September 2024

Uisce Éireann
Irish Water

Report

Draft Galway Wastewater Strategy

(Galway Metropolitan Area, Athenry & Moycullen)

Appropriate Assessment Screening Report

UE/FF/LDB/0323

Safeguarding our water for our future

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1. Introduction

The economic success of the Galway Metropolitan Area (GMA) and surrounding areas under the National Spatial Strategy has led to very significant growth in these areas. As a result of this growth, the wastewater infrastructure is challenged to keep pace with the increased demand for new serviced land for housing, commercial development, and industry. As such, Ryan Hanley Stantec (RHS) was appointed by Uisce Éireann to prepare and deliver a wastewater drainage strategy for these areas, hereafter referred to as the Galway Wastewater Strategy (GWS). The GWS study area includes the Galway Metropolitan Area, Athenry and Moycullen (**Figure 1.1**).

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.

The need for a holistic drainage assessment for the Study Area is evident from the high growth projections, compliance challenges of some of the wastewater treatment plants (WWTPs) and sewerage networks, and wastewater treatment capacity requirements to accommodate current and future wastewater loads and address associated pressures on the quality of receiving waters.

Ultimately the aim of the GWS is to identify sustainable wastewater drainage strategy projects for the study area through to 2080, and to establish whether there are likely significant effects across the synergy of plans and projects, with the identification of disbenefits, growth tolerances, and the development of recommendations to address findings. The delivery of a sustainable, integrated wastewater strategy for the study area 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 Galway Wastewater Strategy (GWS) 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.

Figure 1-1: GWS Study Area

1.1 Terminology

For the avoidance of doubt, the following terminology will be used throughout the report:

- The Plan: the works associated with the implementation and operation of GWS; and
- European Sites: Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

1.2 Aims of this report

The EU Habitats Directive 92/43/EEC (the Habitats Directive) and the Birds Directive (Council Directive 2009/147/EC) provide legal protection to habitats and species of European importance. The Habitats Directive protects habitats and species of community interest through establishment and conservation of a network of sites across Europe, which are referred to as the Natura 2000 network (hereafter referred to as European sites). European sites comprise Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

This report provides information in support of a Screening for Appropriate Assessment (AA) of the GWS in line with the requirements of Article 6(3) of the EU Habitats Directive. It assesses the potential for "likely significant effects" (LSEs) to arise at European site(s) within the Zone of Influence of the GWS strategy (a Project in respect of the conservation objectives of each site.

1.3 Legislative Context

1.3.1. 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 a European Site, but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the 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 European 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 network 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(s) are anticipated, or cannot be excluded, is it the responsibility of the Competent Authority to undertake an 'Appropriate Assessment' under Article 6(3) of the Habitats Directive, informed though a Natura Impact Statement (NIS) to determine whether or not the proposed plan or project would adversely affect the integrity of a European site in light of its Conservation Objectives.

1.3.2. 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 GWS.

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 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 GWS; and
- Any other relevant information.

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

1.4 Overlap with Strategic Environmental Assessment (SEA)

Strategic Environmental Assessment (SEA) of the GWS 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. 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 GWS;
- 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 GWS, the SEA and the AA, such as sharing of baseline data where relevant, cohesive assessment of the potential

ecological effects of the GWS on European sites, their qualifying features, and clarification on more technical aspects of the GWS. These processes together will inform and shape the development of the GWS.

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.

Feedback received on the AA Screening Report and the SEA Scoping Report will be reviewed and taken into account as the draft GWS, 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 GWS together with the SEA Environmental Report and NIS in 2025.

1.5 Quality Assurance

This Stage 1 Screening Report for Appropriate Assessment was completed, reviewed and authorised by experienced ecologists, who are affiliated with the Chartered institute of Ecology and Environmental Management (CIEEM).

1.6 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);
- Department of Environment, Climate and Communications (DECC);
- and the Department of Agriculture, Food and the Marine (DAFM).

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.

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 GWS together with the SEA Environmental Report and NIS in 2025.

2. Development of the GWS

2.1 Scope of the GWS

The GWS is a regional level strategy identifying the solutions necessary to facilitate provision of sustainable wastewater drainage systems and infrastructure for the GWS Study Area between now and 2080. The solutions identified will be developed to account for climate change and support economic/ population growth without causing adverse impacts on the environment. The GWS 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 GWS

The key objectives of the GWS include:

- To develop a sustainable wastewater drainage strategy for the GWS study area consistent with the EU Water Framework Directive and Urban Wastewater Treatment Regulations.
- To outline the requirements for wastewater drainage and treatment capable of meeting the demands of the study area in the context of current Development Plans, the National Planning Framework, RSES 2020 – 2032 for Northern and Western Region and longer-term development potential of the area up to 2080.
- Identification of alternative solutions for effective management of wastewater to protect and enhance the environment, support social and economic growth aligning with Uisce Éireann Water Services Strategic Plan (WSSP) and other Uisce Éireann plans and strategies including the National Wastewater Sludge Management Plan (NWWSMP) and the Regional Water Resources Plan (RWRP) North – West.
- Evaluation of alternative solutions and identification of the optimum wastewater drainage solutions having regard to whole-life cost and environmental performance.
- Identification of individual projects for implementing the recommendations of the GWS, together with the prioritisation of such implementation projects.
- To develop an adaptable strategy where outcomes are expected to be linked to volatile influences like climate and population change.

2.3 Geographical Scale of the GWS

The study area of the GWS is shown in **Figure 3-1**, and includes the Galway Metropolitan Area (GMA), with the boundary extending to Athenry and Moycullen.

The GWS study area is covered by three catchments namely Galway Bay North (EPA code 31), Corrib (EPA code 30) and Galway Bay South East (EPA code 29) and includes four Uisce Éireann WWTPs namely Mutton Island WWTP (serving Galway City and environs), Athenry WWTP, Moycullen WWTP and Claregalway WWTP.

2.4 Temporal Scale

The GWS will provide the strategy for wastewater management in the study area 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 GWS will be published in Spring 2025, with 2023 as the base years of the study.

2.5 Transboundary Effects

The GWS solely covers Uisce Éireann's operational area within and surrounding the GMA which is approximately 100km southwest 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 GWS and Northern Ireland. Transboundary effects are therefore not considered any further in the assessment.

2.6 Optioneering and Strategy Development

2.6.1. Optioneering overview

Optioneering for the GWS will be a complex task which will seek to address challenges relating to hydraulic capacity, wastewater treatment capacity, flooding, environmental compliance, sustainability etc. multiple alternative solutions are possible for each challenge and a final selection will be made with knowledge of sustainable development, energy efficiency, carbon emission and whole life costs.

The general Optioneering and Strategy Selection process for the GWS is listed below and described in more detail in **Sections 2.6.2** to **2.7.2**:

- Development an unconstrained open long list of options for each agglomeration and development of an options hierarchy to be used for ranking of unconstrained options;
- Completion of coarse option-screening to establish constrained options for each agglomeration and design horizon;
- Completion of options shortlisting via primary/ fine screening using a Multi Criteria Assessment (MCA) of the constrained options to develop a short list of feasible options for each agglomeration and design horizon; and
- Strategy selection and phasing based on final assessment of short-listed feasible options.

2.6.2. Unconstrained options list

The steps involved in this stage will involve the following:

- Establish a general unconstrained list of possible interventions/ options which could be used to address identified issues. This initial list will not be itemized/ tailored for each individual agglomeration and will not consider in detail the viability of the intervention in terms of cost, scale, environmental issues, practicality, land take etc.
- Develop an unconstrained long list of interventions/ options tailored specifically to each agglomeration/ settlement need and design horizon. The list of interventions will be different for each settlement/ agglomeration and will include options such as existing asset optimisation, asset upgrades, new assets, Nature Based Solutions (NBS), SuDS etc. The long lists will include but not be limited to:
    - No works or Upgrade
    - Minimal Upgrade and Process Optimisation
    - Reuse Existing WWTPs and Upgrade
    - Pump Away Options (in part or total)
    - Construct New WWTPs
    - Relocate or Remove Outfalls
    - Optimising Sludge Treatment Facilities
- Develop an intervention hierarchy to be used on the unconstrained long list for each agglomeration.
- Rank the long list of interventions for each agglomeration using the established intervention hierarchy.

2.7 Coarse Screening

Coarse screening will involve an assessment of each option in the long list against a number of criteria to establish which options could involve a major obstacle to strategy development. Some criteria which will be considered include impacts on European Sites, environmental considerations (e.g. noise, proximity to sensitive receptors etc.), space constraints for upgrades/ new assets etc.

Options which are considered unfeasible and would involve a major obstacle to the strategy will be discounted from further consideration and a constrained options list will be established for each agglomeration and design horizon. Some options likely to be considered for the constrained list are described below:

- Treating the wastewater from each agglomeration/ settlement locally.
- Diversion of some or all of the collected wastewater from settlements to the Galway City main drainage network or to a new WWTP.
- Diversion of some flows from the Galway City network to a new WWTP.
- Upgrade of existing infrastructure (e.g. existing pumping stations) or provide new infrastructure such as new pumping station to transfer flows between catchments and different network locations.
- Optimising existing WWTP capacity, provision of additional treatment capacity.
- Optimising sludge treatment facilities in accordance with UÉ's wastewater sludge strategy.
- Upgrade of discharge outfalls and SWOs to ensure compliance environmental legislation (e.g. ensure compliance with SWO spills etc).
- Upgrade infrastructure to improve resilience in the context of emergencies such as failure of one or more major pumping stations failures, power supply failure at major pumping stations and WWTPs, or other critical infrastructure failure.

2.7.1. Options shortlisting – Fine Screening

The constrained list of options will be evaluated against primary criteria and corresponding sub-criteria via a Multi Criteria Assessment (MCA). The criteria selected for the MCA will be based on technical feasibility, environmental benefit, societal benefit, relative cost etc.

Using the MCA, a short list of options will be developed for each agglomeration and time horizon to meet the catchment need.

2.7.2. Scenario development, strategy selection and phasing

This stage will involve the following:

- Alternative solution scenarios for each settlement or agglomeration will be established based on the short list of options for each agglomeration. The scenarios may involve a combination of different options to solve each individual need and provide a solution strategy for the agglomeration as a whole (e.g. new storage tank to reduce SWO spills, new WWTP to improve final effluent discharge quality etc.). 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.
- In the preparation of scenarios, it will be necessary to undertake some local optimisation and solution refinement (e.g. hydraulic modellers will test different combinations of storage, sewer upsizing and surface water separation to target sewer flooding before arriving at one or more successful combinations).

- Further assessment of the scenarios will be completed using MCA. The MCA will be developed to include criteria and factors identified during the previous stages of the study (e.g. water quality modelling outputs, SEA/ AA findings, feedback from public consultation, network modelling shortfalls etc.). Furthermore, the MCA will also capture characteristics of the scenarios which address renewable energy, energy efficiency (to IS399 requirements), climate change vulnerability and resilience, waste and the circular economy, biodiversity benefits from nature-based solutions and wellbeing measures for staff and the community, A recommended solution will be established for each agglomeration/ settlement using this MCA.

A programme for delivery will be established to identify timelines for implementing the recommendations of the GWS together with the prioritisation of such implementation projects. The phasing of implementations is important so that key facilities are built or upgraded to meet the changing needs through growth.

