both national and international environmental objectives e.g., Water Framework Directive (WFD) and Urban Wastewater Treatment Directives (UWWTD), and those intended to address the impacts of climate change.

The Cork Wastewater Strategy (CWS) is subject to the Strategic Environmental Assessment Directive (SEA Directive) Council Directive 2001/42/EC, the Birds Directive (Council Directive 2009/147/EC) and the Habitats Directive (Council Directive 92/43/EEC). This Appropriate Assessment (AA) Screening Report is required under the Habitats and Birds Directives and was prepared in alignment with the accompanying Strategic Environmental Assessment (SEA) Scoping Report.

1.2 Aim of this Report

Habitats and species of European importance are provided legal protection under the EU Habitats Directive 92/43/EEC (the Habitats Directive). The Directive protects habitats and species of community interest through the establishment and conservation of an EU-wide network of sites known as the Natura 2000 network

(hereafter referred to as European sites[1]). European sites comprise Special Areas of Conservation (SACs[2]) and Special Protection Areas (SPAs).

This report provides information in support of a Screening for Appropriate Assessment (AA) of the CWS in line with the requirements of Article 6(3) of the EU Habitats Directive. It examines the potential for the CWS on its own or in combination with other plans and projects to have likely significant effects (LSEs) on one or more European site(s) in view of the sites' conservation objectives.

1.3 Legislative Context for AA

Underpinning Legislation

The Habitats Directive has been transposed into Irish law by the Planning and Development Act 2000 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/2011) (hereafter referred to as the Habitats Regulations 2011). Articles 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites.

Article 6(3) establishes the requirement for AA:

"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."

Article 6(4) states:

"If, in spite of a negative assessment of the implications for the [Natura 2000] site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, Member States shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted."

Section 177U(1) of the Act states that:

"A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site."

Section 177(4) of the Act states that:

"The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is required if it cannot be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site."

Where likely significant effects upon a European site are predicted, or cannot be ruled out, it is the responsibility of the Competent Authority to undertake an Appropriate Assessment under Article 6(3) of the

[1] The term Natura 2000 network was replaced by 'European site' under the EU (Environmental Impact Assessment and Habitats) Regulations 2011 S.I. No. 473 of 2011.

[2] Candidate SAC (cSAC) are afforded the same protection as SACs. The process of making cSAC into SACs by means of Statutory instrument has begun and while the process if ongoing the term SAC will be used to conform with nomenclature used in the National Parks and Wildlife Services (NPWS) databased.

Habitats Directive, informed through a Natura Impact Statement (NIS), to determine whether or not the proposed plan in combination with any other plan or project would adversely affect the integrity of a European site in light of its Conservation Objectives.

Public Authorities and Appropriate Assessment

The duties of public authorities in relation to nature conservation are laid out principally in Article 27 of the Habitats Regulations 2011. Uisce Éireann is defined as a 'public authority' for the purposes of the 2011 Regulations.

The first step of the AA process is to carry out a screening to establish whether, in relation to a particular plan or project, there is potential for LSEs to any European site(s). Specifically, Regulation 42(1) states:

"Subject to Regulation 42A, a Screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site."

Regulation 42A applies to situations where the Minister for Housing, Local Government and Heritage is the person responsible for making or adopting the relevant plan or project, so is not applicable in respect of the CWS.

Regulation 42(6) states that:

"The public authority shall determine that an Appropriate Assessment of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site."

In the context of Article 6(3), Uisce Éireann must carry out Screening for AA of the CWS to assess whether, on the basis of objective scientific information, the CWS individually or in-combination with other plans or projects, is likely to have a significant effect on a European site. If this screening determines that it cannot be excluded, on the basis of objective scientific information, that the CWS, individually or in combination with other plans or projects, will have a significant effect on a European site, then Uisce Éireann must determine that an Appropriate Assessment of the CWS is required.

To assist in carrying out any Appropriate Assessment that may be required following screening, Uisce Éireann must prepare a Natura Impact Statement (NIS), which is a report comprising the scientific examination of a plan or project and the relevant European site or European sites, to identify and characterise any possible implications of the plan or project individually or in combination with other plans or projects in view of the conservation objectives of the site or sites, and any further information including, but not limited to, any plans, maps or drawings, scientific information or data required to enable the carrying out of an Appropriate Assessment.

In carrying out the full Appropriate Assessment, the Habitats Regulations 2011 require Uisce Éireann to take into account:

- The NIS;
- Any other plans or projects that may, in combination with the plan or project under consideration, adversely affect the integrity of a European site;
- Any supplemental information furnished in relation to any such report or statement;
- If appropriate, any additional information furnished in relation to the NIS;
- Any information or advice obtained by Uisce Éireann;

- If appropriate, any written submissions or observations made to Uisce Éireann in relation to the application for consent for the CWS; and
- Any other relevant information.

Following the Appropriate Assessment process, Uisce Éireann must then only adopt the CWS after having determined that the CWS shall not adversely affect the integrity of any European site(s).

1.4 Overlap with Strategic Environmental Assessment

A Strategic Environmental Assessment (SEA) of the CWS is being carried out concurrently with the AA process. SEA is required under the EU Council Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment (the SEA Directive) and are transposed into our national legislation via regulations[3]. The purpose of SEA is to enable plan-making authorities to incorporate environmental considerations into decision-making at an early stage and in an integrated way throughout the plan making process and to:

- Identify, evaluate and describe the potential significant environmental effects of implementing the CWS;
- Ensure that identified significant effects are communicated, mitigated and that the effectiveness of mitigation is monitored;
- Identify beneficial (and neutral) effects, and to ensure these are communicated; and
- Provide opportunity for stakeholder and public involvement.

There is a degree of overlap between the requirements of the SEA and AA and, in accordance with best practice, an integrated process has been and will be carried out between the development of the CWS, the SEA and the AA, such as sharing of baseline data where relevant, cohesive assessment of the potential ecological effects of the CWS on European sites, their qualifying features, and clarification on more technical aspects of the CWS. These processes together will inform and shape the development of the CWS. The spatial areas used within the SEA and AA vary slightly due to the different receptors being assessed. This is explained in more detail in the "Geographical Scale of the CWS" section in Chapter 2 of this report.

Figure 1.1 below outlines the SEA and AA Stages and how they align with the development of the CWS.

[3] In Ireland, the SEA Directive has been transposed into national legislation through S.I. No. 435 of 2004 (European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004, as amended by S.I. No. 200 of 2011 (European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations 2011). Also, S.I. No. 436 of 2004 (Planning and Development (Strategic Environmental Assessment) Regulations 2004, as amended by External link S.I. No. 201 of 2011 (Planning and Development (Strategic Environmental Assessment) (Amendment) Regulations 2011).

