

Environmental Licensing Programme
Office of Environmental Sustainability
Environmental Protection Agency
PO Box 3000
Johnstown Castle Estate
Wexford

Uisce Éireann
Teach Colvill
24-26 Sráid Thalbóid
Baile Átha Cliath 1
D01 NP86
Éire

07/07/2023

UÉ ref: LT0664

Uisce Éireann
Colvill House
24-26 Talbot Street
Dublin 1
D01 NP86
Ireland

Dear Inspector,

T: +353 1 89 25000
F: +353 1 89 25001
www.water.ie

Re: Ballycotton Reg. No. D0516-02 – Reg. 18(3)(b) Notice Response - NIS

In response to the regulation 18(3)(b) request for information notice dated 15 March 2023 and further to Uisce Éireann's response dated 01 June 2023, please see below relevant information:

Provide a Natura Impact Statement, as defined in Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 as amended.

Please find enclosed the Natura Impact Statement (NIS) as requested, which concludes that the operation of the WwTP will not have a 'significant negative impact' on the conservation objectives of the Ballycotton Bay SPA either individually or in combination with other plans or projects.

Enclosed: Ballycotton NIS

Yours sincerely,



Peter Keegan

Wastewater Strategy

BYRNELOOBY

AN **ayesa** COMPANY

Technology | Engineering | Consulting

Untreated Agglomerations Study (UTAS)

Natura Impact Statement for Ballycotton Wastewater

Discharge Licence

Irish Water

Report No. W3301-ENV-R105

04 July 2023

Revision 01

Document Control

Project: Untreated Agglomerations Study (UTAS)
 Document: Natura Impact Statement for Ballycotton WWDL
 Client: Irish Water
 Report Number: W3301-ENV-R105

Document Checking:

Revision	Revision/ Review Date	Details of Issue	Authorised		
			Prepared By	Checked By	Approved By
00	15 June 2023	Issued for Information	J Hean	Dr. B O'Connor	K. Thornton
01	04 July 2023	Updated following Client Comments	J Hean	Dr. B O'Connor	K. Thornton
Disclaimer: Please note that this report is based on specific information, instructions, and information from our Client and should not be relied upon by third parties.					

Contents

1	Introduction	1
1.1	Overview	1
1.2	Project Background	1
1.3	Project Setting	3
1.4	Proposed Operational Impact on Water Quality	4
1.5	Purpose of This Report	8
1.6	Report Preparation	8
2	Appropriate Assessment Process	10
2.1	Stage 1: Screening	10
2.2	Stage 2: Appropriate Assessment (current stage)	10
2.3	Stage 3: Assessment of Alternative Solutions	10
2.4	Stage 4: Imperative Reasons of Overriding Public Interest (IROPI)/Derogation	11
2.5	Legislative Background and Guidance Documents	11
3	Methodology	14
3.1	Source-Pathway-Receptor Model	14
3.2	Development Site Habitat Assessment Methods	15
3.3	Features of Interest Species Assessment Methods	16
3.4	Assessment of Likelihood of Significant Effects	17
4	Results	18
4.1	Development Site Habitats	18
4.2	Potentially affected Natura 2000 sites	19
4.3	Marine Coastal Fauna	20
4.4	Ballycotton Bay Coastal Water	21
4.5	Avifauna	23
5	Impact Assessment (Source-Pathway-Receptor Model)	24
5.1	Sources	24
5.2	Pathways	25
5.3	Receptors	25
5.4	Summary of SPA Qualifying Interests	26
5.5	Cumulative Impacts	29
5.6	Impact Prediction	33
6	References	34
	Appendix A – EPA Determination	35

Appendix B – Site Photos	36
Appendix C – Outfall Locations.....	38
Appendix D – Impact Assessment Report.....	40
Appendix E – EPA Coastal Water Data	53
Appendix F – Bird Survey Report	54

List of Figures

Figure 1-1: Location of the proposed development works in Ballycotton.....	2
Figure 1-2: Location of the existing effluent discharge points	2
Figure 1-3: Views of the current waste water outfalls near the Cow slipway (left) and Ballycotton pier (right).....	3
Figure 1-4: Locations of the primary effluent discharge point (SW004) and the stormwater / auxiliary discharge points.....	5
Figure 4-1: Predicted marine benthic habitats in Ballycotton Bay and the surrounding coastal region (EMODnet, 2019; www.emodnet-seabedhabitats.eu).....	18

List of Tables

Table 1-1 Ballycotton Bay BOD and Suspended Solids Assessment.....	5
Table 3-1: Ecological Surveys Completed at Ballycotton.....	15
Table 4-1: Qualifying Interests, Key features, and Conservation Objectives identified for the Ballycotton Bay SPA.....	19
Table 4-2: Ambient Monitoring Data – Ballycotton Bay.....	22
Table 4-3: Summary of Winter Bird count survey data conducted near Ballycotton.....	23
Table 5-1: Summary of Potential Impacts to SPA habitats or QI species with connectivity to the Proposed Outfalls.....	28

Glossary of Terms and Abbreviations

AA	Appropriate Assessment
BOD	Biochemical Oxygen Demand
CIEEM	Chartered Institute of Ecology and Environmental Management
EEC	European Economic Community
EPA	Environmental Protection Agency
European Sites	Appropriate assessment tests whether a plan or a project is likely to have a significant negative impact on any Special Protection Areas, Special Areas of Conservation, and/or Ramsar sites. Jointly, these are called ‘European sites’, and is often used interchangeably with Natura 2000 sites.
EU	European Union
IROPI	Imperative Reasons of Overriding Public Interest
km	Kilometre
m	Metres
m ²	Square metres
Natura 2000	Natura 2000 is a network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right. It stretches across all 27 EU countries, both on land and at sea.
NBDC	National Biodiversity Data Centre
NIS	Natura Impact Statement
PE	Population Equivalent - a parameter for characterizing industrial wastewaters
PS	Pumping Station
SAC	Special Area of Conservation
SPA	Special Protected Area
SS	Suspended Solids
QIs	Qualifying Interests
UTAS	Untreated Agglomerations Study
WFD	Water Framework Directive
WwTP	Wastewater Treatment Plant
Zone of Influence	The area where potential environmental changes may potentially impact upon sensitive environmental receptors, considering the spatial scope of the proposed scheme.