2.8 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 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 the Birds and Habitats Directives 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. Methodology

3.1 Stages of Appropriate Assessment (AA)

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 (2010). The relevant national guidance is detailed in **section 3.3**. The guidance sets out a four-stage approach to AA (as illustrated in Figure 3-1 Process of Appropriate Assessment (AA) below). An AA can be carried out for either Plans or Projects, with Plans defined as "all statutory and non-statutory land use, framework and sectoral plans and strategies" and Projects defined as "the execution of construction works or of other installations or schemes – other interventions in the natural surroundings and landscape including those involving the extraction of minerals" (Directive 85/337/EEC). 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:

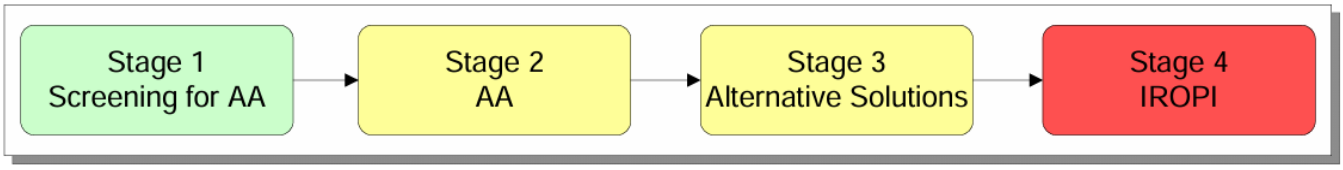

Figure 3-1 Process of Appropriate Assessment (AA).

Stage 1: Screening for Appropriate Assessment

The Screening Stage involves the determination of the whether the implementation of the Plan is likely to result in a significant effect(s) on any European site(s), either alone or in-combination with other plans and projects, in light of the site's conservation objectives.

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/or projects on the 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: 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 solutions or options that could allow the Plan or Project to be carried out without adverse effects on any European site(s). This process will return the assessment to Stage 2 to carry out appropriate assessment of the alternative solutions. If it is demonstrated

that all reasonable alternatives have been considered and adverse impacts to a European site are still expected, the process must proceed to the next stage, or the project is abandoned.

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

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 Imperative Reasons of Overriding Public Interest (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 IROPI, it is deemed that the project or plan should proceed, thus compensatory measures are implemented to maintain the coherence of European site network in the face of adverse effects to the integrity of the site(s).

3.2 Approach to AA of GWS

The approach to this AA Screening takes consideration of the strategic nature of the GWS and uses objective information to determine whether the GWS 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)[1] and Waddenzee (Court of Justice of the European Union, C-127/02).

3.2.1. 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[2], 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.

This AA Screening Report is provided at the earliest stage of integrated working to support the shaping of optimal solutions. The purpose includes to inform and guide the development of the GWS Strategy concept stage options and recommendations.

Where specific recommendations of the GWS are developed as projects, this work is intended to inform project-level screening and Appropriate Assessment. This work will be beneficial to the in-depth evaluation of options and avoidance of effects.

3.2.2. Compliance of the GWS development process with the Habitats Directive

The GWS 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 GWS has assessed at a high level the Options Assessment Methodology and the option types that are likely to arise from the GWS. The GWS identifies option types that could be applied across the GMA. The AA Screening for the GWS therefore assesses the potential impacts on European sites of the GWS at a regional scale within the GMA.

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

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62004CC0006 (accessed April 2024)

[2] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62002CJ0127&qid=1702581659279 (access April 2024)

3.3 Guidance documents in relation to AA

The requirements of Article 6 of the Habitats Directive for the GWS 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 GWS.

3.5 Identification of European Sites

Sites within the Natura 2000 Network referred to as European Sites include Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). SACs designated for their Qualifying Interests (QI), Annex I habitats and Annex II species (excepting bird species) and the habitats on which they rely (including functional linkage). SPAs are designated for Special Conservation Interest (SCI) Annex I birds and migratory birds and their habitats.

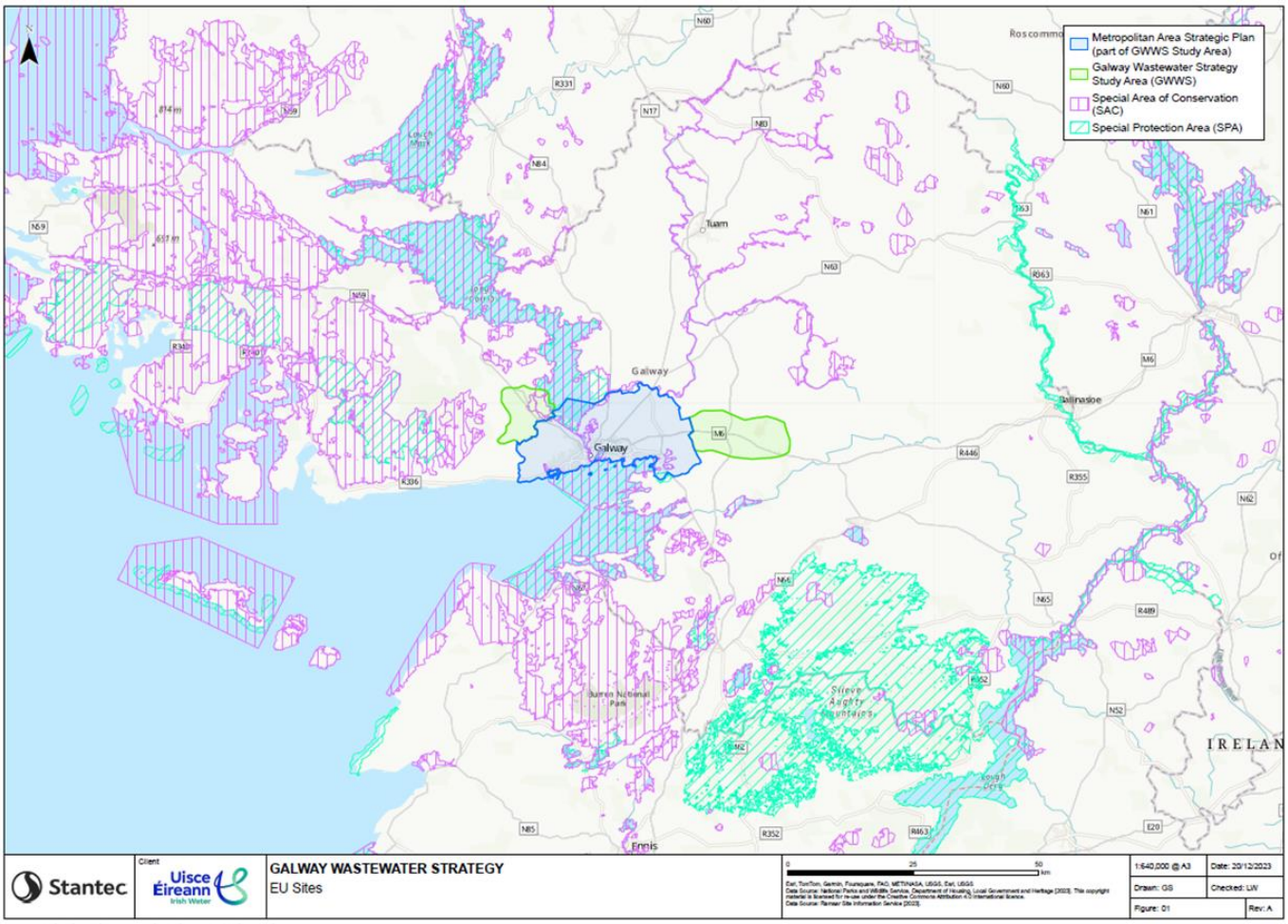

Figure 3-1. A map of the Galway Wastewater Strategy (GWS) study area and surrounding European Sites, including Special Areas of Conservation (SAC) and Special Protection Areas (SPA).

For the purposes of this report, an AA screening (defined in **Section 3.1**) has been carried out of the GWS study area (see **Figure 3-1** above) and the Zone of Influence (ZoI) of the Strategy using a Source - Pathway - Receptor model. In terms of the extent of search for source – pathway - receptor analysis, Irish departmental guidance states:

"A distance of 15km is currently recommended in the case of plans, and derives from UK guidance (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, the sensitivities of the ecological receptors, and the potential for in combination effects".

In addition, the Source - Pathway - Receptor approach to the identification of interactions that comprise a given pathway of effect toward Sites, Species, their interactions, and their functionally linked and supporting habitat must be assessed through the lens of the precautionary principal.

The ZoI must be evidence-based and derived from multifactorial analysis of influences to make an assessment of effects both alone and in combination (including with other plans identified in the associated SEA).

In the context of this report, the term 'functional linkage' refers to the role or 'function' that land or sea beyond the boundary of a European site might fulfil in terms of ecologically supporting the populations for which the site was designated or classified. Such land is therefore 'linked' to the European site in question because it provides an important role in maintaining or restoring the population of QI at favourable conservation status.

3.5.1. 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 GWS.

3.5.2. 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 land where internationally important numbers of swans and geese occur.

3.5.3. 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[3]. For all Site details provided, latest synopsis, conservation objectives and citation information at NPWS were accessed in preparation of this report. This has been abridged and interpreted using professional judgement.

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

[3] https://www.npws.ie/protected-sites (accessed April 2024)

- 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.

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 GWS exempt from assessment?

The GWS 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 GWS

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

4.4 Identification of European Sites within the GWS

As discussed in section 3, all European sites within the GWS area and European sites with potential effects pathways located outside the GWS were initially considered to be potentially within the ZoI of the GWS, therefore potential LSEs on the conservation objectives for these sites will be considered. **Section 4.6** outlines the European sites that are considered to be within the ZoI of at least one potential pathway of the GWS and will therefore be considered further in the assessment.

The GWS core area spans Galway Metropolitan Area (GMA) and extends to the surrounding area. The GWS area and European sites area is shown in **Figure 3-1**. The core study area is within the County of Galway, however sub-catchment of watercourses and waterbodies extend beyond the county boundary. Sites that share a sub-catchment with the GWS study have direct hydrological linkage and therefore have been deemed to be within the ZoI of the GWS. For the purposes of this Stage 1 assessment hydrological linkages are considered noting waterbodies, bays and rivers that share sub-catchment or close connection by sea. With reference to the precautionary principle further linkages are possible, thus a number of sites outside catchment linkages are also identified with rationale provided, such as potential displacement of birds to alternate SPAs or loss of functional land, as stated in **Section 3.5**, or where air quality or groundwater resources may be affected. Further details are provided in tables at **Appendix A** to **C**.

All European sites considered in the ZoI of the GWS including distances from the GWS area, the QIs and details of threats and pressures to these sites is provided in **Appendix C.**

4.5 Assessment of Likely Significant Effects (LSEs)

The GWS methodology will identify suitable options for the various areas throughout the GWS area. The option types that will arise from the GWS 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 GWS, the 'source-pathway-receptor' model is applied taking consideration of all potential impact pathways connecting elements of the GWS to European sites in view of their conservation objectives.

The source-pathway-receptor 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[4].

Table 4-1 below 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 GWS may give rise to measures that could result in a variety of potential effects.

Table 4-1Potential effect sources and pathways of options arising from the GWS on qualifying interests (receptors) of European sites.

Pathway name	Source-pathway-receptor model	Zone of Influence (ZoI)	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 habitat which supports QI species in a European site, or functionally linked land associated with mobile QI species outside the boundaries of European sites.	The ZoI assessed with within the current footprint of the GWS area and functionally linked areas with consideration to relevant QI species.	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	The ZoI assessed with within the current footprint	QI habitats are sensitive within the boundary of their designated site.