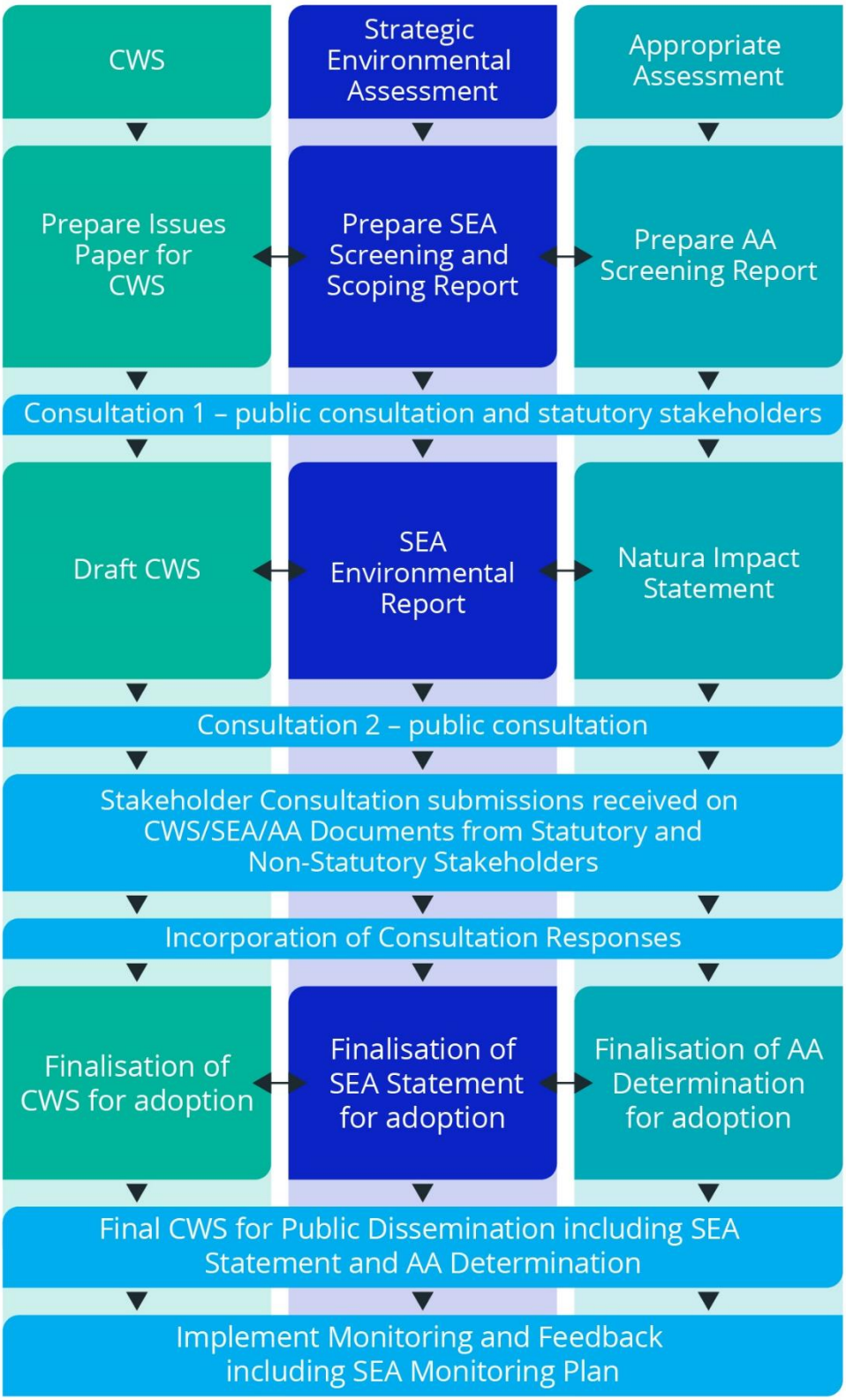

Figure 1.1: CWS development with SEA and AA process

1.5 Consultation

Consultation is a mandatory requirement in the SEA process and responses often make specific reference to the AA process. The CWS will be developed following two phases of consultation. In line with Article 9 (5) of the SEA Regulations (S.I. No. 435 of 2004 as amended by S.I. 200 of 2011), the first consultation will include the SEA Scoping Report being issued to the following statutory Environmental Authorities:

- The Environmental Protection Agency (EPA);

- Department of Housing, Local Government and Heritage (DHLGH);
- The Department of Agriculture, Food and the Marine (DAFM); and
- Department of Environment, Climate and Communications (DECC).

The first consultation will also include public consultation. The AA Screening Report will be issued with the SEA Scoping Report. In addition, a copy of this AA Screening Report and the SEA Scoping Report will be published online for public consultation.

Feedback received on the AA Screening Report and the SEA Scoping Report will be reviewed and taken into account as the draft CWS, SEA Environmental Report and NIS are prepared.

As part of the second phase of consultation, Uisce Éireann will carry out a public consultation on the draft CWS together with the SEA Environmental Report and NIS in 2025.

2 Development of the CWS

2.1 Scope of the CWS

The CWS is a regional level strategy identifying how to provide long-term, sustainable, integrated wastewater drainage systems for Uisce Éireann's customers in the CMA which incorporates needs of stakeholders, supports economic growth, allows for climate change and meets the demand of a growing population without causing adverse impacts on the environment. The CWS will include the identification of medium and long-term solutions for upgrading and building new wastewater infrastructure up to 2080.

2.2 Objectives of the CWS

The key objectives of the CWS are as follows:

- Development of a sustainable wastewater strategy for the CMA consistent with the EU Water Framework Directive (WFD) and Urban Wastewater Treatment Directive (UWTD).
- Outline the requirements for wastewater treatment and drainage infrastructure capable of meeting the demands of the study area in the context of current Development Plans, the National Planning Framework (NPF), the Southern Regional Spatial and Economic Strategy (RSES) 2020 and longer-term development potential of the area up to year 2080.
- Identification of alternative solutions for effective management of wastewater to protect and enhance the environment, support social and economic growth that are consistent with Uisce Éireann's Water Services Strategic Plan (WSSP) and other Uisce Éireann plans and strategies including the National Wastewater Sludge Management Plan (NSMP) and the Regional Water Resources Plan (RWRP) South-West.
- Evaluation of alternative solutions and identification of the medium and long-term solutions for upgrading and building new wastewater infrastructure up to 2080.
- To develop an adaptable strategy where outcomes are expected to be linked to volatile influences such as climate and population change.

2.3 Geographical Scale of the CWS

The geographical area of the CWS is made up predominantly of the CMA, with the boundary extended slightly at the north-west of the CMA to include the village of Grenagh. The CWS core study area for the SEA and AA comprises the CMA and the Cork Harbour and Cork Outer Harbour WFD waterbodies. However, for the AA, the Zone of Influence of European sites can extend outside of this core study area as it depends on the effect pathway, as well as the specific nature of different habitats/species for which a European site is designated including functional and supporting habitat. The Zone of Influence for these potential pathways is defined in Table 4.1. This Zone of Influence will also be used in the SEA when assessing European sites to ensure the SEA and AA align. The SEA must also consider a hydrometric modelling area to identify the WFD waterbodies within the Zone of Influence outside the Core study area.

The core study area along with WFD waterbodies, urban areas and pressure zones can be seen in Figure 2.1 in this report. The various spatial areas used within the SEA are shown in Section 3 of the SEA Scoping Report.

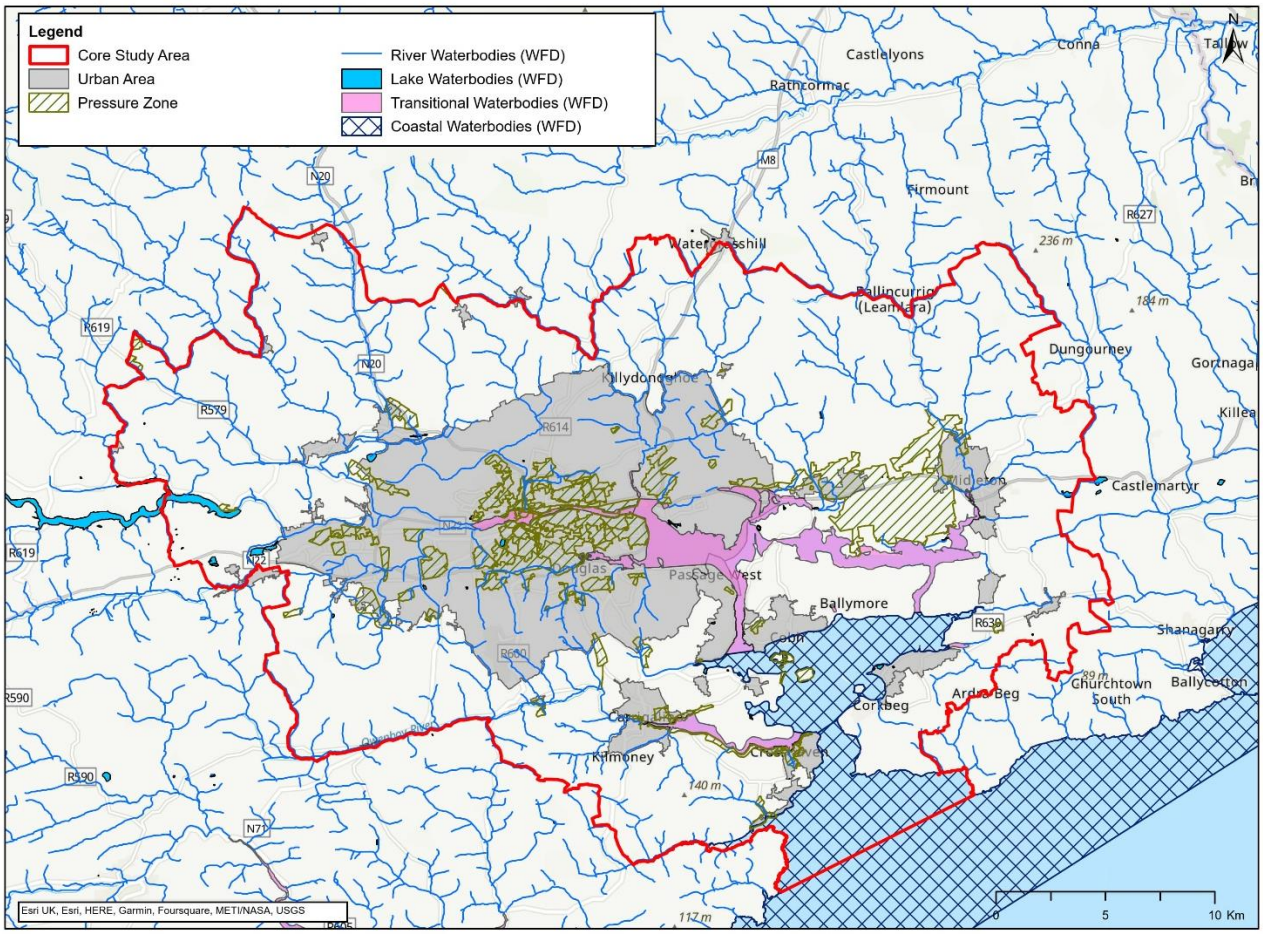

Figure 2.1: CWS study area with WFD waterbodies and key urban areas and pressure

2.4 Temporal Scale

The CWS will provide the strategy for wastewater management in the CMA over the period 2025 to 2080, and will be reviewed regularly in light of any significant changes which may alter any conclusions. It is intended that the CWS will be published in Spring 2025, with 2023 as the base year of the study.