1 Introduction

1.1 Overview

A Screening for Appropriate Assessment was carried out and a Report prepared in October 2022 in respect of the application from Uisce Éireann to the Environmental Protection Agency (EPA) for a licence review for the wastewater discharge from Ballycotton Sewerage Scheme. In March 2023, the Environmental Protection Agency (EPA) determined that an Appropriate Assessment was required as the project, individually or in combination with other plans or projects, is likely to have a significant effect on a Natura 2000 site. The EPA Determination is appended into this report in Appendix A.

A Natura Impact Statement (NIS) (this report) has been prepared in response to the determination and to allow an Appropriate Assessment to be carried out. The NIS pertains to the operational phase of the proposed Wastewater Treatment Plant (WwTP) at Ballycotton, Co Cork.

1.2 Project Background

Ballycotton is a small coastal village located in East Cork, approximately 40km east of Cork City and approximately 20km southwest of the town of Middleton. The agglomeration was identified by Irish Water as providing negligible level of treatment for sewerage. The WwTP site is a greenfield site to the south west of the agglomeration and is outside the local area plan settlement boundary. The area is located on elevated land to the rear of the school and is 70m north of the Cork County Council service reservoir. See Figure 1-1 overleaf. Images of the site are included in Appendix B of this report.

At present, wastewater flows generated in the agglomeration are collected in two combined (foul and storm water) collection systems. The west of the agglomeration is served by a sewer network which flows to a septic tank located along the foreshore which discharges into the Ballycotton Bay via a sea outfall. The septic tank dates from the 1950s and is significantly overloaded. The east of the agglomeration is served by a collection network which discharges untreated wastewater into Ballycotton Bay via an outfall on Ballycotton Pier. The locations of the existing discharges are shown overleaf in Figure 1-2. Photographs of the existing outfalls are shown overleaf in Figure 1-3.

This practice of discharging untreated wastewater to the bay is no longer acceptable and Irish Water intends to fix this problem in partnership with Cork County Council by developing a sewerage scheme.

Proposed operations are described in further detail in Section 1.4.

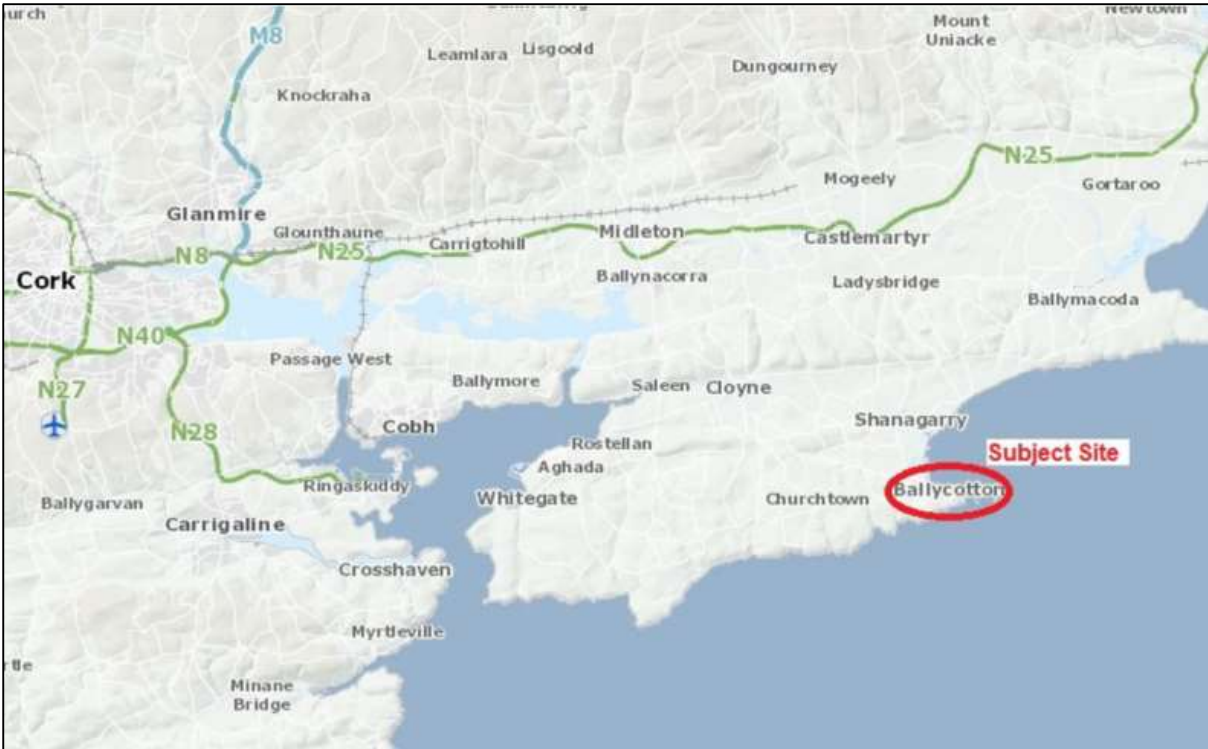


Figure 1-1: Location of the proposed development works in Ballycotton.



Figure 1-2: Location of the existing effluent discharge points



Figure 1-3: Views of the current waste water outfalls near the Cow slipway (left) and Ballycotton pier (right).