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

Pathway name	Source-pathway-receptor model	Zone of Influence (ZoI)	Extent of sensitivity of receptors
	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.	of the GWS area and functionally linked areas with consideration to relevant QI species.	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 water quality	Construction activities and changes in operational traffic / drainage can release oils, chemicals, heavy metals, silt etc. This can directly affect QI species or habitats or affect them indirectly through loss of aquatic prey species, or through changes in their habitats	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) Pollutants can travel along hydrological linkages such as watercourses to a considerable distance from works.	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 – hydrological changes	In-stream structures or changes to drainage from the plan can cause changes in hydrology, which can alter water volumes and flows, which can in	The ZoI assessed is within surface water catchments that the footprint of the plan lies within. Surface water changes can	QI habitats are sensitive within the boundary of their designated site. Supporting habitats of QI

Pathway name	Source-pathway-receptor model	Zone of Influence (ZoI)	Extent of sensitivity of receptors
	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.	occur within catchments as changes in one location affect other locations via watercourses for example.	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, excavations and drainage and permanent changes to drainage 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 project 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.	The ZoI assessed is within 200m of the footprint of the plan. Pollutant deposition from vehicles is thought to occur in insignificant amounts beyond 200m from the source.	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.

Pathway name	Source-pathway-receptor model	Zone of Influence (ZoI)	Extent of sensitivity of receptors
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.
Mortality	Mortality of individuals of QI species could occur directly through killing of individuals by construction works or indirectly as a result of	The ZoI assessed is within the footprint of the Proposed Scheme, within 50m of watercourse crossings that will	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

Pathway name	Source-pathway-receptor model	Zone of Influence (ZoI)	Extent of sensitivity of receptors
	pollution entering the watercourse	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	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 GWS to European sites in view of their Conservation Objectives.

The following assessment is comprised of European sites that have direct functional linkage to the GWS area. See **Appendix C** for further detail on hydrological linkage for each site. These European sites have been determined to most likely to be subject to LSEs in the absence of avoidance of effect and/or mitigation. These comprise 9 SACs and 3 SPAs:

- **Black Head-Poulsallagh Complex SAC** is located approximately 10.4km from the GWS study area, separated by sea across Galway Bay and is designated for water-dependent species, features and habitats. There is hydrological connectivity between this site and the GWS study area, thus likely significant effects on water-dependent features cannot be discounted without further study. This site lies within the ZoI(s) for:
    - Habitat degradation – changes in water quality

  QIs screened in:

    - Submerged or partially submerged sea caves – dependent on excellent water quality and nutrient balances. This site is functionally linked to the GWS area; thus, an LSE as a result of the drainage works, including flow alteration and water quality deterioration during the construction stage cannot be excluded without further study.

- Reefs - dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. This site is functionally linked to the GWS area; thus, an LSE as a result of the drainage works, including flow alteration and water quality deterioration during the construction stage cannot be excluded without further study.

- **Connemara Bog Complex SAC** is located approximately 1.6km from the GWS study area and is designated for aquatic habitats and water-dependent species, including Atlantic salmon (*Salmo salar*) and otter (*Lutra lutra*). There is hydrological connectivity between this site and the GWS study area, thus likely significant effects on water-dependent features cannot be discounted without further study. This site lies within the ZoI(s) for:
  - Habitat loss – permanent
  - Habitat loss – temporary
  - Habitat degradation – changes in air quality
  - Habitat degradation – changes in water quality
  - Disturbance of species
  - Mortality

  QIs screened in:
  - Coastal lagoons – sensitive to anthropogenic activities, including land drainage and reclamation and construction runoff into waterbodies. This site is functionally linked to the GWS area; thus, drainage works, including flow alteration and air/water quality deterioration during the construction stage may cause as LSE.
  - Reefs – dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. Potential impacts include land drainage and reclamation and construction runoff into waterbodies. This site is functionally linked to the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
  - Atlantic salmon – potential impacts include habitat alteration, air/water quality deterioration and disturbance/risk of mortality during the construction phase. This site is functionally linked to the GWS area; thus, LSE cannot be discounted at this stage.
  - Otter – threats include habitat alteration, water quality deterioration and disturbance/risk of mortality during the construction phase. This site is functionally linked to the GWS area; thus, LSE cannot be discounted without further study.
  - Oligotrophic to Mesotrophic Standing Waters - impacts may include direct impact, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS

area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

  - Dystrophic Lakes - impacts from changes in air and water quality, indirectly through construction.
  - Floating River Vegetation - impacts from changes in air and water quality, indirectly through construction.
  - Wet Heath - impacts from changes in air and water quality, indirectly through construction.
  - Dry Heath - impacts from changes in air and water quality, indirectly through construction.
  - Molinia Meadows - impacts from changes in air and water quality, indirectly through construction.
  - Blanket Bogs (Active) - impacts from changes in air and water quality, indirectly through construction.
  - Transition Mires - impacts from changes in air and water quality, indirectly through construction.
  - Rhynchosporion Vegetation - impacts from changes in air and water quality, indirectly through construction.
  - Alkaline Fens - impacts from changes in air and water quality, indirectly through construction.
  - Old Oak Woodlands - impacts from changes in air and water quality, indirectly through construction.
  - Marsh Fritillary (Euphydryas aurinia) - impacts from changes in air and water quality, indirectly through construction.
  - Slender Naiad (Najas flexilis) - impacts from changes in air and water quality, indirectly through construction.

- **Cregganna Marsh SPA** is located partially within the GWS study area and is designated for Greenland white-fronted goose (*Anser albifrons flavirostris*). This site lies within the ZoI(s) 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

- Disturbance of species
- Mortality

QIs screened in:

- Greenland white-fronted goose – potential impacts include habitat alteration, air/water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, LSE cannot be discount without further study.

- **Galway Bay Complex SAC** is located partially within the GWS study area and is designated for aquatic habitats and water-dependent species, including common seal (*Phoca vitulina*) and otter. This site lies within the ZoI(s) for:
  - Habitat loss – permanent
  - Habitat loss – temporary
  - Habitat degradation – changes in water quality
  - Disturbance of species
  - Mortality

  QIs screened in:

  - Tidal mudflats and sandflats - dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. Potential impacts include land drainage and reclamation and construction runoff into waterbodies. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
  - Coastal lagoons - dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
  - Large shallow inlets and bays – dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. Potential impacts include land drainage and reclamation and construction runoff into waterbodies. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
  - Reefs – dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. Potential impacts include land drainage and reclamation and construction runoff into waterbodies. This site is partially within the GWS area;

thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- Perennial vegetation of stony banks – dependency on excellent water quality, nutrient balances and radiant light appropriate to flora of the intertidal and sub-tidal. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Vegetated sea cliffs of the Atlantic and Baltic coasts – dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- *Salicornia* mud – dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. Potential impacts include land drainage and reclamation and construction runoff into waterbodies. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Atlantic salt meadows – dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. Potential impacts include habitat alteration, land drainage and reclamation and construction runoff into waterbodies. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Mediterranean salt meadows – dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. Potential impacts include habitat alteration, land drainage and reclamation and construction runoff into waterbodies. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Turloughs – dependency on excellent water quality, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. Potential impacts include habitat alteration, land drainage and reclamation and construction runoff into waterbodies. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Juniper scrub – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS

area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- Orchid-rich calcareous grassland – potential impacts may include direct impact such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- *Cladium* fens – potential impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Alkaline fens – potential impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Limestone pavement – potential impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Otter – potential impacts include habitat alteration, air/water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Common (harbour) seal – potential impacts include habitat alteration, air/water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- **Gortnandarragh Limestone Pavement SAC** is located approximately 5.8km from the GWS study area and is designated for limestone pavement. There is hydrological connectivity between this site and the GWS study area, thus likely significant effects on water-dependent features cannot be discounted without further study. This site lies within the ZoI(s) for:
  - Habitat degradation– hydrogeological changes

  QIs screened in:
  - Limestone pavement– impacts may include direct impact, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works,

including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- **Inner Galway Bay SPA** is located partially within the GWS study area and is designated for water-dependent species, This site lies within the ZoI(s) for:
    - Habitat loss – permanent
    - Habitat loss – temporary
    - Habitat degradation – changes in water quality
    - Habitat degradation – changes in air quality
    - Disturbance of species
    - Mortality

  QIs screened in*:

    - Black-throated diver (*Gavia arctica*)
    - Great northern diver (*Gavia Immer*)
    - Cormorant (*Phalacrocorax carbo*)
    - Grey heron (*Ardea cinerea*)
    - Light-bellied brent goose (*Branta bernicla hrota*)
    - Wigeon (*Anas penelope*)
    - Teal (*Anas crecca*)
    - Red-breasted merganser (*Mergus serrator*)
    - Ringed plover (*Charadrius hiaticula*)
    - Golden plover
    - Lapwing (*Vanellus vanellus*)
    - Dunlin (*Calidris alpina*)
    - Bar-tailed godwit (*Limosa lapponica*)
    - Curlew (*Numenius Arquata*)
    - Redshank (*Tringa tetanus*)
    - Turnstone (*Arenaria interpres*)
    - Black-headed gull (*Chroicocephalus ridibundus*)
    - Common gull (*Larus canus*)

- Sandwich tern (*Sterna sandvicensis*)
- Common tern (*Sterna hirundo*)

* Impacts include habitat alteration, air/water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, LSE cannot be discount without further study.

- **Lough Corrib SAC** is partially within the GWS study area and is designated for aquatic habitats and water-dependent species, including fresh-water pearl mussel (*Margaritifera margaritifera*) and sea lamprey (*Petromyzon marinus*). This site lies within the ZoI(s) for:
  - Habitat loss – permanent
  - Habitat loss – temporary
  - Habitat degradation – changes in water quality
  - Habitat degradation – changes in air quality
  - Habitat degradation – hydrological changes
  - Habitat degradation – hydrogeological changes
  - Disturbance of species
  - Mortality

  QIs screened in:

  - Oligotrophic waters containing very few minerals – impacts may include direct impact, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
  - Oligotrophic to mesotrophic standing waters – impacts may include direct impact, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
  - Hard water lakes – impacts may include direct impact, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
  - Floating river vegetation – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- Orchid-rich calcareous grassland – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- *Molinia* meadows – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Raised bog (active) – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Degraded raised bog – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Rhynchosporion vegetation – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Cladium fens – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Petrifying springs – impacts may include direct impact, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Alkaline fens – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- Limestone pavement – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Old oak woodlands –impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Bog woodland – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Freshwater pearl mussel (*Margaritifera margaritifera*) – impacts include habitat alteration, water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, LSE cannot be discount without further study.
- White-clawed crayfish (*Austropotamobius pallipes*) – impacts include habitat alteration, water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, LSE cannot be discount without further study.
- Sea lamprey (*Petromyzon marinus*) – impacts include habitat alteration, water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, LSE cannot be discount without further study.
- Brook lamprey (*Lampetra planeri*) – impacts include habitat alteration, water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, LSE cannot be discount without further study.
- Atlantic salmon – impacts include habitat alteration, water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, LSE cannot be discount without further study.
- Lesser horseshoe bat – impacts include habitat alteration, air/water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, LSE cannot be discount without further study.
- Otter – potential impactss include habitat alteration, air/water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS

area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- Slender naiad (*Najas flexilis*) – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
- Slender green feather-moss (*Hamatocaulis vernicosus*) – impacts may include direct impacts such as, habitat loss/alteration, construction runoff into waterbodies and groundwater level changes. This site is partially within the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- **Lough Corrib SPA** is partially within the GWS study area and is designated for water-dependent species. This site lies within the ZoI(s) for:
  - Habitat loss – permanent
  - Habitat loss – temporary
  - Habitat degradation – changes in water quality
  - Habitat degradation – changes in air quality
  - Disturbance of species
  - Mortality

  QIs screened in*:

  - Greenland white-fronted goose
  - Gadwall (*Anas strepera*)
  - Shoveler (*Anus clypeat*)
  - Pochard (*Aythya ferina*)
  - Tufted duck (*Aythya fuligula*)
  - Common scoter (*Melanitta nigra*)
  - Hen harrier (*Circus cyaneus*)
  - Coot (*Fulica atra*)
  - Golden plover
  - Black-headed gull
  - Common gull

- Common tern
- Arctic tern (*Sterna paradisaea*)

* Impacts include habitat alteration, air/water quality deterioration and disturbance/risk of mortality during the construction phase. This site is partially within the GWS area; thus, LSE cannot be discount without further study.