2.5 Transboundary Effects

The CWS solely covers Uisce Éireann's operational area within and surrounding the CMA which is approximately 240km south of the border between the Republic of Ireland and Northern Ireland and is therefore not a transboundary plan. There are also no shared WFD catchments between the CWS and Northern Ireland. Transboundary effects are therefore not considered any further in the assessment.

2.6 Identification of Options

The Wastewater Strategy will consider the capacity of existing wastewater infrastructure and will identify options for upgrading and building new wastewater infrastructure. The CWS methodology will assess the various areas and issues within the study area and use this information to identify options to address issues and provide sustainable, reliable wastewater systems.

2.7 Assessment Methodology Overview

The optioneering process for the CWS will include the following steps:

a. Develop long list of unconstrained options;
b. Course screening of unconstrained options to produce short list of constrained options;
c. Fine screening of constrained options to develop short list of options; and
d. Final assessment of short list.

The following subsections set out the process to be followed at each stage of the optioneering process, including how the AA and SEA will be integrated such that environmental considerations are considered throughout.

Unconstrained Options List

The first stage of the options assessment will involve identifying and evaluating an unconstrained list of solutions to meet the identified need, regardless of cost, environmental or social implications. The intervention hierarchy will involve:

- Planning area solutions – inter-catchment approaches;
- System operation of assets (both WwTPs and networks/assets);
- Catchment measures - 'green' measures such as Sustainable Urban Drainage Systems (SUDs); and
- System upgrades or new assets.

A long list of options will be compiled for each agglomeration and design horizon (2030, 2055 and 2080), which will include:

- Do nothing;
- Minimal upgrades via process optimisation;
- Reuse and upgrading of existing assets;
- Pump away options;
- Construction of new plants and/or relocation of outfalls;

Coarse Screening

Options included in the unconstrained options list will be subject to coarse screening against a variety of criteria (including environmental and sustainability considerations, which includes the potential for adverse effects on the integrity of European sites) using a red – amber – green (RAG) rating system. Options with red rating (unfeasible options) will be discarded from the optioneering process at this point, and options with amber rating against several criteria will also be evaluated for discardment. Options with an amber rating against one criteria or with green ratings will progress to the constrained options list.

Constrained Options List

Options on the constrained options list will be developed further, taking into account regional considerations and focussing on drainage, treatment and discharge. The following specific options will be considered:

- Local treatment options;
- Flow transfer to Cork main drainage network, between catchments, or to a new WwTP;
- Infrastructure and asset upgrades to improve both treatment and flow transfer capacity;
- Outfall upgrades to maintain and improve environmental objectives of receiving waterbody;
- Works necessary to Storm Water Overflows to meet relevant environmental limits (for example upgrade or decommissioning, downstream sewer upsizing or diversion, storage facilities, storm separation and increased flows to full treatment).

Fine Screening

A Multi Criteria Assessment (MCA) will be completed to refine the constrained options list into the short list. MCA involves assessing options based on key criteria (to be confirmed, but under the broad headings of resilience, deliverability, progressibilty and sustainability) to verify criteria and understand risks. Environmental sub-criteria under the sustainability heading will be linked to the environmental topics outlined in the SEA Scoping Report as well as consideration of impacts on European sites as required through the Appropriate Assessment process. Each option on the constrained list will be considered against sub-

criteria, resulting in scores between -3 and +3, with a -3 score being the most negative score and a +3 score being the most positive score.

Short List

The options short list will include three options per WwTP/agglomeration and per design horizon. All shortlisted options may be subject to water quality and network modelling to inform further assessment, and sufficiently developed in order to inform CAPEX (Capital Expenditure) and OPEX (Operational Expenditure) cost estimation (direct and indirect costs, including environmental and social costs).

Final Assessment of Short List

Short listed options will be assessed against bespoke criteria, informed by modelling outputs and stakeholder inputs. Long term strategic plans and growth projections will be considered in determining potential option combinations, and a phased development approach used to facilitate the use of existing assets as far as possible.

Consideration of European Sites

There is some overlap with the Birds Directive (2009/147/EC), the Habitats Directive (92/43/EEC) and the Water Framework Directive (WFD) (2000/60/EC) in relation to the protection of water dependent habitats and species. Under the WFD areas are designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant European sites. The linkages between the Birds and Habitats Directives (BHD) and the WFD were discussed in a document published by the European Commission (2011) which states:

"*Any Natura 2000 site with water-dependent (ground- and/or surface water) Annex I habitat types or Annex II species under the Habitats Directive or with water-dependent bird species of Annex I or migratory bird species of the Birds Directive, and, where the presence of these species or habitats has been the reason for the designation of that protected area, has to be considered for the register of protected areas under WFD Art. 6. These areas are summarised as "water-dependent Natura 2000 sites". For these Natura 2000 sites, the objectives of BHD and WFD apply*".

Therefore, WFD waterbody status will be taken into account when compiling and assessing options that will involve WFD waterbodies, such as outfalls. As many of the European designated sites in Ireland are water-dependent, they may potentially be impacted by some options and therefore will also be taken into account in the optioneering process.

3 Appropriate Assessment Methodology

3.1 Stages of Appropriate Assessment

The methodology for undertaking assessment in relation to AA has evolved from European Commission (2021) guidance and Irish guidance from the former Department of Environment, Heritage and Local Government (2010a). The entire process can be broken down into four stages (Article 42/43 of the Habitats Regulations 2011), as outlined below. If at any stage in the process it is determined that there will be no implications for the European site in view of the site's conservation objectives, the process is effectively completed. The four stages are:

Stage 1 - Screening for Appropriate Assessment (AA)/Test of Likely Significant Effects: Screening determines whether an AA is required by determining if the project or plan is likely to have a significant effect(s) on any European site(s) either alone or in-combination with other plans or projects, in light of the site's conservation objectives (see Figure 3.1).

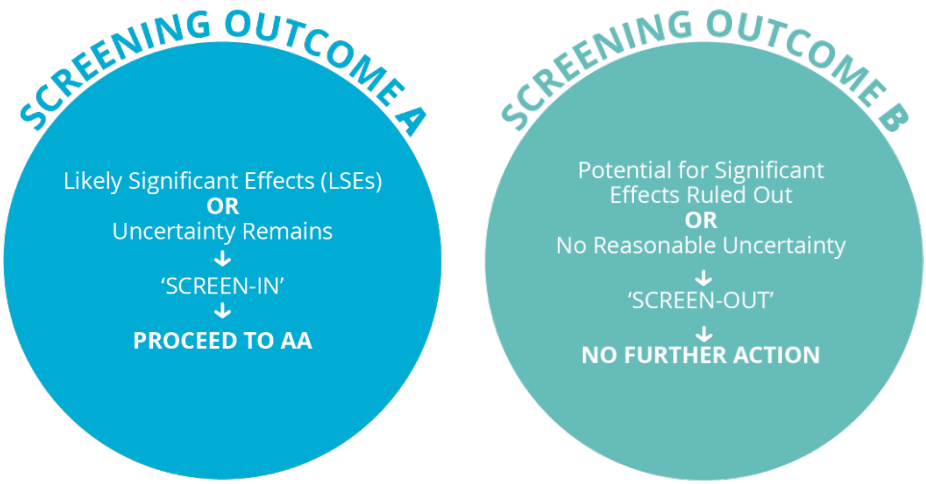

Figure 3.1: Screening for AA

Stage 2 – Appropriate Assessment: If the screening has determined there are LSEs from the plan/project either alone or in-combination with other plans and projects on European Site(s) the implication for European sites are further assessed in the context of the implications for their conservation objectives and Adverse Effects on Site Integrity (AESI) analysed. If it is determined on further analysis and data gathering that the plan/project will not adversely affect the integrity of the relevant European site(s) then the Stage 2 Appropriate Assessment can conclude no AESI. However, if there are potential issues identified for the conservation objectives of the European site(s) then mitigation is required to protect the site's conservation objectives. The AESI analysis is re-run and considers the structure and function of European sites, their conservation objectives and effects from the project/plan both alone and in-combination with other projects or plans. Where AESI are identified, mitigation measures are proposed as required to avoid adverse effects on the integrity and conservation objectives of the European site(s). The information and data to inform the AA process is documented within a NIS. This is provided to the competent authority to facilitate their AA determination of the plan or project.

Stage 3 – Assessment of Alternative Solutions: Following AA, including mitigation proposals, if AESI remain, or uncertainty remains and the project/plan is to be progressed, an Assessment of Alternative Solutions is required under the provisions of Article 6(4) of the Habitats Directive. This process examines the alternative ways of achieving the objectives of the project or plan that avoid adverse impacts on the integrity of the European site. If no alternatives exist, or all alternatives would result in adverse effects on the integrity of a European site, then either the process moves to the next stage or the project is abandoned.