1.3 Project Setting

Ballycotton is a coastal village located approximately 18km southeast of Midleton, Co. Cork. Ballycotton village comprises a long narrow street which extends for approximately 1.3km along Main Street to Ballycotton Harbour. The village faces north, running parallel to the natural coastline.

Ballycotton Harbour is located at the east end of the village. The harbour is situated at the south of Ballycotton Bay on the Celtic Sea. The main harbour infrastructure is enclosed by Ballycotton Pier to the east, and Ballycotton Breakwater to the west and north. The entrance to the harbour for vessels is located between the breakwater and pier to the north of the harbour. The area enclosed by the pier and breakwater is approximately 160,000m².

Ballycotton Bay is located between Cork Harbour and Youghal. It is exposed to the south and east, but protected from the prevailing south westerly winds. Garryvoe beach is located in Ballycotton Bay to the north of Ballycotton Harbour.

Ballycotton Harbour ranks in Ireland's top twenty ports in terms of value and weight of fish landings. In 2015, the value of fish landings in Ballycotton was €3.39m, which was greater than Kinsale (€3.22m), Baltimore (€2.65m) and Schull (€2.62m). This indicates the level of commercial fishing activity within the harbour.

1.4 Proposed Operational Impact on Water Quality

1.4.1 Overview

The objective of the Ballycotton UTAS project is to provide primary wastewater treatment for the agglomeration. A site has been identified for the proposed WwTP which will provide treatment for a 30-year projected load but the initial project objective is to provide infrastructure for the 10-year projected load with a Population Equivalent (PE) of 1082. The upgrade works are proposed to meet the primary objective of providing primary treatment for wastewaters collected in the agglomeration of Ballycotton, Co. Cork.

The proposed treatment plant will provide primary treatment to achieve, as a minimum, an effluent quality that meets the requirements of the wastewater discharge licence:

- Biochemical Oxygen Demand (BOD₅) – 20% reduction
- Suspended Solids (SS) – 50% reduction

Once operational, the Ballycotton WwTP will ensure that the practice of discharging untreated sewage into Ballycotton Bay is ceased while it is also expected to provide sufficient wastewater treatment capacity to cater for the expected future population growth in Ballycotton.

The outfall locations can be found in Figure 1-4, below and further detailed in Appendix C. The WwTP primary discharge (SW004) will now be serving a larger PE and so, an increased quantity in BOD and SS will be discharged at SW004 locally.

The WwTP will also feature a dual function emergency/stormwater overflow. During storm conditions, when the volume of flow entering the WwTP exceeds the WwTP's capacity, excess diluted foul water will be screened before being discharged to Ballycotton Bay via the stormwater overflow (SW005). Similarly, in the unlikely event that the WwTP ceases to operate due to a malfunction or a power outage, 24-hour storage capacity is provided at the WwTP site. However, should the WwTP remain inoperable for more than 24 hours, excess flows entering the plant will be discharged to Ballycotton Bay via the emergency overflow (SW005).

An Impact Assessment Report has been prepared to examine the impact of the WwTP on water quality and can be found in full in Appendix D. The findings are summarised in the following sections.

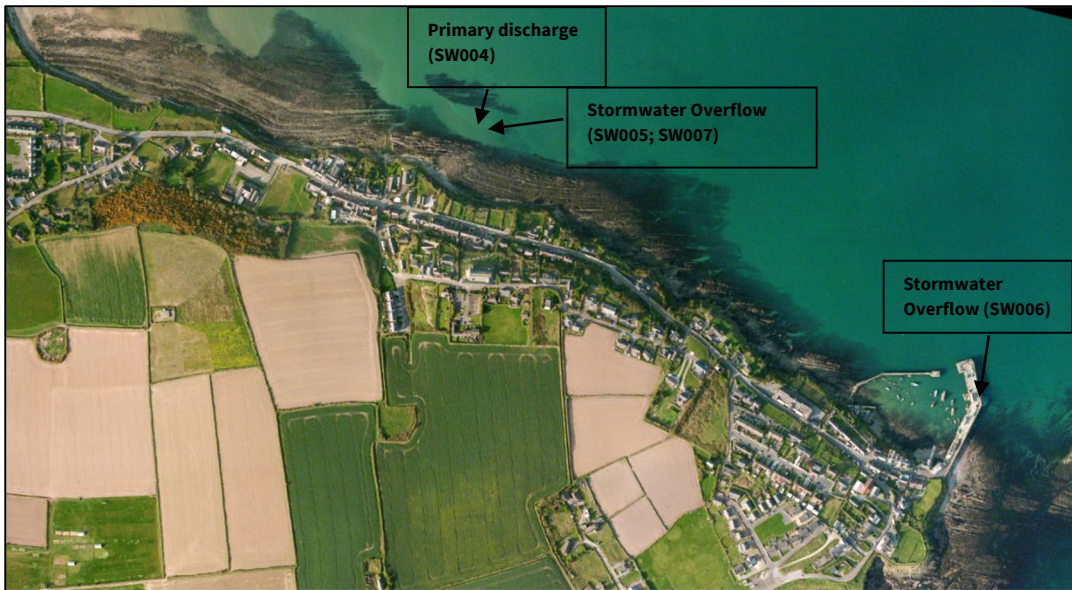


Figure 1-4: Locations of the primary effluent discharge point (SW004) and the stormwater / auxiliary discharge points.

1.4.2 Water Quality

Based on predicted 10-year design PE, the overall BOD discharge to Ballycotton Bay during normal operations will reduce from 60.8kg/d (2016) to 51.9kg/d (2026), the discharge at the primary discharge (SW004) will increase from 30.4kg/d (2016) to 51.9kg/d (2026) and the existing discharge at Ballycotton Pier will reduce to zero.