- **Maumturk Mountains SAC** is located approximately 23.3km from the GWS study area and is designated for aquatic habitats and water-dependent species. There is hydrological connectivity between this site and the GWS study area, thus likely significant effects on water-dependent features cannot be discounted without further study. – This site lies within the ZoI(s) for:
  - Habitat degradation – changes in water quality
  - Habitat degradation– hydrological changes
  - Habitat degradation– hydrogeological changes

  QIs screened in:
  - Atlantic salmon – potential impacts include water quality deterioration, hydrological and hydrogeological changes during the construction phase. This site is functionally linked to the GWS area; thus, LSE cannot be discount without further study.

- **Monivea Bog SAC** is located approximately 4.6km from the GWS study area and is designated for water-dependent habitats and species. There is hydrological connectivity between this site and the GWS study area, thus likely significant effects on water-dependent features cannot be discounted without further study. This site lies within the ZoI(s) for:
  - Habitat degradation – hydrological changes
  - Habitat degradation – changes in air quality
  - Habitat degradation– hydrogeological changes

  QIs screened in:
  - Raised bog (active) – impacts may include indirect impacts, such as construction runoff into waterbodies and groundwater level changes. This site is functionally linked to the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
  - Degraded raised bog– impacts may include indirect impacts, such as construction runoff into waterbodies and groundwater level changes. This site is functionally linked to the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- Rhynchosporion vegetation – impacts may include indirect impacts, such as construction runoff into waterbodies and groundwater level changes. This site is functionally linked to the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.

- **Ross Lake and Woods SAC** is located approximately 1.7km from the GWS study area and is designated for lesser horseshoe bat and hard water lakes. There is hydrological connectivity between this site and the GWS study area, thus foraging habitat and water quality may be affected as a result of the GWS. This site lies within the ZoI(s) for:
  - Habitat degradation – hydrological changes
  - Habitat degradation – changes in air quality
  - Habitat degradation – changes in water quality
  - Disturbance of species
  - Mortality

  Qis screened in:
  - Hard water lakes – impacts may include direct impacts**,** such as construction runoff into waterbodies and groundwater level changes. This site is functionally linked to the GWS area; thus, drainage works, including flow alteration and water quality deterioration during the construction stage may cause as LSE.
  - Lesser horseshoe bat – potential impacts include habitat alteration, air/water quality deterioration and disturbance/risk of mortality during the construction phase. This site is functionally linked to the GWS area; thus, LSE cannot be discount without further study.

The 11 European sites detailed above share direct hydrological linkage with the GWS study area. **Appendix C** provides a more detailed assessment of the qualifying interests and potential LSEs of these European sites.

Based on the source and pathways detailed in **Table 4-1**, all SPAs and SACs that had the potential for functional links, either directly or indirectly, to the GWS study area were screened, these are detailed further in **Appendix A**.

The summary rationale table in **Appendix A** presents the full list of European sites reviewed with some sites screened out of AA.

Additional to the 11 European sites that are hydrologically connected to the GWS Study area, 10 further SPAs were also screened in, due to the potential for their QIs to be present within the GWS study area, utilising supporting habitat and therefore potentially subject to disturbance or displacement. These included the following sites, along with their distance to the GWS study area:

- Rahasane Turlough SPA – 4.4km
- Connemara Complex SPA – 6.4km
- Lough Rea SPA – 11.6km

- Slieve Aughty Mountains – 12.1km
- Coole-Garryland SPA – 16.6km
- Lough Cutra SPA – 23.9km
- Lough Mask SPA – 25.2km
- River Suck Callows SPA – 30.2km
- Cliff of Moher SPA – 30.7km
- Corofin Wetlands SPA 30.7km

There were additional SPA sites beyond these 10, some located along the coast to the GWS study area, however it was considered unlikely, due to the distance from these sites, that their Qis would be utilising habitats within the study area, to the extent that an impact may be considered possible.

The integrated assessment of the GWS has recently commenced and is completing initial data gathering stage, with associated definition of scope for modelling. Modelling will need to incorporate sufficient detail in the rural context to allow the assessment of operational effects, in particular to the receiving environment - much of which is heavily designated.

Based on the information currently available, it is concluded that the potential for LSEs on European sites, in relation to their conservation objectives, cannot be excluded either alone or in-combination. The Plan as it evolves will aim to avoid effects or to mitigate where avoidance is not possible. However, in the absence of mitigation (as required at stage 1 assessment), in accordance with the precautionary principle (European Commission, 2000), and because operational effects of the plan are not yet at options stage, 11 sites that are hydrologically connected to the GWS study area are 'screened in' for further assessment, along with 10 SPAs that may be functionally linked to the GWS study area.

4.7 In-combination Effects

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

- Barna Pump Station Upgrade
- Oranmore Pump Station Upgrade
- Lough Atalia Pump Station and Rising Main Upgrade
- Moycullen WWTP Upgrade (NRRP-SM2)
- Athenry WWTP Upgrade (PAL)
- Athenry Sewerage Scheme Network Upgrade (awarded to Coffeys in 2023)
- Galway City Wastewater Network Upgrades (arising from Stage 4 Galway City Development Plan 2023-2029)
- Northern and Western Regional Spatial and Economic Strategy 2020-2032 (Northern and Western Regional Assembly, 2020).
- Water Services Strategic Plan (Uisce Éireann, 2015).
- Draft Uisce Éireann Water Services Strategic Plan 2024-2050 (WSSP)

- Water Quality and Water Services Infrastructure, Climate Change Sectoral Adaptation Plan (DHPLG, 2019).
- Water Services Policy Statement 2024-2030 (WSPS) DHLGH 2024
- National Wastewater Sludge Management Plan (Uisce Éireann, 2016a).
- Lead in Drinking Water Mitigation Plan (Uisce Éireann, 2016b).
- Regional Water Resources Plan – North 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).
- Ireland's 4th National Biodiversity Action Plan 2023-2030 (DHLGH, 2024).
- Catchment Flood Risk Assessment and Management Programme (CFRAM) Office of Public Works (OPW), 2018).
- River Basin Management Plan (RBMP) 2018-2021 (DHPLG, 2018c)
- Draft River Basin Management Plan for Ireland 2022-2027 (DHLGH, 2022).
- Climate Action Plan 2024 (DECC, 2024).
- Galway City Development Plan 2022-2029 (Galway City Council, 2022).
- Galway County Development Plan 2022-2028 (Galway County Council, 2022).
- Galway City Heritage and Biodiversity Plan 2021-2026 (Galway City Council, 2021).
- Galway County Climate Action, Heritage and Biodiversity Plan Draft (and summary report) 2024 – 2030
- Galway City Climate Action Plan LACAP 2024-2029 (Galway City Council, 2024).
- Galway City Biodiversity Action Plan Revision 2025 to 2030
- Strategic Plan 2019-2024 (NFGWS, 2019)
- Ireland Nature Restoration Plan (planned launch 2026) (currently undetermined following failure to ratify at EU Environment Council, 2024)
- Marine Protected Areas (MPAs) Bill (due to be published April 2024), with associated Marine Planning changes, if enacted.

Discussions with Uisce Éireann and the local authorities identify strategies (such as the Regional Spatial and Economic Strategy RSES 2020-2032) and indicate that there are further projects proposed that may impact / influence on the GWS. Additionally, there are also projects that will be dependent on the findings of the GWS. The following Uisce Éireann projects are currently being progressed and have been highlighted with potential to interact with the GWS.

RHS will consult with all relevant third-party stakeholders regarding other existing or proposed projects that may interact with the GWS. The Integrated work shall take account of plans and policies such as the Draft Climate Action Plan 2024-29 (with climate change scenario forecasting), the Water Services Strategic Plan (WSSP) and Water Service Strategic Plan 2050 (WSSP2050) economic and development land use plans and zoning such as Galway County Development Plan 2022-2028, and European site-specific conservation objectives.

As the GWS develops, options that seek to improve overall water quality or that avoid effects to EU Sites, will be subject to Multicriteria Analysis (MCA) including for the purpose to apply the principle of avoidance of effects.

This is in alignment with the duty of public bodies (and other plan-makers/developers) in regard to conservation objectives of EU Sites, including where those objectives seek that restorative objectives are to be applied.

Combined disciplines and data gathering will inform the factors giving rise to effects across time horizons 2030, 2055, 2080 and beyond. The operational effects assessment of the Plan design concept will be developed in parallel and integrated to the evolving AA assessment. Opportunities for positive change will be highlighted and incorporated to strategic options.

5. Screening Conclusion

The Stage 1 AA process (Screening for AA) described herein related to the Galway Wastewater Strategy (GWS). The GWS is a regional scale Plan covering the GWS Study Area in County Galway.

As the definition of the options within the plan are intended to minimise effects, and these are in development at strategic level, and thus due to uncertainty relating to the GWS outcomes, it is considered that the potential for likely significant effects (LSEs) on European Sites, in relation to their conservation objectives, cannot be excluded either alone or in-combination. In the absence of more detailed information on the GWS and management options listed therein at this stage, the precautionary principle must be applied.

In accordance with Article 6(3) of the Habitats Directive, Stage 2 Appropriate Assessment of the GWS is required. This will be presented in a Natura Impact Statement (NIS) to fully inform the AA determination to be undertaken by the Uisce Éireann.

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Appendix A – Full List of European Sites and designations considered, with Screening Determination

See also Appendix C Screening table of European Sites Screened In with direct linkage through sub-catchment intersection with GWS area.

European Site	Design ation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchmen t Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Cregganna Marsh	SPA	Partially within study area	Yes	Yes	Yes	Shared	N/A	**Screened in**
Galway Bay Complex	SAC	Partially within study area	Yes	Yes	Yes	Shared	N/A	**Screened in**
Inner Galway Bay	SPA	Partially within study area	Yes	Yes	Yes	Shared	N/A	**Screened in**
Lough Corrib	SAC	Partially within study area	Yes	Yes	Yes	Shared	N/A	**Screened in**

[5] The Screening Decision at this time follows the Precautionary Principle (European Commission, 2000) and will respond to further development of the Study.