Stage 4 – Imperative Reasons of Over-Riding Public Interest (IROPI): In the unlikely event where an Assessment of Alternative Solutions fails to identify any suitable alternatives, then for a project or plan to be progressed it must meet the requirements of IROPI. In this case the provisions of Article 6(3) cannot be met and therefore, the provisions of Article 6(4) are used. If in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed, thus compensatory measures are implemented to maintain the coherence of the European site network in the face of adverse effects to the integrity of the site(s).

3.2 Approach to AA of Cork Wastewater Strategy

The approach to this AA Screening takes consideration of the strategic nature of the CWS and uses objective information to determine whether the CWS will have LSEs for European sites in the manner outlined in *Commission of the European Communities v United Kingdom of Great Britain and Northern Ireland* (Court of Justice of the European Union, Case C-6/04, Opinion of Advocate General Kokott)[4] and Waddenzee (Court of Justice of the European Union, C-127/02).

Application of the AA process at Plan level

In the context of AA Screening, when applying the 'test of significance' the test is of the "likelihood" of effects rather than the "certainty" of effects. In accordance with the Waddenzee Judgement[5], a likely effect is one that cannot be ruled out based on objective information and is underpinned by the precautionary principle and the test of beyond reasonable scientific doubt. This test therefore sets a low bar: a plan should be considered 'likely' to have an effect if the competent authority (in this case Uisce Éireann) is unable (on the basis of objective information) to exclude the possibility that the plan could have significant effects on any European site, either alone or in-combination with other plans or projects. An effect is considered to be 'significant' if it could undermine a European site's conservation objectives.

The methodology for undertaking Screening for AA can be applied at both a project and plan level assessment. The suitability of the data and information used and any decisions flowing from its use in the CWS assessment have to meet the provisions and requirements of the Habitats Directive. The strategic assessments at the plan level will inevitably be undertaken at a higher level than would be the case for projects. However, the CWS does not provide consent for any future projects arising from it or future iterations of the plan but, demonstrates that the protection for the European site network is suitably considered and achievable in the context of the remit of the plan. Also, any future project level AA Screenings and/or NIS will have regard for the plan level AA Screening as the projects have been identified or specified from the CWS. To note, all of Uisce Éireann's projects are screened for AA. Therefore, all projects arising from the CWS will additionally be required to go through individual environmental assessments (including AA Screening and if needed AA). These will be obligatory in support of planning applications (where a project requires planning permission) or in support of licensing applications (for example, for waste water discharge licences).

Compliance of the CWS development process with the Habitats Directive

The CWS identifies needs in terms of quantity, quality and reliability, and develops a methodology (Option Assessment Methodology) to develop interventions to address this need. The AA Screening for the CWS has assessed at a high level the Options Assessment Methodology and the option types that are likely to arise from the CWS. The CWS identifies option types that could be applied across the CMA. The AA Screening for the CWS therefore assesses the potential impacts on European sites of the CWS at a regional scale within the CMA.

Applying the above approach demonstrates that the development of the CWS is compliant with the requirements of the Habitats Directive.

[4] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62004CC0006 (Accessed December 2023).
[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62002CJ0127&qid=1702581659279 (Accessed December 2023).

3.3 Guidance documents in relation to Appropriate Assessment

The requirements of Article 6 of the Habitats Directive for the CWS have been applied following the guidance documents:

- AA of Plans and Projects in Ireland: Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010a);
- Appropriate Assessment Screening for Development Management. OPR Practice Note PN01. (Office of the Planning Regulator, 2021).
- Assessment of Plans and Projects in Relation to Natura 2000 Sites – Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2021);
- Communication from the Commission on the Precautionary Principle (European Commission, 2000);
- Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Clarification of the concepts of: Alternative Solutions, Imperative Reasons of Overriding Public Interest, Compensatory Measures, Overall Coherence, Opinion of the Commission (European Commission, 2007);
- Marine Natura Impacts Statements in Irish Special Areas of Conservation. A Working Document (Department of Arts, Heritage and the Gaeltacht, 2012); and
- Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (European Commission, 2018).

The following circulars have also been used:

- AA under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 and PSSP 2/10 (Department of Environment, Heritage and Local Government, 2010b);
- AA of Land Use Plans. Circular Letter SEA 1/08 & NPWS 1/08 (Department of Environment, Heritage and Local Government, 2008a);
- Compliance Conditions in respect of Developments requiring (1) Environmental Impact Assessment (EIA); or (2) having potential impacts on Natura 2000 sites. Circular Letter PD 2/07 and NPWS 1/07 (Department of Environment, Heritage and Local Government, 2007a);
- Guidance on Compliance with Regulation 23 of the Habitats Directive. Circular Letter NPWS 2/07 (Department of Environment, Heritage and Local Government, 2007b); and
- Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments. Circular L8/08 (Department of Environment, Heritage and Local Government, 2008b).

3.4 Guiding Principles and Case Law

A number of cases have been brought to both the national and European courts in relation to the AA process. Irish departmental guidance (Department of Environment, Heritage and Local Government, 2010a) in relation to AA was published over 10 years ago. Therefore, recent case law has, in many cases, superseded this guidance. However, recent guidance from the OPR (2021) in relation to AA Screening has now been published and considered in this assessment. Relevant case law, ECJ rulings and EC publications have also been considered in the preparation of the AA Screening for the CWS.

3.5 Identification of European Sites

Sites within the Natura 2000 Network are referred to as European sites and include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). SACs are designated for the conservation of Qualifying Interests (QI), Annex I habitats and Annex II species (other than birds). SPAs are designated for the conservation of Special Conservation Interest (SCI) Annex I birds and other regularly occurring migratory birds and their habitats.

Irish departmental guidance on the Zone of Influence (ZoI) to be considered during the AA stated the following:

"A distance of 15km is currently recommended in the case of plans, and derives from UK guidance (Scott Wilson et al., 2006). For projects, the distance could be much less than 15km, and in some cases less than 100m, but this must

be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects".

However, the actual extent of the ZoI depends on the effect pathway, as well as the specific nature of different habitats/species for which a European site is designated including functional and supporting habitat (OPR, 2021). Therefore, for these reasons the ZoI must be scientifically defined and based upon further information.

As part of the desk-based assessment, when assessing likely ZoI for all options the "source-pathway-receptor" model will be applied. European sites with a hydrological link to any given option or the study area will be considered to be within the ZoI. As such, sites that are outside the boundary of the study area may also be included in the assessment where there is an effects pathway.

The CWS core study area covers the CMA, with the boundary extended slightly to cover a larger area. The core study area is within the County of Cork. Therefore, all European sites within the CMA and European sites with potential effects pathways located outside the CMA were initially considered to be potentially within the ZoI of the CWS.

Special Areas of Conservation

SACs cover 58 habitat types recognised in Annex I of the Habitats Directive, with 16 habitats designated as "priority" habitats owing to their ecological vulnerability (NPWS, 2019a). Habitats for which SACs are designated include lakes, raised bogs, blanket bogs, turloughs, sand dunes, machair, heaths, rivers, woodlands, estuaries and sea inlets. In addition, the Habitats Directive recognises 26 Annex II species. Some of the species for which SACs have been designated include but are not limited to: Atlantic salmon (*Salmo salar*), otter (*Lutra lutra*), lesser horseshoe bat (*Rhinolophus hipposideros*), freshwater pearl mussel (*Margaritifera margaritifera*) and Killarney fern (*Trichomanes speciosum*). There are 441 SACs in Ireland and of these 358 are water-dependent (Department of Housing, Planning and Local Government, 2018c). These SACs support various habitats and species that are dependent on various water sources. There are approximately 800 water bodies within European sites, all supporting water dependent habitats and species. A number of significant pressures on these water bodies have been identified (Department of Housing, Planning and Local Government, 2018c), including:

- Agriculture;
- Hydromorphological pressures;
- Forestry;
- Urban wastewater;
- Anthropogenic pressures;
- Abstractions; and
- Invasive species.

Of the pressures noted above, urban wastewater is of particular relevance to the CWS.

There is only one SAC within the CWS core study area, which is the Great Island Channel SAC. The Annex I habitats within the study area designated within the Great Island Channel SAC are mudflats and sandflats not covered by seawater at low tide [1140], and Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]. These are found within the North Channel Great Island, Lough Mahon and Lough Mahon (Harper's Island) transitional waterbodies. There are no Annex II species designated as QIs within the Great Island Channel SAC.

Special Protection Areas

The majority of the wintering water birds and breeding seabirds occurring in Ireland are considered to be regularly occurring migratory birds. Over 60% of the 25 Annex I listed species that now occur in the Republic

of Ireland on a regular basis belong to the breeding seabird and wintering waterbird groups. This has in part led to the situation of the majority (> 80%) of Ireland's SPAs being designated for these two bird groups.

Some of the productive marine intertidal zones of bays and estuaries are included within SPAs and these provide vital food resources for several wintering wader species, including knot (*Calidris canutus*), dunlin (*Calidris alpina*) and bar-tailed godwit (*Limosa lapponica*). Also included in the SPA network are marine waters adjacent to breeding seabird colonies and other important areas for divers, seaducks and grebes.