The above assessment is based on a BOD loading of 60g/person/day in accordance with the Urban Waste Water Treatment Regulations 2001 as amended.

Based on predicted 10-year design PE, the overall suspended solids discharge to Ballycotton Bay during normal operations will reduce from 28.9kg/d (2016) to 15.4kg/d (2026), the discharge at the primary discharge (SW004) will increase from 14.5kg/d (2016) to 15.4kg/d (2026) and the existing discharge at Ballycotton Pier will reduce to zero.

The above assessment is based on a suspended solids loading of 163mg/l (mean domestic loading) in accordance with EPA Wastewater Treatment Manuals – Treatment Systems for Small Communities, Business, Leisure Centres and Hotels and a consumption rate of 175l/person/day in accordance with Irish Water technical guidance document IW-TEC-700-99-02 Inlet Works and stormwater treatment (wastewater).

The BOD and SS water quality assessment is summarised in Table 1-1.

Table 1-1 Ballycotton Bay BOD and Suspended Solids Assessment

	BOD	SS
Loading	60 g/PE/Day	70 g/PE/Day
Current PE (2016)	1014	

Future PE (2026)	1082		
Total Agglomeration			
Current Load	60.84 kg/Day	70.98 kg/Day	
Future Load*	51.94 kg/Day	37.87 kg/Day	
Primary Discharge Point			
Current Load	30.42 kg/Day	35.49 kg/Day	
Future Load*	51.94 kg/Day	37.87 kg/Day	
*Future Loading calculation above considers a reduction in BOD of 20% and a reduction in SS of 50%			

The most recent EPA data notes that Ballycotton Bay was classified as “*Not at risk*” in accordance with the WFD Risk Status and the ecological status is noted as “good” (2016-2021). This indicates that the existing wastewater discharges were not having sufficient impact on water quality to affect the “good” status of Ballycotton Bay, as evidenced in Appendix E. The proposed Ballycotton WwTP will reduce the overall quantity of BOD and SS to Ballycotton Bay once the WwTP becomes operational and therefore will not have any negative effects in relation to water quality.

1.4.3 Combined Approach

The Waste Water Discharge Authorisation under the European Union (Waste Water Discharge) Regulations 2007 to 2020, specify that a ‘combined approach’ in relation to licensing of waste water works must be taken, whereby the emission limits for the discharge are established on the basis of the stricter of either or both, the limits and controls required under the Urban Waste Water Treatment Regulations, 2001, as amended, and the limits determined under Statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the waterbody into which the discharge is made.

The treated effluent discharge standards for the new WwTP will comply with the requirements for primary treatment with a 20% reduction in BOD and a 50% reduction in SS. In addition, they will give effect to the principle of the Combined Approach as defined in Waste Water Discharge (Authorisation) Regulations, 2007 to 2020 in that they accommodate the Urban Waste Water Regulations and the relevant status/designations of the receiving waterbody, Ballycotton Bay.

1.4.4 Mixing zone or transitional areas of exceedance

The EPA publication ‘*EO Regulations Review, Simple Assimilative Capacity Model for Lakes and Coastal Water*’ presents a simple model for carrying out assimilative capacity in lakes and coastal waters. This Assimilative Capacity Model has been applied here to determine the number of dilutions which will be achieved at a given distance from the primary discharge point (SW004).

The calculation for the available dilutions is as follows:

$$D = \frac{8930b}{F}$$

where:

b = average depth of the receiving water (m)

F = Maximum hourly flow rate of the discharge (m³/hr)

In order to estimate the available dilutions, the average depth of the receiving waters of the mixing zone over a distance of 100m from the discharge point is required. Based on available bathymetry and tidal data, the average depth of the receiving waters over a distance of 100m for the discharge point was determined to be 2.747m (b).

The maximum hourly flow rate from the proposed WwTP is 86.8m³/h.

This results in a dilution value (D) of 283. Irish Waters Technical Standards for Marine Modelling (Document Number IW-TEC-100-015) requires a minimum of 100 initial dilutions for new primary treated effluent discharges. As such the calculated 283 is considered more than adequate.

Based on the above calculated dilution and the background water quality data in Ballycotton Bay, the resulting concentrations of BOD₅ and DIN in the receiving water (near field) have been calculated as:

- BOD₅ - 2.18mg/l (<3.0mg/l limit for high status water quality)
- DIN - 0.56mg/l (<0.585mg/l limit for high status water quality).

Therefore, the discharge effluent will not impact on the ability of the receiving water to maintain its current “good” status and in fact, would allow compliance with “high” status.

1.4.5 Emergency/Stormwater Overflows

In the event of an emergency, 24-hour emergency storage capacity is provided at the proposed WwTP as well as the 2no. pumping stations (PS) which form part of the sewerage scheme. Should the flows entering the WwTP and pumping stations exceed the outgoing flow rate, the excess flows will spill into the storm water holding tank through an electronically operated mechanical screen. If the 24-hour storage capacity is exceeded, all flows will be screened before discharging to Ballycotton Bay.

At the Pier PS, the excess flow will discharge from the holding tank (SW006; see Figure 1-4). The existing overflow pipe discharges on the eastern side of the pier. An overflow weir has been provided in the design to facilitate flow measurement and logging of the emergency overflow, so that volumes of storm spillage to the receiving waters can be quantified.

At the Cow PS, an overflow pipe will not be provided. Instead, a combined sewer overflow chamber will be constructed at the head of Cow Lane to accommodate any excess flows should

the stormwater holding tank reach capacity which discharges to Ballycotton Bay via a marine outfall (SW007; see Figure 1-4).

A venturi aerator has been incorporated into the design at both pumping stations to provide mixing and aeration in the stormwater holding tank. The operation will be based on a high and low level in the tank.