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Lough Corrib	SPA	Partially within study area	Yes	Yes	Yes	Shared	N/A	**Screened in**
Connemara Bog Complex	SAC	1.6km	Yes	Unknown	Yes	Shared	N/A	**Screened in**
Ross Lake and Woods	SAC	1.7km	Yes	Unknown	Yes	Shared	N/A	**Screened in**
Rahasane Turlough	SAC	4.4km	Yes	No	No	Not shared	No	Screened out
Rahasane Turlough	SPA	4.4km	Yes	No	Yes	Not shared	Yes Displacement or synergistic effects possible as SPA	**Screened in**
Monivea Bog	SAC	4.6km	Yes	Yes	No	Shared	Yes Synergistic effects if in combination applies	**Screened in**

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Gortnandarragh Limestone Pavement	SAC	5.8km	Yes	Yes	No	Shared	Yes Synergistic effects if in combination applies	**Screened in**
Lough Fingall Complex	SAC	6.3km	No	No	No	Not shared.	No	Screened out
Connemara Bog Complex	SPA	6.4km	Yes	No	Yes	Not shared	Yes Displacement or synergistic effects as SPA	**Screened in**
Castletaylor Complex	SAC	7.7km	Yes	No	No	Not shared	No	Screened out
Kiltiernan Turlough	SAC	8.5km	Yes	No	No	Not shared	No	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Ardrahan Grassland	SAC	9.3km	Yes	No	No	Not shared	No	Screened out
Black Head-Poulsallagh Complex	SAC	10.4km	Yes	Yes	Yes	Connected by sea	Yes	**Screened in**
East Burren Complex	SAC	11.6km	Yes	No	No	Not shared	No however - Considered with adjacent sites. Groundwater dependent habitats Synergistic effects if in combination applies	Screened out
Lough Rea	SPA	11.6km	Yes	No	Yes	Not shared	Yes Displacement or synergistic effects possible as SPA	**Screened in**

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in-combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Lough Rea	SAC	11.6km	Yes	No	No	Not shared	No Synergistic effects if in combination applies	Screened out
Slieve Aughty Mountains	SPA	12.1km	Yes	No	No	Not shared	Yes Displacement or synergistic effects possible as SPA	**Screened in**
Moneen Mountain	SAC	12.4km	No	No	No	Not shared	No	Screened out
Cahermore Turlough	SAC	14.5km	Yes	No	No	Not shared	No	Screened out
Peterswell Turlough	SAC	14.5km	Yes	No	No	Not shared	No	Screened out
Coole-Garryland Complex	SAC	14.7km	Yes	No	No	Not shared	No	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Ballyvaughan Turlough	SAC	14.8km	No	No	No	Not shared	No	Screened out
Cloughmoyne	SAC	15.3km	Yes	Yes	No	Shared	No Due to the distance upstream and separation of the site by upstream waterbodies from the study area there is no pathway for effect.	Screened out
Ballinduff Turlough	SAC	15.5km	Yes	No	No	Not shared	No	Screened out
Sonnagh Bog	SAC	15.6km	Yes	No	No	Not shared	No	Screened out
Caherglassaun Turlough	SAC	15.8km	Yes	No	No	Not shared	No	Screened out
Coole-Garryland	SPA	16.6km	Yes	No	Yes	Not shared	Yes	**Screened in**

European Site	Design ation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchmen t Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
							Displacement or synergistic effects possible as SPA	
Lough Coy	SAC	16.8km	Yes	No	No	Not shared	No	Screened out
Carrowbaun, Newhall and Ballylee Turloughs	SAC	16.8km	Yes	No	No	Not shared	No	Screened out
Kiltartan Cave (Coole)	SAC	17.8km	Yes	No	No	Not shared	No	Screened out
Shrule Turlough	SAC	20.0km	Yes	No	No	Not shared	No	Screened out
Mocorha Lough	SAC	20.4km	Yes	No	No	Not shared	No	Screened out
Kilkieran Bay And Islands	SAC	22.2km	Yes	Yes	No	Connected by sea	No – Only connected by sea, due to distance	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in-combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
							and no freshwater connection the potential for impact is extremely unlikely.	
Ballymaglancy Cave, Cong	SAC	22.9km	Yes	No	No	Shared	No	Screened out
Kildun Souterrain	SAC	23.0km	Yes	No	No	Not shared	No	Screened out
Termon Lough	SAC	23.1km	Yes	No	No	Not shared	No	Screened out
Lough Carra/Mask Complex	SAC	23.2km	Yes	No	No	Not shared	No	Screened out
Maumturk Mountains	SAC	23.3km	Yes	Yes	No	Shared	Yes	**Screened in**
Levally Lough	SAC	23.4km	Yes	No	No	Not shared	No	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Lough Cutra	SAC	23.9km	Yes	No	No	Not shared	No	Screened out
Lough Cutra	SPA	23.9km	Yes	No	Yes	Not shared	Yes Displacement or synergistic effects possible as SPA	**Screened in**
Derrinlough (Cloonkeenleana node) Bog	SAC	23.9km	Yes	No	No	Not shared	No	Screened out
Carrownagappul Bog	SAC	24.0km	Yes	No	No	Not shared	No	Screened out
Clyard Kettle-holes	SAC	24.1km	Yes	No	No	Not shared	No	Screened out
Shankill West Bog	SAC	24.5km	Yes	No	No	Not shared	No	Screened out
Drummin Wood	SAC	24.8km	No	No	No	Not shared	No	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in-combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Ballyteige (Clare)	SAC	24.9km	Yes	No	No	Not shared	No	Screened out
Lough Mask	SPA	25.2km	Yes	No	Yes	Not shared	Yes Displacement or synergistic effects possible as SPA	**Screened in**
Termon Lough	SAC	25.3km	Yes	No	No	Not shared	No	Screened out
Gortacarnaun Wood	SAC	26.4km	No	No	No	Not shared	No	Screened out
Curraghlehanagh Bog	SAC	27.4km	Yes	No	No	Not shared	No	Screened out
Glenloughaun Esker	SAC	28.6km	Yes	No	No	Not shared	No	Screened out
Skealoghan Turlough	SAC	28.6km	Yes	No	No	Not shared	No	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in-combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Ardkill Turlough	SAC	28.8km	Yes	No	No	Not shared	No	Screened out
Inishmore Island	SAC	29.1km	Yes	No	No	Connected by sea	No – Only connected by sea, due to distance and no freshwater connection the potential for impact is extremely unlikely.	Screened out
Greaghans Turlough	SAC	29.1km	-	No	No	Not shared	Yes	Screened out
Cregg House Stables, Crusheen	SAC	29.5km	-	No	No	Not shared	Yes	Screened out
Cregduff Lough	SAC	47.3km	Hydrogeology	No	No	Not shared. Connected by sea and land to	No – Only connected by sea, due to distance and no freshwater connection the	Screened out

European Site	Design ation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchmen t Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
						catchment effects	potential for impact is extremely unlikely.	
Ballyogan Lough	SAC	29.5km	-	No	No	Not shared	Yes	Screened out
Inisheer Island	SAC	29.5km	Intertidal features sensitive to water quality	No	No	Connected by sea	No – Only connected by sea, due to distance and no freshwater connection the potential for impact is extremely unlikely.	Screened out
Kilglassan/Caher avoostia Turlough Complex	SAC	30.0km	Yes	No	No	Not shared	No	Screened out
Moyree River System	SAC	30.0km	Yes	No	No	Not shared	No	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Inishmaan Island	SAC	30.1km	Yes	No	No	Connected by sea	No – Only connected by sea, due to distance and no freshwater connection the potential for impact is extremely unlikely.	Screened out
River Suck Callows	SPA	30.2km	Yes	No	Yes	Not shared	Yes Displacement or synergistic effects possible as SPA	**Screened in**
Cliffs of Moher	SPA	30.7km	Yes	No	Yes	Not shared	Yes Displacement or synergistic effects possible as SPA	**Screened in**
Corofin Wetlands	SPA	30.7km	Yes	No	Yes	Not shared	Yes	**Screened in**

European Site	Design ation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchmen t Shared OR Not shared with study boundary	Potential for in - combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
							Displacement or synergistic effects possible as SPA	
Pollagoona Bog	SAC	30.7km	Yes	No	No	Not shared	No	Screened out
Pollnaknockaun Wood Nature Reserve	SAC	31.2km	No	No	No	Not shared	No	Screened out
Lough Lurgeen Bog/Glenamadd y Turlough	SAC	31.2km	Yes	No	No	Not shared	No	Screened out
Ardgraigue Bog	SAC	31.7km	Yes	No	No	Not shared	No	Screened out
Camderry Bog	SAC	31.7km	Yes	No	No	Not shared	No	Screened out
Inishmore	SPA	32.2km	Yes	No – connected by sea	No – unlikely due to distance	Shared by Sea /Waterbod	No – Only connected by sea, due to distance and no freshwater	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in-combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
						y (Galway Bay)	connection the potential for impact is extremely unlikely.	
Dromore Woods and Loughs	SAC	32.6km	-	No	No	Not shared	No	Screened out
Derrycrag Wood Nature Reserve	SAC	32.7km	-	No	No	Not shared	No	Screened out
Rosturra Wood	SAC	32.8km	-	No	No	Not shared	No	Screened out
Barroughter Bog	SAC	33.2km	-	No	No	Not shared	No	Screened out
Cloonmoylan Bog	SAC	33.5km	-	No	No	Not shared	No	Screened out
Inagh River Estuary	SAC	33.8km	-	No	No	Not shared	No	Screened out
Loughatorick South Bog	SAC	34.1km	-	No	No	Not shared	No	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in-combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Lough Carra	SPA	34.4km	Yes	No	No – unlikely due to distance	Not shared	No	Screened out
Ballygar (Aghrane) Bog	SAC	34.4km	-	No	No	Not shared	No	Screened out
Lough Derg (Shannon)	SPA	34.5km	-	No	No	Not shared	No	Screened out
Lough Derg, North-east Shore	SAC	34.5km	-	No	No	Not shared	No	Screened out
Glendree Bog	SAC	34.8km	-	No	No	Not shared	No	Screened out
Lisnageeragh Bog and Ballinastack Turlough	SAC	35.0km	-	No	No	Not shared	No	Screened out
Carrowkeel Turlough	SAC	35.0km	-	No	No	Not shared	No	Screened out
Killeglan Grassland	SAC	35.3km	-	No	No	Not shared	No	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in-combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Ballycullinan Lake	SAC	35.9km	-	No	No	Not shared	No	Screened out
Aughrim (Aghrane) Bog	SAC	36.1km	-	No	No	Not shared	No	Screened out
Old Farm Buildings, Ballymacrogan	SAC	36.3km	-	No	No	Not shared	No	Screened out
Slyne Head to Ardmore Point Islands	SPA	37.4km	Yes	No – connected by sea	No – unlikely due to distance	Shared by Sea/ Waterbody (Galway Bay)	No – Only connected by sea, due to distance and no freshwater connection the potential for impact is extremely unlikely.	Screened out
Four Roads Turlough	SAC	37.6km	Yes	No	No	Not shared	No	Screened out
Four Roads Turlough	SPA	37.6km	Yes	No	No – unlikely due to distance	Not shared	No -	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in-combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Williamstown Turloughs	SAC	37.7km	-	No	No	Not shared	No	Screened out
The Twelve Bens/Garraun Complex	SAC	38.3km	-	No	No	Not shared	No	Screened out
River Shannon Callows	SAC	38.7km	Yes	No	No	Not shared	No	Screened out
Middle Shannon Callows	SPA	38.7km	Yes	No	No – unlikely due to distance	Not shared	No	Screened out
Mweelrea/Sheeffry/Erriff Complex	SAC	39.0km	-	No	No	Not shared	No	Screened out
Kilsallagh Bog	SAC	39.3km	-	No	No	Not shared	No	Screened out
Lough Croan Turlough	SPA	39.5km	Yes	No	No – unlikely due to distance	Not shared	No	Screened out
Lough Croan Turlough	SAC	39.5km	Yes	No	No	Not shared	No	Screened out