Finally, a number of inland wetland sites and areas of blanket bog and upland habitats have also been designated as SPAs for wintering water birds. These sites provide important breeding and foraging areas for numerous other species including merlin (*Falco columbarius*) and golden plover (*Pluvialis apricaria*). Agricultural land is also represented within the SPA network ranging from the extensive farmland of upland areas where hedgerows, wet grassland and scrub offer feeding and/or breeding opportunities for hen harrier (*Circus cyaneus*) to the intensively farmed coastal polderland where internationally important numbers of swans and geese occur.

There is one SPA within the CWS core study area; this is the Cork Harbour SPA. There are 25 QI bird species (and wetlands and waterbirds [A999]) designated within this SPA. The QI bird species designated within this SPA are included in Table 3.1.

Table 3.1: QI bird species designated within Cork Harbour SPA

Common name	Scientific name	European code
Little grebe	*Tachybaptus ruficollis*	A004
Great crested grebe	*Podiceps cristatus*	A005
Cormorant	*Phalacrocorax carbo*	A017
Grey heron	*Ardea cinerea*	A028
Shelduck	*Tadorna tadorna*	A048
Wigeon	*Anas penelope*	A050
Teal	*Anas crecca*	A052
Mallard	*Anas platyrhynchos*	A053
Pintail	*Anas acuta*	A054
Shoveler	*Anas clypeata*	A056
Red-breasted merganser	*Mergus serrator*	A069
Oystercatcher	*Haematopus ostralegus*	A130
Golden plover	*Pluvialis apricaria*	A140
Grey plover	*Pluvialis squatarola*	A141
Lapwing	*Vanellus vanellus*	A142
Dunlin	*Calidris alpina*	A149
Black-tailed godwit	*Limosa limosa*	A156

Bar-tailed godwit	*Limosa lapponica*	A157
Curlew	*Numenius arquata*	A160
Redshank	*Tringa totanus*	A162
Greenshank	*Tringa nebularia*	A164
Black-headed gull	*Chroicocephalus ridibundus*	A179
Common gull	*Larus canus*	A182
Lesser black-backed gull	*Larus fuscus*	A183
Common tern	*Sterna hirundo*	A193

Conservation Objectives

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of annexed habitats and annexed species of community interest for which an SAC or SPA has been designated. The conservation objectives (COs) for a European site are set out to ensure that the QIs/SCIs of that site are maintained or restored to a favourable conservation condition. Maintenance of favourable conservation condition of habitats and species at a site level in turn contributes to maintaining or restoring favourable conservation status of habitats and species at a national level and ultimately at the European site network level.

Detailed site synopses for each European site are available from the NPWS website[6]. In Ireland 'generic' COs have been prepared for all European sites, while 'site specific' COs have been prepared for a number of individual sites to take account of the specific QIs/SCIs of that site. Both the generic and the site-specific COs aim to define the requirements for favourable conservation condition for habitats and species at the site level. Generic COs, which have been developed by NPWS, encompass the spirit of site-specific COs in the context of maintaining and restoring favourable conservation condition as follows:

- For SACs: "To maintain or restore the favourable conservation condition of the Annex I habitats and/or Annex II species for which the SAC has been selected".
- For SPAs: "To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for the SPA".

Following on from this, favourable conservation status (or condition, at a site level) of a habitat is achieved when:

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

The favourable conservation status (or condition, at a site level) of a species is achieved when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and

[6] https://www.npws.ie/protected-sites (Accessed December 2023)

- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

A full list of the COs and QIs/SCIs that each European site is designated for relating to the CWS, as well as the attributes and targets to maintain or restore the QIs/SCIs to a favourable conservation condition are available from the NPWS website[7].

[7] https://www.npws.ie/protected-sites/conservation-management-planning/conservation-objectives (Accessed December 2023)

4 Screening

4.1 Screening

This Screening for AA was informed by a desk study of all relevant environmental information and involved the following steps (broadly based on (European Commission, 2021)):

- Determined if the proposed Plan is directly connected with or necessary to the management of the site;
- Description of the proposed Plan;
- Identification of relevant European site(s);
- Assessment of likely significant effects (LSEs) on European sites; and
- Screening conclusion.

4.2 Is the CWS exempt from assessment?

The CWS is not directly connected with or necessary to the management of a European site and therefore is not exempt from assessment.

4.3 Description of the CWS

An overview of the CWS, including background and context are provided in Chapters 1 and 2 of this report.

4.4 Identification of European Sites within the CWS

As discussed in Chapter 3, all European sites within the CMA and European sites with potential effects pathways located outside the CMA were initially considered to be potentially within the ZoI of the CWS, therefore potential LSEs on the conservation objectives for these sites will be considered. There is one SAC and one SPA within the CMA core study area. There are numerous other European sites that will be considered within this assessment. Section 4.6 outlines the European sites that are considered to be within at least one ZoI of a potential pathway of the CWS, and will therefore be considered further in the assessment. All European sites within and in proximity to the CMA are shown in Figure 4.1 below.

Further information about the European sites considered in the ZoI of the CWS including distances from the core study area and their QI species and habitats can be found in Appendix A. Information regarding the WFD waterbodies and Third Schedule[8] invasive species within the CWS core study area can be found in Appendix B and Appendix C respectfully.

[8] Third Schedule of the European Communities (EC) (Birds and Natural Habitats) Regulations, 2011 (S.I. No.477/2011). High impact non-native invasive species that are subject to restrictions in terms of disturbance and management are included in this list.

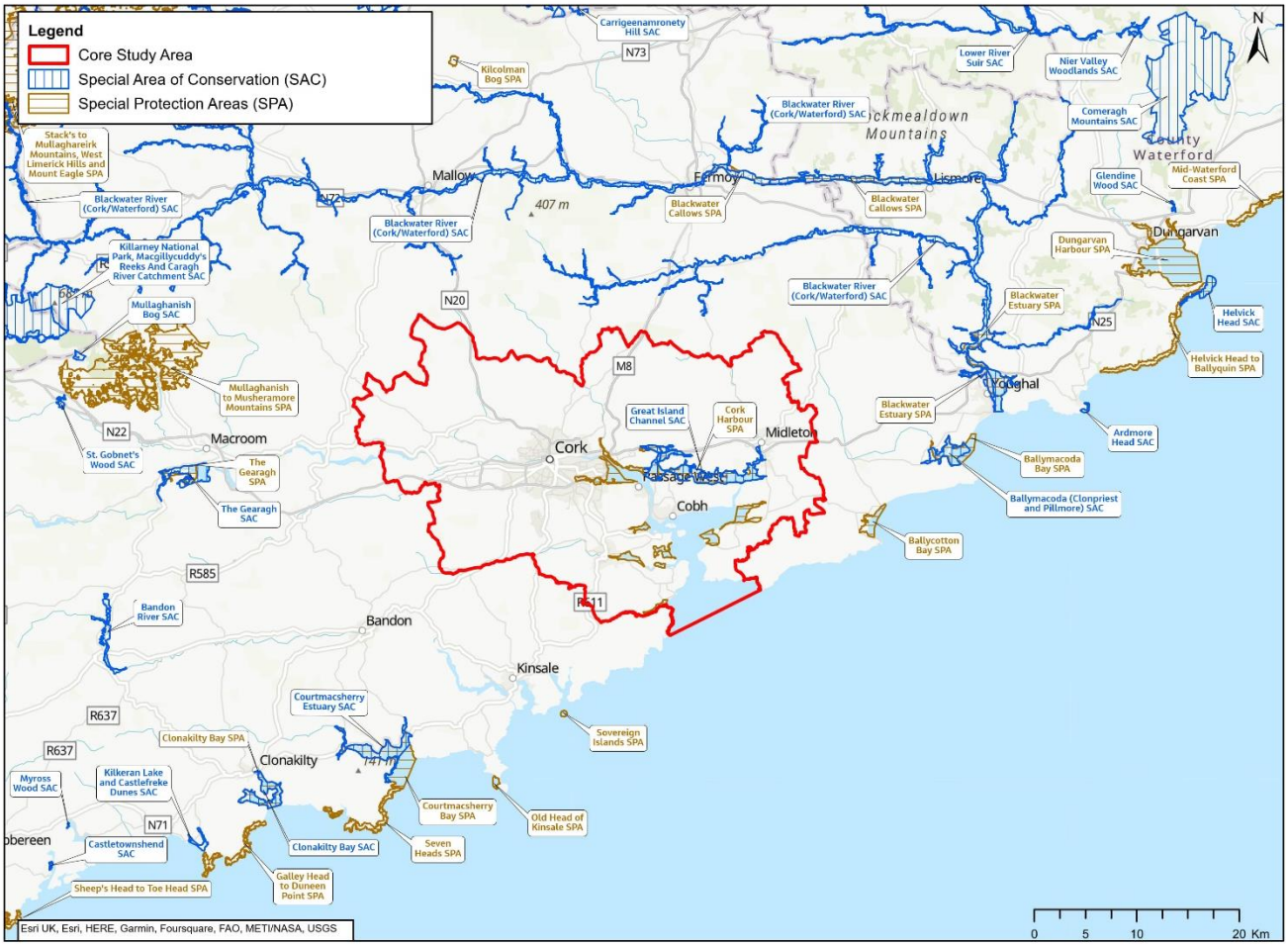

Figure 4.1: European sites within and surrounding the CMA

4.5 Assessment of Likely Significant Effects

The CWS methodology will identify suitable options for the various areas throughout the CMA. The option types that will arise from the CWS will potentially result in LSEs on European sites in the absence of mitigation. Therefore, a high-level assessment of the potential LSEs of these management option types is the focus of this assessment.