1.5 Purpose of This Report

Appropriate Assessment (AA) is the process whereby the potential impacts of a project or plan are assessed in view of a Natura 2000 protected site's conservation objectives. A Natura Impact Statement is required to enable a consent authority to carry out an Appropriate Assessment.

This NIS relates specifically to the impacts associated with the operational phase of the proposed Ballycotton WwTP. The construction activities associated with the Ballycotton Sewerage Scheme have previously been subjected to the AA process and as such construction stage activities will not be considered in this NIS.

The implications of the discharge of treated effluent from the WwTP, the discharge from the dual function stormwater/emergency overflow associated with the sewerage scheme and potential noise from the WwTP are assessed, individually and in combination with any other relevant developments, plans or projects, in light of:

- the nature and quality of habitats within and adjacent to the site of the proposed development;
- information relating to the ecology of the relevant Natura 2000 sites;
- the status of Features of Interest of the relevant Natura 2000 sites;
- the scale and nature of the aspects of the project in relation to the Natura 2000 site.

1.6 Report Preparation

Dr. Brendan O'Connor, Ph.D., a specialist with over 40 years' experience in the biology of aquatic communities, is the Ecology Lead for this Report. He has extensive experience in the preparation of Appropriate Assessment Screening Reports and Natura Impact Statement. Brendan has participated in over 50 scientific publications on aquatic species and habitats. Brendan is responsible for inputting into key decisions in relation to the report contents and the screening assessment and he is also responsible for checking this report.

Jeff Hean, B.Sc., M.Sc., Ph.D., is the Project Ecologist for this Report and has responsibility for all ecological surveys and reporting. Jeff has 8 years of experience and he is an expert in ecological matters and the full spectrum of environmental assessment techniques, methodologies, and statutes. Jeff carried out bird surveys in January to April 2023 and is responsible for preparing this version of the report.

Kieran Thornton, B.E., HDip.Mech.Eng., HDip.Env.Eng., is the ByrneLooby Project Manager for the delivery of the engineering and environmental consultancy services with oversight of all documents produced.

2 Appropriate Assessment Process

The AA process is a sequential process consisting of four potential stages. If at the first stage in the process it is determined that there will be no significant effect on a Natura 2000 Site, the process is effectively completed. The four stages are as follows:

- Stage 1 – Screening of the proposed plan or project for AA
- Stage 2 – An AA of the proposed plan or project (Current stage)
- Stage 3 – Assessment of alternative solutions; and
- Stage 4 – Imperative Reasons of Overriding Public Interest (IROPI)/ Derogation.

Stage 1 relates to Regulation 42(1) and Stage 2 relates to Regulations 42(3); and Stages 3 and 4 to Regulations 42(5) of the Habitats Directive Birds and Natural Habitats Regulations (Irish Statute Book, 2011).

2.1 Stage 1: Screening

The aim of screening is to assess if the plan or project is directly connected with or necessary to the management of Natura 2000 Site(s); or on the basis of best scientific knowledge, if the plan or project, individually or in combination with other plans or projects, is likely to have a significant effect on a Natura 2000 site. This is done by examining the proposed plan or project and the conservation objectives of any Natura 2000 Sites that might potentially be affected. If screening determines that there are likely to be significant effects, or the significance of effects is uncertain or unknown then it will be recommended that a project is brought forward to full AA.

2.2 Stage 2: Appropriate Assessment (current stage)

The aim of Stage 2 of the AA process is to identify any adverse impacts that the plan or project might have on the integrity of relevant Natura 2000 Sites. As part of the assessment, a key consideration is ‘in combination’ effects with other plans or projects. Where adverse impacts are identified, mitigation measures can be proposed that would avoid, reduce, or remedy any such negative impacts and the plan or project should then be amended accordingly, thereby avoiding the need to progress to Stage 3.

2.3 Stage 3: Assessment of Alternative Solutions

If it is not possible during the stage 2 to reduce impacts to acceptable, non-significant levels by avoidance and/or mitigation, stage 3 of the process must be undertaken which is to objectively assess whether alternative solutions exist by which the objectives of the plan or project can be achieved. Explicitly, this means alternative solutions that do not have significant negative impacts on the integrity of a Natura 2000 Site. It should also be noted that EU guidance on this stage of the process states that, ‘other assessment criteria, such as economic criteria, cannot be seen as

overruling ecological criteria' (EC, 2001). In other words, if alternative solutions exist that do not have negative impacts on Natura 2000 Sites; they should be adopted regardless of economic considerations.

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

This stage of the AA process is undertaken when it has been determined that negative impacts on the integrity of a Natura 2000 Site will result from a plan or project, but that no alternatives exist. At this stage of the AA process, it is the characteristics of the plan or project itself that will determine whether the competent authority can allow the plan or project to progress. This is the determination of 'over-riding public interest'. It is important to note that in the case of Natura 2000 Sites that include in their qualifying features 'priority' habitats or species, as defined in Annex I and II of the Directive, the demonstration of 'overriding public interest' is not sufficient and it must be demonstrated that the plan or project is necessary for 'human health or safety considerations'. Where plans or projects meet these criteria, they can be allowed, provided adequate compensatory measures are proposed. Stage 4 of the process defines and describes these compensation measures.

2.5 Legislative Background and Guidance Documents

2.5.1 Legislation

The Birds Directive (2009/147/EC) and the Habitats Directive (92/42/EEC) put an obligation on EU Member States to establish the Natura 2000 network of sites of highest biodiversity importance for rare and threatened habitats and species across the EU. In Ireland, the Natura 2000 network of Natura 2000 sites comprises Special Areas of Conservation (SACs, including candidate SACs) and Special Protection Areas (SPAs, including proposed SPAs). SACs are selected for the conservation of Annex I habitats (including priority types which are in danger of disappearance) and Annex II species (other than birds). SPAs are selected for the conservation of Annex I birds and other regularly occurring migratory birds and their habitats.