European Site	Designation	Distance to GWS area	Water dependent SAC/SPA	Hydrologically connected to GWS Study area	Potential for supporting habitat outside of SPA/SAC within GWS study area	Sub catchment Shared OR Not shared with study boundary	Potential for in-combination linkage, thus decision to be reviewed in AA (N/A if already shares sub-catchment with Galway study area)	Screening Decision[5]
Old Domestic Buildings, Rylane	SAC	39.5km	-	No	No	Not shared	No	Screened out

Appendix B – Threats and pressures related to (11) European Sites within the study area; those that share sub-catchments with it; or are connected closely by sea (see Appendix A map)

With regard to Schedule 4 of the Regulations: ***Please note that activities other than those listed in association with the citation of a site, "such as effluent discharge, construction work, [..] require a licence or permission from the appropriate consent authority*****".**

European Site	Distance to study area	Details	Threats and pressures
Black Head-Poulsallagh Complex SAC	10.4km southwest	Designated for Limestone pavements in intimate association with other Annex I habitats including the below with Atlantic hazel woodland, an internationally rare woodland type. • [8330] Submerged or partially submerged sea caves • [8420] Limestone pavements • [4060] Alpine and Boreal heaths • [5130] Juniperus communis formations on heaths or calcareous grasslands • [6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates • [722o] Petrifying springs with tufa formation (Cratoneurion) • [6510] Lowland hay meadows (Alopecurus pratensis, Sanguisorba • Petalwort *Petalophyllum ralfsii* • [1170] Reefs	Threats include Applying inorganic or organic fertiliser, including slurry. Application of pesticides, including herbicides. Water abstraction, sinking of boreholes and wells. Works on, or alterations to, the banks, bed or flow of a drain, watercourse or waterbody. Drainage works including digging, deepening, widening or blocking a drain, watercourse or waterbody. Conservation objectives for perennial vegetation of stony banks and Petalwort. COs for all these habitats should be used in conjunction with each other as appropriate. *Petalophyllum ralfsii* grows in damp sand and in compacted, sandy ground, maintained by rabbit (Oryctolagus cuniculus) grazing and trampling (by walkers). The extent of suitable habitat at Fanore is estimated to be c.35 m^2 and occurs on a trampled path in a damp flat depression strewn with large limestone boulders between sand dunes. The area of active floodplain at and upstream of the *P.ralfsi* habitat should be maintained.

European Site	Distance to study area	Details	Threats and pressures
		• [3260] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation	Intertidal reef community complex; Laminaria-dominated community complex
Connemara Bog Complex SAC	1.6km west	Designated for four Annex I/II species and 14 Annex I/II habitats, two of which are priority (*): • [1150] Coastal Lagoons* • [1170] Reefs • [3110] Oligotrophic Waters containing very few minerals • [3130] Oligotrophic to Mesotrophic Standing Waters • [3160] Dystrophic Lakes, pools • [3260] Floating River Vegetation • [4010] Wet Heath • [4030] Dry Heath • [6410] *Molinia* Meadows • [7130] Blanket Bogs (Active)* • [7140] Transition Mires • [7150] Rhynchosporion Vegetation • [7230] Alkaline Fens • [91A0] Old Oak Woodlands	The main damaging operations and threats in the Connemara Bog Complex are peat cutting, over-grazing and afforestation. Extensive peat extraction using 'Difco' machines has become common in the region in recent years, and cutting by excavator and hopper is also increasing. The hand-cutting of peat is less threatening as it is usually on a much smaller scale, but nonetheless it should be controlled within the site. Over-grazing and poaching by sheep and cattle are a widespread problem within the site, with erosion of peat ensuing. Other threats and potentially damaging operations include land drainage and reclamation, applying inorganic or organic fertiliser, including slurry quarrying and dumping. Application of pesticides, including herbicides. Drainage works including digging, deepening, widening or blocking a drain, watercourse or waterbody. Water abstraction, sinking of boreholes and wells.

European Site	Distance to study area	Details	Threats and pressures
		• [1065] Marsh Fritillary (*Euphydryas aurinia*) • [1106] Atlantic Salmon (*Salmo salar*) • [1355] Otter (*Lutra lutra*) • [1833] Slender Naiad (*Najas flexilis*)	
Cregganna Marsh SPA	Partially within study area	Designated for E.U. Birds Directive species: • Greenland White-fronted Goose (157) Associated also to nearby Rahasane Turlough SPAs	Threats include habitat alteration and nutrient input. Conservation objectives note a 54% decline in the Greenland White-fronted Goose colony using a 5 year mean of peak counts. This has occurred since the baseline in 1994/95 to 2015/16-2019/20. Assessment corresponds to a report by Burke et al. (2018) Conservation objectives note that the suitability and availability of habitat areas are likely to vary throughout the season, for example, due to variation in land management practices or the abundance of resources available. Factors such as intensity, frequency, timing, and duration of a (direct or indirect) disturbance source must be taken into account to determine the potential impact upon the targets for population trend and spatial distribution. The number, location, shape, and area of potential barriers to foraging and undisturbed loafing should be taken into account to determine potential impact. Access to ecologically important sites outside the SPA should be considered with regard to the requirements of the wintering population, for certain activities, such as foraging when preferred foraging areas are

European Site	Distance to study area	Details	Threats and pressures
			unavailable due to disturbance, extensive flooding, or other factors. A synergistic and cumulative effects assessment will evaluate growth trajectories (to discuss the receiving capacity /displacement /disturbance against these trajectories), the changing burdens of land use practices and options, and associated declines across the ecologically linked available sites. The use of linked sites is related to the findings of modelling and forecasts for flood frequency and extent/rainfall saturation and associated foraging quality amongst other key factors.
Galway Bay Complex SAC	Partially within study area	Designated for two Annex II species and 15 Annex I habitats, five of which are priority (*): • [1140] Tidal Mudflats and Sandflats • [1150] Coastal Lagoons* • [1160] Large Shallow Inlets and Bays • [1170] Reefs • [1220] Perennial Vegetation of Stony Banks • [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts • [1310] *Salicornia* Mud • [1330] Atlantic Salt Meadows • [1410] Mediterranean Salt Meadows	The site includes areas used for fishing and aquaculture. Sewage effluent and aquaculture detritus could be deleterious to benthic communities. Eutrophication is probably affecting some of the lagoons and is a continued threat to the site. Drainage is a general threat to the turlough and fen habitats. Reef and sediment communities are vulnerable to nutrients, pollution, pH change, sedimentation, disturbance or compaction. *Paracentrotus lividus* are vulnerable to over-fishing. Extraction of maerl in Galway Bay is a threat to the site. Shoreline and terrestrial habitats are under pressure from urban expansion and recreational activities.

European Site	Distance to study area	Details	Threats and pressures
		• [3180] Turloughs* • [5130] Juniper Scrub • [6210] Orchid-rich Calcareous Grassland* • [8420] Limestone pavements* • [7210] *Cladium* Fens* • [7230] Alkaline Fens • [8240] Limestone Pavement* • [1355] Otter (*Lutra lutra*) • [1365] Common (Harbour) Seal (*Phoca vitulina*) This large coastal site is listed as of immense conservation importance, with many habitats listed on Annex I of the E.U. Habitats Directive, 4 of which have priority status 000268_Rev15.Docx Version date: 10.12.2015 (lagoon, Cladium fen, turlough and orchid-rich calcareous grassland). The examples of shallow bays, reefs, lagoons and saltmarshes found are amongst the best in the country. Supports an important Common Seal colony and a breeding Otter population (Annex II species), and 6 regular Annex I E.U. Birds Directive species. The site has the Country's only recorded littoral community characterised by *Fucus*	Bird populations may be disturbed by aquaculture activities. Activities listed for notification include: Applying inorganic or organic fertiliser, including slurry. Application of pesticides, including herbicide. Works on, or alterations to, the banks, bed or flow of a drain, watercourse or waterbody. Drainage works including digging, deepening, widening or blocking a drain, watercourse or waterbody. Water abstraction, sinking of boreholes and wells.

European Site	Distance to study area	Details	Threats and pressures
		serratus and the only recorded piddock (bivalve mollusc) bed.	
Gortnandarragh Limestone Pavement SAC	5.8km northwest	Designated for one Annex I habitats, which is also a priority habitat (*): • [8240] Limestone Pavement*	Distinctiveness is underpinned in part by hydrodynamics of site: slopes, clints and grykes, exposed areas and sheltered. Supports rare bryophytes, forbs and invertebrates. Threats can be inferred to include change to hydrology. Yew in particular exhibits the effects of severe browsing pressure. The heath appears to be under-grazed, and scrub is invading. The main land use on the site is extensive grazing by cattle and goats. Threats to the site include over-grazing, land reclamation and quarrying, the latter two already occurring to a small extent within the site.
Inner Galway Bay SPA	Partially within study area	Designated for E.U. Birds Directive species (population estimate): • Black-throated Diver (36) • Great Northern Diver (88) • Cormorant (266) • Grey Heron (102) • Light-bellied Brent Goose (676) • Wigeon (1168) • Teal (700) • Red-breasted Merganser (249) • Ringed Plover (335)	Vulnerability to WQ deterioration and reduction or change to habitat quality (e.g. eutrophication of saltmarsh). In combination effects of trawling/fishing etc on marine resources. Population resilience e.g. 50% declines in seabird general abundance in British and Irish coasts over the last 20 years (complex as bird flu likely to have compromised recent increases in Ireland) Citation: Seabird species make extensive use of the marine waters adjacent to their breeding colonies. Foraging range: max. 50km, mean max. 31.67km, mean 8.46km (BirdLife International Seabird Database

European Site	Distance to study area	Details	Threats and pressures
		• Golden Plover (2030) • Lapwing (3969) • Dunlin (2155) • Bar-tailed Godwit (447) • Curlew (697) • Redshank (505) • Turnstone (182) • Black-headed Gull (1941) • Common Gull (1066) • Sandwich Tern (81 pairs) • Common Tern (98 pairs) • Wetland and Waterbirds	(Birdlife International, 2013)) See Galway Bay Complex SAC. Specified activities for notification include: Drainage works including digging, deepening, widening or blocking a drain, watercourse or waterbody.
Lough Corrib SAC	Partially within study area	Designated for nine Annex I/II species and 15 Annex I/II habitats, five of which are priority (*): • [3110] Oligotrophic Waters containing very few minerals • [3130] Oligotrophic to Mesotrophic Standing Waters • [3140] Hard Water Lakes • [3260] Floating River Vegetation • [6210] Orchid-rich Calcareous Grassland* • [6410] Molinia Meadows	Peat cutting, drainage and other land use activities have created areas of degraded bog, which are more susceptible to drying and burning damage. The main threats to the quality of this site are from water polluting activities resulting from intensification of agricultural activities on the eastern side of the lake, uncontrolled discharge of sewage which is causing localized eutrophication of the lake, and housing and boating development, which is causing the loss of native lakeshore vegetation. The raised bog habitats are susceptible to further degradation and drying out due to drainage and peat cutting and, on occasions, burning. Peat cutting threatens Addergoole Bog.

European Site	Distance to study area	Details	Threats and pressures
		• [7110] Raised Bog (Active)* • [7120] Degraded Raised Bog • [7150] Rhynchosporion Vegetation • [7210] Cladium Fens* • [7220] Petrifying Springs* • [7230] Alkaline Fens • [8240] Limestone Pavement* • [91A0] Old Oak Woodlands • [91D0] Bog Woodland* • [1029] Freshwater Pearl Mussel (Margaritifera margaritifera) • [1092] White-clawed Crayfish (Austropotamobius pallipes) • [1095] Sea Lamprey (Petromyzon marinus) • [1096] Brook Lamprey (Lampetra planeri) • [1106] Atlantic Salmon (Salmo salar) • [1303] Lesser Horseshoe Bat (Rhinolophus hipposideros) • [1355] Otter (Lutra lutra) • [1833] Slender Naiad (Najas flexilis) • [6216] Slender Green Feather-moss (Hamatocaulis vernicosus)	Fishing and shooting occur in and around the lake. Introduction of exotic crayfish species or the crayfish fungal plague (*Aphanomyces astaci*) could have a serious impact on the native crayfish population. The bat roost is susceptible to disturbance or development.
Lough Corrib SPA	Partially within study area	Designated for E.U. Birds Directive species (population estimate):	Various threats, including water quality, pollution and invasive species and effects to forage quality.