When assessing the CWS, the 'source-pathway-receptor' model is applied taking consideration of all potential impact pathways connecting elements of the CWS to European sites in view of their conservation objectives.

The source-pathway-receptor conceptual model is a standard tool in environmental assessment to identify and assess potential impact pathways. In order for an effect to occur, all three elements of this mechanism must be in place. The absence or removal of one of the elements of the pathway means that there is no likelihood for the effect to occur (e.g. no potential for LSEs).

The source-pathway-receptor model is focused solely on the QIs for which European sites are designated as per the latest conservation objectives from the NPWS website[9].

Table 4.1 defines the source-pathway-receptor model, the zones of influence and the extents of sensitivity of QIs for each potential impact pathway used in the assessment. It should be noted that some of the options may have no effect on European sites, while others could have beneficial impacts on European sites, for example options that seek to improve overall water quality. However, the implementation of the CWS may give rise to measures that could result in a variety of potential effects.

[9] https://www.npws.ie/protected-sites/conservation-management-planning/conservation-objectives

Table 4.1: Potential effect pathways of options arising from CWS

Pathway name	Source-pathway-receptor model	Zone of Influence	Extent of sensitivity of receptors
Habitat loss - permanent	The provision of new infrastructure or permanent change of habitat from the plan could result in direct loss of QI habitat or supporting habitat for QI species in a European site, or functionally linked land associated with mobile QI species outside the boundaries of European sites	• The ZoI assessed is within the footprint of the plan • Physical loss of habitat is only possible within the boundary of a European site, or within an area of functionally linked land habitat outside of the European site	• QI habitats are sensitive within the boundary of their designated site • Supporting habitats of QI species are sensitive within the boundary of their designated site • Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Habitat loss - temporary	Construction activities including temporary works areas and access routes of the plan could result in the temporary loss of habitats before reinstatement after construction is completed, potentially affecting QI habitat or supporting habitat for QI species in a European site, or functionally linked land associated with mobile QI species outside the boundaries of European sites	• The ZoI assessed is within the footprint of the plan • Physical loss of habitat is only possible within the boundary of a European site, or within an area of functionally linked land habitat outside of the European site	• QI habitats are sensitive within the boundary of their designated site • Supporting habitats of QI species are sensitive within the boundary of their designated site • Functionally linked habitats of QI species are sensitive within suitable habitat that is within the range of the QI species from their designated site
Habitat degradation – changes in water quality	Construction activities and changes in operational activities can release oils, chemicals, heavy metals, silt, etc from equipment as well as suspended solids, etc from waste materials. This can directly affect	• The ZoI assessed is within the footprint of the Proposed Scheme or within hydrologically linked areas (to the point where effects would be imperceptible such as where a watercourse meets open sea)	• QI habitats are sensitive within the boundary of their designated site • Supporting habitats of QI species are sensitive within the boundary of their designated site • Functionally linked habitats of QI species are sensitive where suitable habitat is

Pathway name	Source-pathway-receptor model	Zone of Influence	Extent of sensitivity of receptors
	QI species or habitats or affect them indirectly through loss of aquatic prey species, or through changes in their habitats	• Pollutants can travel along hydrological linkages such as watercourses to a considerable distance from works.	present within the range of the QI species from their designated site
Habitat degradation – hydrological changes	In-stream structures or changes to water management from the plan can cause changes in hydrology, which can alter water volumes and flows, which can in turn change the wetness of habitats or cause erosion or deposition of materials. Such changes can affect QI habitats or supporting and functionally linked habitats of QI species	• The ZoI assessed is within surface water catchments that the footprint of the plan lies within • Surface water changes can occur within catchments as changes in one location affect other locations via watercourses for example	• QI habitats are sensitive within the boundary of their designated site • Supporting habitats of QI species are sensitive within the boundary of their designated site • Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Habitat degradation – hydrogeological changes	Construction activities such as groundworks and excavations and permanent changes to water management can cause changes to groundwater volumes and flows, which can change the hydrogeology of QI habitats and supporting or functionally linked habitats of QI species	• The ZoI assessed is within groundwater catchments that the footprint of the plan lies within • Groundwater changes can occur within catchments as changes in one location affect other locations	• QI habitats are sensitive within the boundary of their designated site • Supporting habitats of QI species are sensitive within the boundary of their designated site • Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Habitat degradation – changes in air quality	Construction plant and vehicles emit exhausts containing pollutants that can deposit on QI habitats, which can cause direct toxic effects on QI species	• The ZoI assessed is within 200m of the footprint of the plan • Pollutant deposition from vehicles is thought to occur in insignificant amounts	• QI habitats are sensitive within the boundary of their designated site • Supporting habitats of QI species are sensitive within the boundary of their designated site

Pathway name	Source-pathway-receptor model	Zone of Influence	Extent of sensitivity of receptors
	and habitats or degradation of QI habitat	beyond 200m from the source	• Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Habitat degradation – spread of invasive species	Construction activities can cause the spread of invasive species already within the construction site (through transfer on plant or within materials moved during earthworks), or by importing materials from outside the construction site (on the wheels of plant or delivery vehicles, etc). This can cause the degradation of QI habitats or supporting and functionally linked habitats of QI species	• The ZoI assessed is within the footprint of the Proposed Scheme. • The spread or importing of invasive species can only occur within the construction site.	• QI habitats are sensitive within the boundary of their designated site • Supporting habitats of QI species are sensitive within the boundary of their designated site • Functionally linked habitats of QI species are sensitive where suitable habitat is present within the range of the QI species from their designated site
Disturbance of species	Construction activities could result in disturbance of QI species through changes in noise, vibration, movement (of people and/or vehicles) and lighting. Disturbance may lead to the abandonment of breeding, foraging or resting sites by QI species, potentially resulting in increased energy expenditure, reduced fitness and inability to complete lifecycle stages	• The ZoI assessed is within the footprint of the Proposed Scheme or within 300m of the construction or operation of the plan • 300m is considered to be an appropriate distance to assess disturbance as QI species are unlikely to be significantly disturbed beyond this distance	• QI species are sensitive within the boundary of their designated site (in supporting habitat) or within functionally linked habitats where suitable habitat is present within the range of the QI species from their designated site

Pathway name	Source-pathway-receptor model	Zone of Influence	Extent of sensitivity of receptors
Mortality	Mortality of individuals of QI species could occur directly through killing of individuals by construction works or indirectly as a result of pollution entering the watercourse	• The ZoI assessed is within the footprint of the Proposed Scheme, within 50m of watercourse crossings that will be subject to works • Direct mortality from construction activities can only occur within the construction footprint. Indirect mortality can occur near to works at watercourses that sever species commuting routes	• QI species are sensitive within the boundary of their designated site (in supporting habitat) or within functionally linked habitats where suitable habitat is present within the range of the QI species from their designated site

4.6 Identification of relevant European sites and QIs

The 'source-pathway-receptor' model was applied taking consideration of all potential impact pathways connecting elements of the CWS to European sites in view of their Conservation Objectives.

The CWS was examined with reference to its location to European sites, and taking account of the potential effects outlined in Table 4.1, the following European sites are considered to be within the ZoI of the CWS:

- Great Island Channel SAC (001058) - this site lies within the ZoIs for:
  - Habitat loss – permanent
  - Habitat loss – temporary
  - Habitat degradation – changes in water quality
  - Habitat degradation – hydrological changes
  - Habitat degradation – hydrogeological changes
  - Habitat degradation – changes in air quality
  - Habitat degradation – spread of invasive species
  - Disturbance of species
  - Mortality
- Ballymacoda (Clonpriest and Pillmore) SAC (000077) - this site lies within the ZoIs for:
  - Habitat degradation – changes in water quality
  - Habitat degradation – hydrological changes
  - Habitat degradation – hydrogeological changes
- The Gearagh SAC (000108) - this site lies within the ZoIs for:
  - Habitat degradation – hydrological changes
  - Habitat degradation – hydrogeological changes
- Cork Harbour SPA (004030) - this site lies within the ZoIs for:
  - Habitat loss – permanent
  - Habitat loss – temporary
  - Habitat degradation – changes in water quality
  - Habitat degradation – hydrological changes
  - Habitat degradation – hydrogeological changes
  - Habitat degradation – changes in air quality