The conservation objectives of particular Natura 2000 sites have been assigned by the National Parks and Wildlife Service (NPWS) of the Department of Housing, Local Government and Heritage; these are the objectives or aims which have been put in place to maintain or restore the favourable conservation status or condition of the Annex I habitat or Annex I or II species for which the designated or classified site has been selected.

A key protection mechanism is the requirement to consider the possible nature conservation implications of any plan or project on the Natura 2000 site network before any decision is made to allow that plan or project to proceed. The direct and indirect effects, individually and in combination with other plans and projects, must be considered. Indirect effects may arise due to pathways or connections to a Natura 2000 site, *i.e.*, a hydrological connection may result in indirect effects on that site due to changes in water flows or construction related emissions. Similarly, there may be indirect impacts to Natura 2000 sites via impacts to non-Qualifying Interest

habitats within a site or such habitats outside a site, or via impacts to species for which a site has been designated beyond the site where this might affect the conservation objectives of the site. This is particularly relevant in relation to SPAs where areas outside the Natura 2000 site are often important for bird species.¹

The obligation to undertake AA derives from Article 6(3) of the Habitats Directive and involves a number of steps and tests that need to be applied in sequential order (see section 4.1). Article 6(3) is concerned with the strict protection of sites and it states that, “[a]ny plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives”.

The EU Birds and Habitats Directives are transposed into Irish legislation under Section 177 of the Planning and Development Act, 2000, as amended, and European Communities (Birds and Natural Habitats) Regulations 2011 (S. I. No. 477 of 2011), as amended.

Section 42 (1) of S.I. No. 477 of 2011, the European Communities (Birds and Natural Habitats) Regulations 2011 states: “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.”

Where the screening process cannot exclude the possibility that a plan or project, individually or in combination with other plans or projects, could have a significant effect on a Natura 2000 site, there is a requirement under Article 42 (3) of these Regulations for the preparation of a Natura Impact Statement to inform the Appropriate Assessment process.

2.5.2 Guidance Documents on Appropriate Assessment

The AA requirements of Article 6(3) of the Habitats Directive 92/43/EEC (European Communities 2001) follow a sequential approach as outlined in the following guidance documents:

- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities. Department of Environment, Heritage, and Local Government, 2010 revision.
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPWS 1/10 and PSSP 2/10.
- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (European Commission Environment Directorate-General, 2002).

¹ Office of the Planning Regulator, *Appropriate Assessment Screening for Development Management*, OPR Practice Note PN01

- Managing Natura 2000 Sites: The provisions of Article 6 of the Habitat's Directive 92/43/EEC Commission Notice (European Commission Environment Directorate-General, 2018).
- Guidelines for Good Practice Appropriate Assessment of Plans Under Article 6(3) Habitats Directive (International Workshop on Assessment of Plans under the Habitats Directive, 2011).
- The Department of the Environment, Heritage, and Local Government guidance "*Appropriate Assessment of Plans and Projects in Ireland – guidance for Planning Authorities, 2009*" and the European Commission (2001) guidelines "*Assessment of plans and projects significantly affecting Natura 2000 sites - Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*".
- Office of the Planning Regulator Practice Note – *Appropriate Assessment Screening for Development Management, 2021*

3 Methodology

3.1 Source-Pathway-Receptor Model

The likely effects of the proposed development on any Natura 2000 site have been assessed using a source-pathway-receptor model, where:

- A ‘source’ is defined as the individual element of the proposed works that has the potential to impact on a Natura 2000 site, its qualifying features and its conservation objectives.
- A ‘pathway’ is defined as the means or route by which a source can affect the ecological receptor.
- A ‘receptor’ is defined as the QI of SPAs or SACs for which conservation objectives have been set for the Natura 2000 sites being screened.

Where a source-pathway-receptor link between the proposed development and a Natura 2000 site exists and there is a potential negative impact, further assessment is required.

In accordance with EC Article 6 Guidance Document (EC, Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC, 2018), in order to ensure all impacts upon the site are identified, including those direct and indirect impacts that are a result of cumulative impacts, the following steps were completed:

- Identify all projects/ plans which might act in combination: Identify all possible sources of effects from the project or plan under consideration, together with all other sources in the existing environment and any other effects likely to arise from other proposed projects or plans.
- Impacts identification: Identify the types of impacts that are likely to affect aspects of the structure and functions of the site vulnerable to change.
- Define the boundaries for assessment: define boundaries for examination of cumulative effects which will be different for different types of impact and may include remote locations.
- Pathway identification: Identify potential cumulative pathways (e.g., via water, air etc.; accumulations of effects in time or space).
- Prediction: Prediction of magnitude/extent of identified likely cumulative effects.
- Assessment: Comment on whether or not the potential cumulative impacts are likely to be significant.

3.2 Development Site Habitat Assessment Methods

The National Biodiversity Data Centre (NBDC) Avifaunal Records for Ballycotton Bay SPA were examined to ascertain likely species to be present in Ballycotton. A copy of the NBDC records are within the Bird Survey Report included in Appendix F.

Habitat and species surveys and mapping were carried out by Pascal Sweeney on behalf of ByrneLooby in 2017 and 2018. Following these, wintering bird surveys were conducted over the winter of 2018/2019. Details of these wintering bird surveys are included in Appendix F.