European Site	Distance to study area	Details	Threats and pressures
		• Greenland White-fronted Goose (160) • Gadwall (48) • Shoveler (90) • Pochard (10107) internationally important in itself • Tufted Duck (5486) • Common Scoter (30 pairs) • Hen Harrier (8) • Coot (14426) • Golden Plover (1727) • Black-Headed Gull (431 pairs) • Common Gull (186 pairs) • Common Tern (37 pairs) • Arctic Tern (60 pairs)	Please note that this SPA overlaps with Lough Corrib SAC (000297) and is adjacent to Maumturk Mountains SAC (002008). The conservation objectives for this site should be used in conjunction with those for the overlapping and adjacent sites as appropriate. Barriers limiting the population's access to this SPA or ecologically important sites outside the SPA will ultimately affect the achievement of targets for population trend and/or spatial distribution. Foraging habitats include a range of wetlands, such as marshes, flooded areas, lakes, estuaries and lagoons, as well as grasslands. The national population of over-wintering pochard in Ireland has declined by 79% from 1994/95 to 2019/20, as monitored via the Irish Wetland Bird Survey (I-WeBS; Kennedy et al., 2022). Roosting is a critical ecological requirement for the over-wintering population. When roosting overnight, pochard utilise open waterbodies (see foraging habitats). Disturbance (or habitat quality deterioration) contributes to increased energetic expenditure which can result in increased likelihood of reduced recruitment, over-winter mortality or reduced fitness (if energy expenditure is greater than energy gain) and, in turn, negatively impact population trends. Water levels are another factor recorded as related to breeding success of species listed.

European Site	Distance to study area	Details	Threats and pressures
Maumturk Mountains SAC	23.3km northwest	Designated for: • [3110] Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) • [4010] Northern Atlantic wet heaths with Erica tetralix • [4060] Alpine and Boreal heaths • [7130] Blanket bogs (* if active bog) • [7150] Depressions on peat substrates of the Rhynchosporion • [8220] Siliceous rocky slopes with chasmophytic vegetation • [1106] Salmon *Salmo salar* • [1833] Slender Naiad *Najas flexilis*	Preservation of oligotrophic lakes and blanket bogs (hydrological sensitivity). Sensitivity to climate change, groundwater and rainfall, Invasive species effects on internationally vulnerable species or assemblages many of which as red data book listed for Ireland including Arctic Charr. The main damaging activities and threats to the Maumturk Mountains are overgrazing, peat cutting and afforestation activities, but other threats and potentially damaging activities include land drainage and reclamation, fertilization. Adjacent Lough Corrib. Consideration of the sites together is included in Cis. Specified activities for notification include: Works on, or alterations to, the banks, bed or flow of a drain, watercourse or waterbody. Drainage works including digging, deepening, widening or blocking a drain, watercourse or waterbody. Water abstraction, sinking of boreholes and wells.
Monivea Bog SAC	4.6km northeast	Designated for three Annex I/II habitats, one of which is priority (*): • [7110] Raised Bog (Active)* • [7120] Degraded Raised Bog • [7150] Rhynchosporion Vegetation	Active Raised Bog (ARB) habitat was mapped at 7.0ha (2014). There is an area of Degraded Raised Bog (DRB) on the High Bog (HB) has been modelled as 25.8ha. it is estimated that only 12.9ha of this is potentially restorable to ARB by drain blocking. Eco-hydrological assessments of the cutover estimates that an additional 12.1ha of bog forming habitats could be

European Site	Distance to study area	Details	Threats and pressures
			restored. The long-term target for ARB is therefore 32.0ha. ARB habitat at Monivea Bog is central, sub-central ecotopes and active flush only, and occurs mainly on the western part of the bog. DRB occurs on both the western, south-eastern and north-eastern parts of the bog, which will require restoration measures. Hydrological influences of groundwater at the site are therefore of primary importance. There is extensive mechanical peat cutting to the north, east and south of the site, and some hand-cutting in the south-west. Burning events have occurred on the bog in the past and in places the peat remains unvegetated. Drying is changing bog flora. Negative physical indicators include: bare peat, algae dominated pools and hollows, marginal cracks, tear patterns, subsidence features such as dry mineral mounds/ridges emerging or expanding, and burning evidence. Some of the high bog drains are new and others have been deepened. Change in air quality can result from fertiliser drift; adjacent quarry activities; or other atmospheric inputs. Water chemistry within raised bogs is influenced by atmospheric inputs (rainwater). Within soak systems, water chemistry is influenced by other inputs such as focused flow or interaction with underlying substrates. Water chemistry in marginal areas surrounding the high bog varies due to influences of different water types (bog water, regional groundwater, and runoff

European Site	Distance to study area	Details	Threats and pressures
			from surrounding mineral lands) producing a direct influence of water quality from surrounding lands.
Ross Lake and Woods SAC	1.7km northwest	Designated for one Annex I habitat and one Annex II species: • [3140] Hard Water Lakes • [1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*)	Ross Lake includes a limestone bed covered by precipitated marl. pH and nutrients are required in balance to not produce overgrowths of algae disrupting WQ and trophic webs. Limestones support fen vegetation. The main land uses within the site are angling, commercial forestry, and grazing of the woodland and wetland areas. Threats include climate change e.g. through deoxygenation, temperature range and through algae, radiant light. Also invasive species, fertilization, or encroachment. Breeding Lesser Horseshoe bat is sensitive to habitat quality changes with lakeside foraging essential to this colony. This vegetation, including shoreline is fringed by wetland vegetation of reedswamp, freshwater marsh, fen, wet woodland and wet grassland is sensitive to nutrient input and pH. Otter is also noted, also listed on Annex II of the E.U. Habitats Directive, a species also listed in Annex II of the Regulations.

Appendix C – Screening Table – European Sites directly linked as within the GWS area or sharing an intersecting sub-catchment or marine waterbody (11 sites)

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
Black Head-Poulsallagh Complex SAC IE0000020	10.4km southwest	Designated for Limestone pavements in intimate association with other Annex I habitats including the below with Atlantic hazel woodland, an internationally rare woodland type. • [8330] Submerged or partially submerged sea caves • [8420] Limestone pavements • [4060] Alpine and Boreal heaths • [5130] Juniperus communis formations on heaths or calcareous grasslands • [6210] Semi-natural dry grasslands and scrubland	Connected by sea directly to Galway Bay e.g. dependency on excellent WQ, nutrient balances and radiant light appropriate to flora and fauna of the intertidal and sub-tidal. Estuary interface with Qualifying feature chalk stream interaction supporting ecosystem richness and fish migration. In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for recreation, transportation, and include associated infrastructure	Screen in: • [8330] Submerged or partially submerged sea caves • [1170] Reefs • [1170] Reefs vegetation

[6] The Screening Decision at this time follows the Precautionary Principle (European Commission, 2000) and will respond to further development of the Study.

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
		facies on calcareous substrates • [722o] Petrifying springs with tufa formation (Cratoneurion) • [6510] Lowland hay meadows *(Alopecurus pratensis, Sanguisorba* • Petalwort *Petalophyllum ralfsii* • [1170] Reefs • [3260] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation		
Connemara Bog Complex SAC IE0002034	1.6km west	Designated for four Annex I/II species and 14 Annex I/II habitats, two of which are priority (*): • [1150] Coastal Lagoons • [1170] Reefs • [3110] Oligotrophic Waters containing very few minerals	Connemara Bog Complex features include many water-quality sensitive habitats and species, with response to fluctuations associated to drainage, competition for water use, or nutrient input. Drainage and eutrophication are the major threats to turlough systems in general.	Screened in: • Coastal LagoonsReefsOligotrophic Waters containing very few minerals • Oligotrophic to Mesotrophic Standing Waters

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
		• [3130] Oligotrophic to Mesotrophic Standing Waters • [3160] Dystrophic Lakes • [3260] Floating River Vegetation • [4010] Wet Heath • [4030] Dry Heath • [6410] *Molinia* Meadows • [7130] Blanket Bogs (Active) • [7140] Transition Mires • [7150] Rhynchosporion Vegetation • [7230] Alkaline Fens • [91A0] Old Oak Woodlands • [1065] Marsh Fritillary (*Euphydryas aurinia*) • [1106] Atlantic Salmon (*Salmo salar*) • [1355] Otter (*Lutra lutra*) • [1833] Slender Naiad (*Najas flexilis*)	Land drainage and reclamation are cited as main sources of impact to the SAC. Operational effect changes to groundwater level would be likely deleterious to water-dependent habitats and species including floating river vegetation, wet heath, blanket bogs, *rhynchosporion* vegetation and alkaline fens. Competing demands in future for water associated to discharge or treatment and abstraction, potentially giving rise to turbidity, altered river hydromorphology and sedimentation, mineral availability, pollution and nutrient loading, imbalance, hormonal burden, assemblage change, and groundwater level change. Potential for loss of spawning habitat or lifecycle requirements /prey availability or quality for aquatic species, including sea lamprey, brook lamprey, Atlantic salmon, and Otter. As the detailed in the report construction and operational effects of the Plan are currently unknown, giving due regard to the precautionary principle, likely significant effects cannot be discounted.	• Dystrophic Lakes • Floating River Vegetation • Wet Heath • Dry Heath • *Molinia* Meadows • Blanket Bogs (Active) • Transition Mires • Rhynchosporion Vegetation • Alkaline Fens • Old Oak Woodlands • Marsh Fritillary (*Euphydryas aurinia*) • Atlantic Salmon (*Salmo salar*) • Otter (*Lutra lutra*) • Slender Naiad (*Najas flexilis*)

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
			In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for recreation, transportation, and include associated infrastructure	
Cregganna Marsh SPA IE0004142	Partially within study area	Designated for E.U. Birds Directive species: • Greenland White-fronted Goose	Flow from study boundary to site within a shared sub-catchment with the GWS area. Due to the reliance of Greenland white-footed goose on water-dependent habitat, the population may be affected by the Plan due to the location of the GWS area during the construction stage, through water quality deterioration and loss and/or fragmentation of habitat for which Greenland white-footed goose rely. Synergistic effects of growth trajectories that the study supports in operational time horizons give rise to further effects of noise, light and disturbance. Displacement to or from site during construction phases require further evaluation when GWS options are further developed. In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for	Screened in: • Greenland White-fronted Goose