    - Habitat degradation – spread of invasive species
    - Disturbance of species
    - Mortality
- Ballycotton Bay SPA (004022) - this site lies within the ZoIs for:
    - Habitat loss – permanent (functionally linked habitat)
    - Habitat loss – temporary (functionally linked habitat)
    - Habitat degradation – changes in water quality
    - Habitat degradation – hydrological changes
    - Habitat degradation – hydrogeological changes
    - Disturbance of species
    - Mortality
- Sovereign Islands SPA (004124) - this site lies within the ZoIs for:
    - Habitat loss – permanent (functionally linked habitat)
    - Habitat loss – temporary (functionally linked habitat)
    - Disturbance of species
- Ballymacoda Bay SPA (004023) - this site lies within the ZoIs for:
    - Habitat loss – permanent (functionally linked habitat)
    - Habitat loss – temporary (functionally linked habitat)
    - Habitat degradation – changes in water quality
    - Habitat degradation – hydrological changes
    - Habitat degradation – hydrogeological changes
    - Disturbance of species
    - Mortality
- Blackwater Estuary SPA (004028) - this site lies within the ZoIs for:
    - Habitat loss – permanent (functionally linked habitat)
    - Habitat loss – temporary (functionally linked habitat)
    - Disturbance of species
- Blackwater Callows SPA (004094) - this site lies within the ZoIs for:
    - Habitat loss – permanent (functionally linked habitat)
    - Habitat loss – temporary (functionally linked habitat)
    - Disturbance of species
- Courtmacsherry Bay SPA (004219) - this site lies within the ZoIs for:
    - Habitat loss – permanent (functionally linked habitat)
    - Habitat loss – temporary (functionally linked habitat)
    - Disturbance of species
- The Gearagh SPA (004109) - this site lies within the ZoIs for:
    - Habitat loss – permanent (functionally linked habitat)
    - Habitat loss – temporary (functionally linked habitat)
    - Habitat degradation – hydrological changes
    - Habitat degradation – hydrogeological changes
    - Disturbance of species

The QIs and COs of these European sites are detailed in Appendix A and these European sites are shown in Figure 4.1 above. The European sites and potential impacts listed above are currently being considered and assessed.

4.7 In-combination Effects

Under Article 6(3) of the Habitats Directive an assessment of in-combination effects of the CWS with other plans and projects is considered. Consideration has been given, at this stage of the CWS, to other relevant plans on a similarly strategic level that have clear potential to have an in-combination effect upon European Sites. The plans listed below are considered and assessed. Relevant projects will also be included for in-combination assessment. The plans currently considered include the following:

- Water Services Strategic Plan (Uisce Éireann, 2015).
- National Wastewater Sludge Management Plan (Uisce Éireann, 2016a).
- Lead in Drinking Water Mitigation Plan (Uisce Éireann, 2016b).
- Regional Water Resources Plan – South West (Uisce Éireann, 2023).
- Uisce Éireann Biodiversity Action Plan (Uisce Éireann, 2021).
- National Planning Framework. Ireland 2040 Our Plan (DHPLG, 2018a).
- National Development Plan 2021-2030 (DPER, 2021).
- National Adaptation Framework (DCCAE, 2018).
- National Marine Planning Framework (NMPF) (DHPLG, 2021).
- Southern Regional Spatial and Economic Strategy (Southern Regional Assembly, 2020).
- River Basin Management Plan (RBMP) 2018-2021 (DHPLG, 2018c)/Draft River Basin Management Plan for Ireland 2022-2027 (DHLGH, 2022).
- Catchment Flood Risk Assessment and Management (CFRAM) Programme (Office of Public Works (OPW), 2018).
- Water Quality and Water Services Infrastructure, Climate Change Sectoral Adaptation Plan (DHPLG, 2019).
- Climate Action Plan 2023 (DECC, 2023).
- Ireland's 4th National Biodiversity Action Plan 2023-2030 (DHLGH, 2024).
- Cork City Development Plan 2022-2028 (Cork City Council, 2022).
- Cork County Development Plan 2022-2028 (Cork County Council, 2022).
- Cork City Heritage and Biodiversity Plan 2021-2026 (Cork City Council, 2021).
- Draft Cork City Climate Action Plan 2024-2029 (Cork City Council, 2023).
- Draft Cork County Council Climate Action Plan 2024-2029 (Cork County Council, 2023).

Given the level of detail that is available for the CWS and the potential for likely significant effects, in-combination effects as a result of the implementation of the CWS cannot currently be ruled out. However, no additional impact pathways have been identified in-combination than those identified in the 'alone' assessment. All potential impact pathways have been screened in for Appropriate Assessment alone where there is an overlap between the ZoI from the Plan. There may be in-combination effects through these pathways, but these will be addressed in the NIS. Where potential impact pathways have been screened out alone, this has been concluded on the basis that there is no overlap of the ZoI from the Plan and the QIs of European sites. As there is no overlap, there is no pathway to an effect and therefore no effect. It is not possible therefore for the Plan to contribute to any in-combination effect and so none of these pathways need to be included in the Appropriate Assessment.

5 Screening Conclusion

Stage 1 of the AA process (Screening for AA) described herein relates to the CWS. The CWS is a regional scale plan covering the CMA in County Cork.

Given the strategic nature of the CWS, the current stage of preparation and in light of a number of uncertainties relating to the implementation of the CWS going forward, it is considered that the potential for LSEs on one or more European sites, in view of the sites' conservation objectives, cannot be excluded either alone or in-combination. In the absence of more detailed information on the CWS and management options listed therein at this stage, the precautionary principle must be applied.

Therefore, in accordance with Article 6(3) of the Habitats Directive, Stage 2 AA of the CWS is required. This will be presented in an NIS to fully inform the AA determination to be undertaken by Uisce Éireann.

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Appendix A European Sites in the ZoI of the CWS

European site name and code	Distance of site from the proposed works	Conservation Objectives and Qualifying Interests (*=priority habitat).
Special Area of Conservation (SAC)		
Great Island Channel SAC (001058)	Direct distance: within study area Hydrological distance: within study area	**To maintain or restore the favourable conservation condition of the Annex I habitats for which the SAC has been selected.** **Annex I Habitats:** Mudflats and sandflats not covered by seawater at low tide [1140] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
Ballymacoda (Clonpriest and Pillmore) SAC (000077)	Direct distance: 10km east Hydrological distance: 16km downstream via the Womanagh River	**To maintain or restore the favourable conservation condition of the Annex I habitats for which the SAC has been selected.** **Annex I Habitats:** Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] *Salicornia* and other annuals colonising mud and sand [1310] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
The Gearagh SAC (000108)	Direct distance: 14.9km west Hydrological distance: 23.1km upstream via the River Lee	**To maintain or restore the favourable conservation condition of the Annex I habitats and Annex II species for which the SAC has been selected.** **Annex I Habitats:** Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] Rivers with muddy banks with *Chenopodion rubri* p.p. and *Bidention* p.p. vegetation [3270] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] *Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] **Annex II Species:** Otter *(Lutra lutra)* [1355]
Special Protection Area (SPA)		
Cork Harbour SPA (004030)	Direct distance: within study area	**To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.**

	Hydrological distance: within study area	Little Grebe (*Tachybaptus ruficollis*) [A004] Great Crested Grebe (*Podiceps cristatus*) [A005] Cormorant (*Phalacrocorax carbo*) [A017] Grey Heron (*Ardea cinerea*) [A028] Shelduck (*Tadorna tadorna*) [A048] Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052] Mallard (*Anas platyrhynchos*) [A053] Pintail (*Anas acuta*) [A054] Shoveler (*Anas clypeata*) [A056] Red-breasted Merganser (*Mergus serrator*) [A069] Oystercatcher (*Haematopus ostralegus*) [A130] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Greenshank (*Tringa nebularia*) [A164] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Common Gull (*Larus canus*) [A182] Lesser Black-backed Gull (*Larus fuscus*) [A183] Common Tern (*Sterna hirundo*) [A193] Wetland and Waterbirds [A999]
Ballycotton Bay SPA (004022)	Direct distance: 3.7km southeast Hydrological distance: 4.3km downstream via the Shanagarry River	**To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.** Teal (*Anas crecca*) [A052] Ringed Plover (*Charadrius hiaticula*) [A137] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Turnstone (*Arenaria interpres*) [A169]

		Common Gull (*Larus canus*) [A182] Lesser Black-backed Gull (*Larus fuscus*) [A183] Wetland and Waterbirds [A999]
Sovereign Islands SPA (004124)	Direct distance: 9.3km southwest Hydrological distance: 19.2km via the Celtic Sea	**To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.** Cormorant (*Phalacrocorax carbo*) [A017]
Ballymacoda Bay SPA (004023)	Direct distance: 10km east Hydrological distance: 15.2km downstream via the Womanagh River	**To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.** Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052] Ringed Plover (*Charadrius hiaticula*) [A137] Golden Plover (*Pluvialis apricaria*) [A140] Grey Plover (*Pluvialis squatarola*) [A141] Lapwing (*Vanellus vanellus*) [A142] Sanderling (*Calidris alba*) [A144] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Turnstone (*Arenaria interpres*) [A169] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Common Gull (*Larus canus*) [A182] Lesser Black-backed Gull (*Larus fuscus*) [A183] Wetland and Waterbirds [A999]
Blackwater Estuary SPA (004028)	Direct distance: 14.5km east Hydrological distance: 37.3km via the Celtic Sea	**To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.** Wigeon (*Anas penelope*) [A050] Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Redshank (*Tringa totanus*) [A162] Wetland and Waterbirds [A999]