A general assessment of the site was carried out by ByrneLooby ecologists Jeff Hean and Margaret Starr, on the 9 February, 6 March, and 20 March 2023 whilst also undertaking the winter bird surveys. 23rd March 2023. The site assessment was in line with the Heritage Council’s Best Practice Guidance for Habitat Survey and Mapping (Smith *et al.*, 2011) and habitats were classified to level 3 of the Fossitt (2000) classification system. To illustrate the general habitat quality, photographs were taken using a digital camera. Grid references were recorded using a GPS handset. Site evaluation is based on the guidelines of the Chartered Institute of Ecology and Environmental Management (CIEEM, 2019).

The site and immediate surroundings were inspected for the presence of invasive species, as listed in the Third Schedule of the Birds and Natural Habitats Regulations (S.I. No. 477/2011). Regulation 49 (2) states that “any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place” any plant listed in the Third Schedule, shall be guilty of an offence. The determination of the presence or absence of Annex I habitats was carried out in consultation with the habitat descriptions provided in the most recent Article 17 Reports (NPWS, 2019). The Interpretation Manual of European Union Habitats (EUR 28, April 2013) was also consulted. In addition, the spatial GIS data for the Article 17 Reports were examined to determine the distribution of these habitats (as known to the NPWS) within the study area.² Several ecological surveys have been completed at the Ballycotton site by several specialist between 2017 and 2023 and is summarised in Table 3-1, below.

Table 3-1: Ecological Surveys Completed at Ballycotton

Survey Name	Survey Date(s)	Completed by
Habitat and species surveying and mapping	04/12/2017	Pascal Sweeney ³
Habitat and species surveying and mapping	18/05/2018	Pascal Sweeney
Habitat and species surveying and mapping	17/06/2018	Pascal Sweeney
Habitat and species surveying and mapping	24/07/2018	Pascal Sweeney
Wintering Bird Survey 1	29/11/2018	Pascal Sweeney
Wintering Bird Survey 2	28/12/2018	Pascal Sweeney
Wintering Bird Survey 3	28/01/2019	Pascal Sweeney
Wintering Bird Survey 4	26/02/2019	Pascal Sweeney
Site Walkover	2021 & 2023	ByrneLooby
Specialist survey for wintering birds 5	09/02/2023	ByrneLooby

² https://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf

Survey Name	Survey Date(s)	Completed by
Specialist survey for wintering birds 6	06/03/2023	ByrneLooby
Specialist survey for wintering birds 7	20/03/2023	ByrneLooby

All surveys were completed by qualified specialists and in accordance with relevant legislation, particularly the “Guidelines for Ecological Impact Assessment in the UK and Ireland” (CIEEM, 2018) through the additional recording of specific features indicating the presence, or likely presence, of protected species or other species of nature conservation significance.

3.2.1 Identification and Appraisal of Impacts on Natura 2000 sites

Appropriate Assessment of the construction stage of the proposed sewerage scheme project, as a whole and its individual components, has been carried out previously and will not be addressed further in this report. This Natura Impact Statement (NIS) relates solely to the impact of the operational stage of the WwTP, including the discharge of treated effluent from the WwTP on Ballycotton Bay SPA.

The Environmental Protection Agency notes that in-combination effects need only apply to other plans and projects that have an impact on the aquatic environment³. There are no other plans or projects in the vicinity of this project to be considered for this Appropriate Assessment. Likely impacts resulting from the proposed WwTP that have the potential (without mitigation) to result in significant environmental effects have been identified can be summarised as follows:

- Discharge of Treated Effluent from the Ballycotton WwTP at operational phase.
- Discharge of Screened Effluent from the Stormwater/Emergency outfalls in infrequent cases of emergency.
- Operation of the WwTP (i.e. potential noise).

An Impact Assessment Report has been prepared to determine the impact of the discharges from the Ballycotton agglomeration on the receiving waterbody once the proposed Ballycotton Sewerage Scheme becomes operational. This has been considered in this Natura Impact Statement and can be seen in Appendix D.

3.3 Features of Interest Species Assessment Methods

The suitability of the habitats within the footprint of the outfalls for bird species listed as Features of Interest of the SPA was assessed by the criteria of Morrison (1998). The section of upper shoreline between the proposed location of The Cow PS and the Ballycotton Bay SPA boundary was checked for the nesting birds, particularly Ringed Plover, on 17/06/2018 and 24/07/2018, and potential nesting habitat was evaluated. This area was further surveyed by BL ecologists in 2023.

³ Environmental Protection Agency, *Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007), as amended.*

Bird counts, following a combination of the guidance of Wetlands International (2010), Bibby *et al.* (2000) and Lewis & Tierney (2014), were carried out on four dates in 2018/19 and on a further three dates in 2023 during the period when wintering birds are present in the Ballycotton Bay SPA on days when both a high and a low tide coincided with daylight hours. On 29/11/2018, 28/12/2018, 28/01/2019 and 26/02/2019, birds present on the shoreline within line of sight of the proposed works site of The Cow PS were counted for 30 minutes at high tide and again for 30 minutes at low tide. Distances of these birds from the slipway between the SPA and the treated effluent outfall were estimated in the bands, < 50m; 50 – 100m; 100 – 150m; 150 – 200m; >200m. Birds flying past within 100m were also recorded.

During the 2023 surveys, recommended methods of assessment by I-WeBS Core Counts were utilised, and point counts were conducted where the observer remained in position (predefined vantage points) for a specified time. Vantage points were chosen carefully, to avoid as much interference from terrain and topography as possible for the ground counts. Counts were completed within 45 minutes at low tide, ± 2 hrs of low-water mark–Low Tide Count to 1-hour periods. During this time, areas surrounding the stationary vantage points were scanned continuously using a pair of binoculars and spotting scope. All birds observed within this 45-minute period were recorded. Aural recordings were also obtained from each stationary survey point. The results of both sets of bird surveys can be seen in the Bird Survey Report in Appendix F.