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
			recreation, transportation, and include associated infrastructure	
Galway Bay Complex SAC IE0000268	Partially within study area	Designated for two Annex I/II species and 15 Annex I/II habitats, five of which are priority (*): • [1140] Tidal Mudflats and Sandflats • [1150] Coastal Lagoons • [1160] Large Shallow Inlets and Bays • [1170] Reefs • [1220] Perennial Vegetation of Stony Banks • [1230] Vegetated sea cliffs of the Atlantic and Baltic coasts • [1310] *Salicornia* Mud • [1330] Atlantic Salt Meadows • [1410] Mediterranean Salt Meadows • [3180] Turloughs • [5130] Juniper Scrub • [6210] Orchid-rich Calcareous Grassland*	Flow from study boundary to site within a sub-catchment shared with the GWS area. Land drainage and reclamation are cited as main sources of impact to the SAC. Potential changes in groundwater level or water quality may affect each of the habitats and species through decline of quality. Sewage effluent and catchment management effects could be deleterious to benthic communities or to water dependent communities either directly or through altered balances. Further detail is required in relation to the operational stage in order to assess the LSE. Sources of impact to features include construction runoff into waterbodies and groundwater level changes. Reef and sediment communities are vulnerable to disturbance or compaction from heavy vehicle/plant movement. Shoreline and terrestrial habitats are under pressure from urban expansion and recreational activities. Thus, site	Screened in: • Tidal Mudflats and Sandflats • Coastal Lagoons • Large Shallow Inlets and Bays • Reefs • Perennial Vegetation of Stony Banks • Vegetated sea cliffs of the Atlantic and Baltic coasts • *Salicornia* Mud • Atlantic Salt Meadows • Mediterranean Salt Meadows • Turloughs • Juniper Scrub • Orchid-rich Calcareous Grassland • *Cladium* Fens

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
		• [7210] *Cladium* Fens • [7230] Alkaline Fens • [8240] Limestone Pavement • [1355] Otter (*Lutra lutra*) • [1365] Common (Harbour) Seal (*Phoca vitulina*)	management and infrastructure may affect these features. Sources of impact to turloughs include construction runoff or displacement of waters i.e. change to water quality. WQ may directly affect trophic webs causing indirect impacts for species such as Common Seal and Otter, Hormonal imbalances may alter dynamics, alongside nutrient changes or pH change. In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for recreation, transportation, and include associated infrastructure	• Alkaline Fens • Limestone Pavement • Otter (*Lutra lutra*) • Common (Harbour) Seal (*Phoca vitulina*)
Gortnandarragh Limestone Pavement SAC IE0001271	5.8km northwest	Designated for one Annex I/II habitats, which is also a priority habitat (*): • [8240] Limestone Pavement	Potential functional connectivity between this site and the GWS area. Site elements comprise water sensitive habitat and features. Sources may include direct impact, construction runoff into waterbodies and groundwater level changes. As the detailed of construction and operational effects of the Plan are	Screened in: • Limestone Pavement

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
			currently unknown, giving due regard to the precautionary principle, likely significant effects cannot be discounted. In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for recreation, transportation, and include associated infrastructure	
Inner Galway Bay SPA IE0004031	Partially within study area	Designated for E.U. Birds Directive species (population estimate): • Black-throated Diver • Great Northern Diver • Cormorant • Grey Heron • Light-bellied Brent Goose • Wigeon • Teal • Red-breasted Merganser • Ringed Plover • Golden Plover • Lapwing	Flow from study boundary to site within a sub-catchment shared with the GWS area and surrounds. Loss and/or fragmentation of habitats, and/or through water quality deterioration which may have a cascading effect on food resources. Catchment management effects The species for which the sites are designated for may be affected through disturbance during construction stage (through plant movement, etc.), In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for	Screened in: • Black-throated Diver • Great Northern Diver • Cormorant • Grey Heron • Light-bellied Brent Goose • Wigeon • Teal • Red-breasted Merganser • Ringed Plover • Golden Plover • Lapwing • Dunlin • Bar-tailed Godwit

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
		• Dunlin • Bar-tailed Godwit • Curlew • Redshank • Turnstone • Black-headed Gull • Common Gull • Sandwich Tern • Common Tern	recreation, transportation, and include associated infrastructure	• Curlew • Redshank • Turnstone • Black-headed Gull • Common Gull • Sandwich Tern • Common Tern
Lough Corrib SAC IE0000297	Partially within study area	Designated for nine Annex I/II species and 15 Annex I/II habitats, five of which are priority (*): • [3110] Oligotrophic Waters containing very few minerals • [3130] Oligotrophic to Mesotrophic Standing Waters • [3140] Hard Water Lakes • [3260] Floating River Vegetation • [6210] Orchid-rich Calcareous Grassland*	Flow from study boundary to site within a sub-catchment shared with the GWS area. Peat cutting, drainage and other land use activities have created areas of degraded bog, which are more susceptible to drying and burning damage. The main threats to the quality of this site are from water polluting activities resulting from intensification of agricultural activities on the eastern side of the lake, uncontrolled discharge of sewage which is causing localised eutrophication of the lake, and housing and boating development, which is	Screened in: • Oligotrophic Waters containing very few minerals • Oligotrophic to Mesotrophic Standing Waters • Hard Water Lakes • Floating River Vegetation • Orchid-rich Calcareous Grassland • *Molinia* Meadows

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
		• [6410] *Molinia* Meadows • [7110] Raised Bog (Active) • [7120] Degraded Raised Bog • [7150] Rhynchosporion Vegetation • [7210] *Cladium* Fens • [7220] Petrifying Springs • [7230] Alkaline Fens • [8240] Limestone Pavement • [91A0] Old Oak Woodlands • [91D0] Bog Woodland • [1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*) • [1092] White-clawed Crayfish (*Austropotamobius pallipes*) • [1095] Sea Lamprey (*Petromyzon marinus*) • [1096] Brook Lamprey (*Lampetra planeri*) • [1106] Atlantic Salmon (*Salmo salar*)	causing the loss of native lakeshore vegetation. Potential changes in groundwater level may affect features through decline or loss of water-dependent habitats and species. The raised bog habitats are susceptible to further degradation and drying out due to drainage and peat cutting and, on occasions, burning. In addition, change in groundwater level in operational horizons may cause indirect effects such as to affect spawning of aquatic species, including Atlantic salmon and to affect the quality of resources for otter. This may be further exacerbated by growth trajectories, and population increase – factors that require evaluation. The construction stage may also cause changes to water quality through construction runoff. This may directly affect individuals and population and/or cause indirect impacts to food recourses for aquatic species such as sea lamprey, brook lamprey, Atlantic salmon, and otter. Introduction of exotic crayfish species or the crayfish fungal plague (*Aphanomyces*	• Raised Bog (Active) • Degraded Raised Bog • Rhynchosporion Vegetation • *Cladium* Fens • Petrifying Springs • Alkaline Fens • Limestone Pavement • Old Oak Woodlands • Bog Woodland • Freshwater Pearl Mussel (*Margaritifera margaritifera*) • White-clawed Crayfish (*Austropotamobius pallipes*) • Sea Lamprey (*Petromyzon marinus*) • Brook Lamprey (*Lampetra planeri*) • Atlantic Salmon (*Salmo salar*)

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
		• [1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*) • [1355] Otter (*Lutra lutra*) • [1833] Slender Naiad (*Najas flexilis*) • [6216] Slender Green Feather-moss (*Hamatocaulis vernicosus*)	*astaci*) could have a serious impact on the native crayfish population. Introduction and/or spread of these species may be caused by plant usage from different sites during construction or to favour competitor species in operational phases. The construction stage may cause disturbance to commuting, foraging and roosting bats through lighting, plant movement, noise pollution, construction traffic, and habitat loss through construction site management and physical development. As the detailed in the report construction and operational effects of the Plan are currently unknown, giving due regard to the precautionary principle, likely significant effects cannot be discounted. In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for recreation, transportation, and include associated infrastructure.	• Lesser Horseshoe Bat (*Rhinolophus hipposideros*) • Otter (*Lutra lutra*) • Slender Naiad (*Najas flexilis*) • Slender Green Feather-moss (*Hamatocaulis vernicosus*)

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
Lough Corrib SPA IE0004042	Partially within study area	Designated for E.U. Birds Directive species (population estimate): • Greenland White-fronted Goose • Gadwall • Shoveler • Pochard • Tufted Duck • Common Scoter • Hen Harrier • Coot • Golden Plover • Black-Headed Gull • Common Gull • Common Tern • Arctic Tern	The species for which the sites are designated for may be affected through loss and/or fragmentation of habitats, and/or through water quality deterioration which may have a cascading effect on food resources. As the detailed in the report operational effects of the Plan are currently unknown, giving due regard to the precautionary principle, likely significant effects cannot be discounted. Disturbance during construction stage (through plant movement, etc.) is also to be avoided. In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for recreation, transportation, and include associated infrastructure	Screened in: • Greenland White-fronted Goose • Gadwall • Shoveler • Pochard • Tufted Duck • Common Scoter • Hen Harrier • Coot • Golden Plover • Black-Headed Gull • Common Gull • Common Tern • Arctic Tern
Maumturk Mountains SAC IE0002008	23.3	Designated for mountain lowlands/lake habitats/WQ on flow toward study area • [3110] Oligotrophic waters containing very few minerals of sandy	Within sub -catchment shared by study area and SAC (e.g. pressured through competing water demand contributed through drainage requirements in time horizons applied)	Screen in: • Atlantic salmon Salmo salar

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
		plains (Littorelletalia uniflorae) • [4010] Northern Atlantic wet heaths with Erica tetralix • [4060] Alpine and Boreal heaths • [7130] Blanket bogs (* if active bog) • [7150] Depressions on peat substrates of the Rhynchosporion • [8220] Siliceous rocky slopes with chasmophytic vegetation • [1106] Salmon Salmo *salar* • [1833] Slender Naiad Najas *flexilis*	Dependency on flow toward study area. Subject to competing demand for water, e.g. in association to water treatment and discharge. Also spawning grounds may be downstream of SAC (within study area). In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for recreation, transportation, and include associated infrastructure	
Monivea Bog SAC	4.6km northeast	Designated for three Annex I/II habitats, one of which is priority (*): • [7110] Raised Bog (Active) • [7120] Degraded Raised Bog	SAC shares sub-catchment with GWS area. Dependency on flow toward study area. Subject to competing demand for water, e.g. in association to water treatment and discharge. Highly sensitive to groundwater change, and associated rare species assemblages to nutrient input, pH and mineral	Screened in: • Raised Bog (Active) • Degraded Raised Bog • Rhynchosporion Vegetation

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
		• [7150] Rhynchosporion Vegetation	changes. Exacerbations through drying, disturbance. The operational stage of the Plan may cause changes in groundwater level, siltation, or pollutant load, therefore affecting the three features for which the site is designated. In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for recreation, transportation, and include associated infrastructure	
Ross Lake and Woods SAC IE0001312	1.7km northwest	Designated for one Annex I/II species and one Annex I/II habitats: • [3140] Hard Water Lakes • [1303] Lesser Horseshoe Bat (*Rhinolophus hipposideros*)	As the metapopulation of Lesser horseshoe bats overlaps with the shared catchment between the SAC and the GWS area, fragmentation, alteration of habitat, or reduction of foraging quality is possible leading to loss of carrying capacity and reduced recruitment success, associated to elevated energy expenditure. The construction stage may cause disturbance to commuting, foraging and roosting bats through lighting, plant movement, noise pollution, construction traffic, and habitat loss through	Screened in: • Hard Water Lakes • Lesser Horseshoe Bat (*Rhinolophus hipposideros*)

Site name	Distance from study area	Qualifying feature / Receptor	Potential effects / Source & Pathway	Stage 1 screening decision[6]
			construction site management and physical development. Dependency on flow toward study area. Subject to competing demand for water, through time horizons and climate change effects. e.g. in association to water treatment and discharge. Further data is required to determine the detail of developing plans, and further assess the pathways for potential LSE to hard water lakes giving rise to operational effects of habitat decline and species response. In combination effects of plans over 60year+ time horizon may give rise to greater disturbance and resource use for recreation, transportation, and include associated infrastructure.	