Blackwater Callows SPA (004094)	Direct distance: 14.5km north Hydrological distance: 71.4km via the Celtic Sea and upstream via the Blackwater River	**To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.** Whooper Swan (*Cygnus cygnus*) [A038] Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052] Black-tailed Godwit (*Limosa limosa*) [A156] Wetland and Waterbirds [A999]
Courtmacsherry Bay SPA (004219)	Direct distance: 15.3km southwest Hydrological distance: 42.3km upstream via Celtic Sea	**To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.** Great Northern Diver (*Gavia immer*) [A003] Shelduck (*Tadorna tadorna*) [A048] Wigeon (*Anas penelope*) [A050] Red-breasted Merganser (*Mergus serrator*) [A069] Golden Plover (*Pluvialis apricaria*) [A140] Lapwing (*Vanellus vanellus*) [A142] Dunlin (*Calidris alpina*) [A149] Black-tailed Godwit (*Limosa limosa*) [A156] Bar-tailed Godwit (*Limosa lapponica*) [A157] Curlew (*Numenius arquata*) [A160] Black-headed Gull (*Chroicocephalus ridibundus*) [A179] Common Gull (*Larus canus*) [A182] Wetland and Waterbirds [A999]
The Gearagh SPA (004109)	Direct distance: 16.2km west Hydrological distance: 24.4km upstream via the River Lee	**To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.** Wigeon (*Anas penelope*) [A050] Teal (*Anas crecca*) [A052] Mallard (*Anas platyrhynchos*) [A053] Coot (*Fulica atra)* [A125] Wetland and Waterbirds [A999]

Appendix B WFD Waterbodies within CWS Core Study Area

Name	Code	Waterbody Type	WFD Status 2016-2021	WFD Risk Rating
Aughnaboy (Cork)_010	IE_SW_19A020300	River	Moderate	At risk
Ardnahinch_010	IE_SW_19A200870	River	Good	Under review
Ardra More_010	IE_SW_19A220720	River	Good	Not at risk
Blarney_010	IE_SW_19B020500	River	Moderate	At risk
Bride (Lee)_050	IE_SW_19B041600	River	Good	Under review
Butlerstown_010	IE_SW_19B060200	River	Good	Not at risk
Butlerstown _020	IE_SW_19B060500	River	Good	Under review
Butlerstown _030	IE_SW_19B060800	River	Moderate	At risk
Bride (Cork City)_010	IE_SW_19B140110	River	Moderate	At risk
Bride (Cork City)_020	IE_SW_19B140300	River	Poor	At risk
Curragheen (Cork City)_010	IE_SW_19C120740	River	Moderate	At risk
Dripsey_020	IE_SW_19D060400	River	High	Under review
Dungourney_010	IE_SW_19D070500	River	Good	Under review
Dungourney_020	IE_SW_19D070700	River	Poor	At risk
Farrannamanagh_010	IE_SW_19F110740	River	Good	Not at risk
Glashaboy (Lough Mahon)_020	IE_SW_19G010400	River	Good	Under review
Glashaboy (Lough Mahon)_030	IE_SW_19G010600	River	Good	Not at risk
Glasheen (Cork City)_010	IE_SW_19G040700	River	Poor	At risk
Glennamought Trib Bride_010	IE_SW_19G880990	River	Moderate	Under review
Hilltown_010	IE_SW_19H050470	River	Good	Under review
Kilnaglery_010	IE_SW_19K620850	River	Good	Under review
Knocknamadderee_010	IE_SW_19K630910	River	Good	Under review
Lee (Cork)_080	IE_SW_19L030600	River	Good	Not at risk
Lee (Cork)_090	IE_SW_19L030800	River	Good	Not at risk
Martin_010	IE_SW_19M010200	River	Moderate	At risk
Martin _020	IE_SW_19M010300	River	Good	Not at risk
Martin _030	IE_SW_19M010400	River	Good	At risk
Martin _040	IE_SW_19M010600	River	Moderate	At risk
Moneygurney_010	IE_SW_19M300900	River	Good	Under review

Owenboy (Cork)_010	IE_SW_19O010400	River	Moderate	At risk
Owenboy (Cork)_020	IE_SW_19O010800	River	Moderate	At risk
Owenboy (Cork)_030	IE_SW_19O011000	River	Moderate	Under review
Owenboy (Cork)_040	IE_SW_19O011400	River	Moderate	At risk
Owennacurra_010	IE_SW_19O030050	River	Good	At risk
Owennacurra _020	IE_SW_19O030220	River	High	Not at risk
Owennacurra _030	IE_SW_19O030400	River	Good	Not at risk
Owennacurra _040	IE_SW_19O030500	River	Moderate	At risk
Shournagh_020	IE_SW_19S010200	River	High	Not at risk
Shournagh_030	IE_SW_19S010300	River	Moderate	At risk
Shournagh _040	IE_SW_19S010500	River	Good	At risk
Shanagarry_010	IE_SW_19S270790	River	Good	Under review
Templebodan_010	IE_SW_19T010100	River	Good	Not at risk
Two Pot (Cork City)_010	IE_SW_19T050890	River	Moderate	At risk
Tibbotstown_010	IE_SW_19T250870	River	Good	Under review
Womanagh_020	IE_SW_19W011300	River	Moderate	At risk
Minane (Cork)_010	IE_SW_20M010200	River	Good	Under review
Stick_010	IE_SW_20S030800	River	Good	Not at risk
Inniscarra Reservoir	IE_SW_19_138	Lake	Good	Not at risk
Cuskinny Lake	IE_SW_060_0200	Transitional	Bad	Under review
North Channel Great Island	IE_SW_060_0300	Transitional	Moderate	At risk
Slatty Bridge_ Fota Island	IE_SW_060_0600	Transitional	Unassigned	Under review
Glashaboy Estuary	IE_SW_060_0800	Transitional	Bad	At risk
Lee (Cork) Estuary Lower	IE_SW_060_0900	Transitional	Moderate	At risk
Lee (Cork) Estuary Upper	IE_SW_060_0950	Transitional	Moderate	At risk
Lough Beg / Curraghbinny	IE_SW_060_1100	Transitional	Good	Under review
Rostellan Lake	IE_SW_060_0100	Transitional	Moderate	Under review
Owenboy Estuary	IE_SW_060_1200	Transitional	Moderate	At risk
Owenacurra Estuary	IE_SW_060_0400	Transitional	Moderate	At risk
Lough Mahon (Harper's Island)	IE_SW_060_0700	Transitional	Moderate	At risk
Lough Mahon	IE_SW_060_0750	Transitional	Moderate	At risk
Outer Cork Harbour	IE_SW_050_0000	Coastal	Moderate	At risk
Raffeen Lake, Shanbally	IE_SW_060_1000	Coastal	Unassigned	Under review
Cork Harbour	IE_SW_060_0000	Coastal	Moderate	At risk

Appendix C Third Schedule Invasive Species Recorded within CWS Core Study Area

Common Name	Scientific Name	Recorded in last five years? (Y/N)[10]
American mink	*Mustela/Neovison vison*	Y
Canada goose	*Branta canadensis*	N
Common carp	*Cyprinus carpio*	N
Coypu	*Myocastor coypus*	N
Grey squirrel	*Sciurus carolinensis*	N
Greylag goose	*Anser anser*	N
Harlequin ladybird	*Harmonia axyridis*	Y
Japanese skeleton shrimp	*Caprella mutica*	N
Muntjac deer	*Muntiacus reevesi*	N
Muskrat	*Ondatra zibethicus*	N
Ruddy duck	*Oxyura jamaicensis*	N
Stalked/leathery sea squirt	*Styela clava*	Y
American skunk-cabbage	*Lysichiton americanus*	Y
Brazilian giant-rhubarb	*Gunnera manicata*	Y
Cord-grasses	*Spartina spp.*	Y
Curly waterweed	*Lagarosiphon major*	N
Giant hogweed	*Heracleum mantegazzianum*	N
Giant knotweed	*Fallopia sachalinensis*	N
Giant-rhubarb	*Gunnera tinctoria*	Y
Himalayan/Indian balsam	*Impatiens glandulifera*	Y
Himalayan knotweed	*Persicaria wallichii*	Y
Hottentot-fig	*Carpobrotus edulis*	Y
Japanese knotweed	*Fallopia japonica*	Y
Parrot's feather	*Myriophyllum aquaticum*	N

[10] Records from the National Biodiversity Data Centre. Available at: https://maps.biodiversityireland.ie/Map (Accessed December 2023)

Rhododendron	*Rhododendron ponticum*	Y
Sea-buckthorn	*Hippophae rhamnoides*	Y
Spanish bluebell	*Hyacinthoides hispanica*	Y
Three-cornered leek	*Allium triquetrum*	Y
Water fern	*Azolla filiculoides*	N
Waterweeds	*Elodea spp.*	Y
Wireweed	*Sargassum muticum*	Y