3.4 Assessment of Likelihood of Significant Effects

In assessing the likelihood of the occurrence of significant effects, the logic is as follows:

- The conditions necessary for a significant effect are considered.
- The likelihood of that effect is assessed, considering the process/emission magnitude, duration, timing and frequency, as well as the connectivity with the proposed project site and the sensitivity of the QI to the process/emission in question.

The below definitions are relevant at this Stage 2 Appropriate Assessment Screening stage:

- Likely Significant Effect - Where a plan or project is likely to undermine any of the site's conservation objectives.
- Possible Significant Effect - Where a plan or project has an indicated potential to undermine any of the site's conservation objectives, but where doubt exists about the risk of a significant effect in the current context. Nevertheless, where doubt exists about the risk of a significant effect, use of the precautionary principle requires this effect to be considered appropriately within the Article 6 assessment process.

It should be noted that this report has taken account of the 2017 ECJ ruling (C-323/17 - People Over Wind and Peter Sweetman v Coillte): “Article 6(3) of the Habitats Directive must be interpreted as meaning that, in order to determine whether it is necessary to carry out, subsequently, an appropriate assessment of the implications, for a site concerned, of a plan or project, it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site.”

4 Results

4.1 Development Site Habitats

The harbour area adjacent to Ballycotton Pier consists of mixed sublittoral sediments (Habitat Code SS) that are regularly disturbed by the activity of fishing trawlers and therefore of relatively low habitat value (Sweeney, 2021; Hean and Starr, Pers. Obs, 2023). The intertidal habitat on the adjacent western side of the Ballycotton harbour proximal to the extant discharge point was classified as a stony shore habitat (Habitat Code LR4), consisting of ridges of exposed bedrock, with some patches of shingle at the top of the shore (Sweeney, 2021). The deeper sublittoral areas of the Ballycotton Bay were classified (EUNIS predictive habitat classification scheme) as containing hard (EUNIS code 4) and soft (EUNIS code A5.5) substrate (EMODnet, 2019). The inner sublittoral and infralittoral habitats of Ballycotton Bay were classified as high and low energy shallow circalittoral seabed (Fossit code SS) and infralittoral seabed (Fossit code SR), respectively (EMODnet, 2019; see Figure 4-1). Photos of the respective discharge sites is provided in Appendix B.

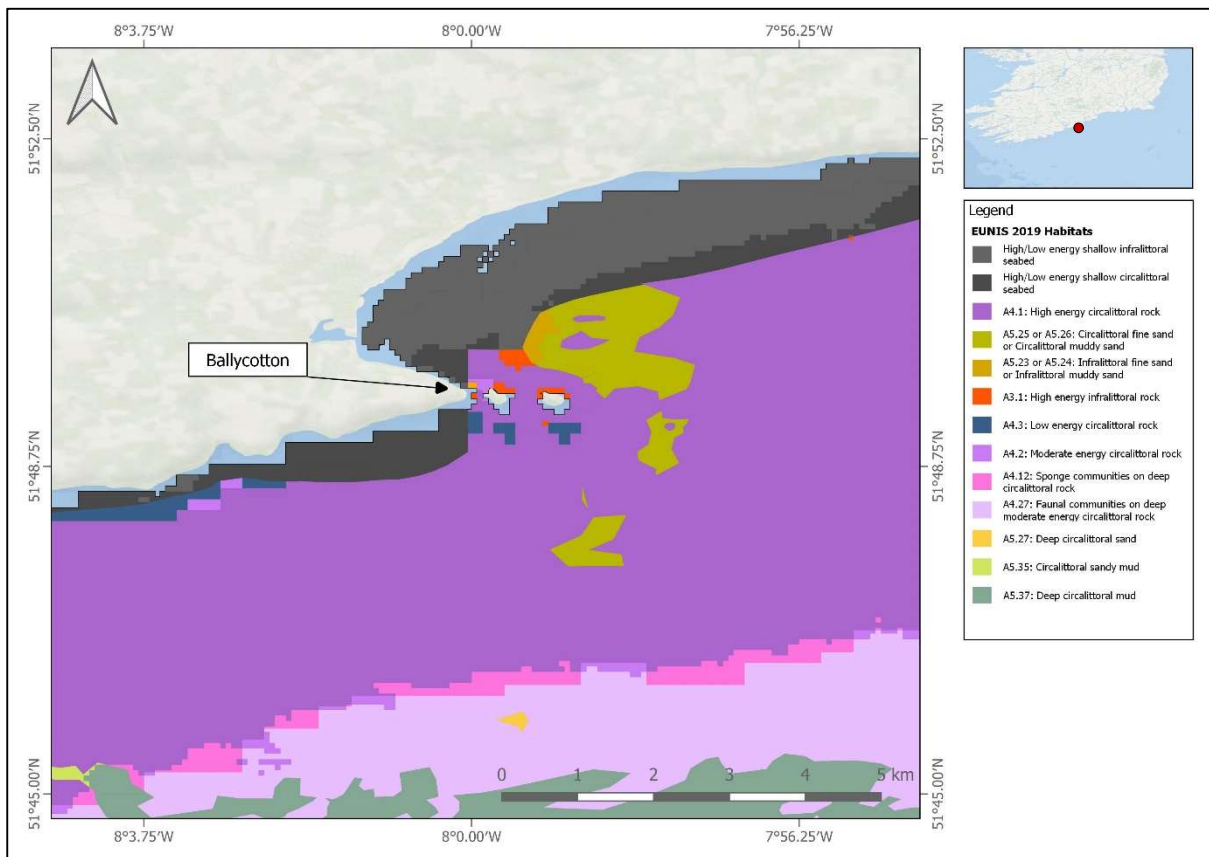


Figure 4-1: Predicted marine benthic habitats in Ballycotton Bay and the surrounding coastal region (EMODnet, 2019; www.emodnet-seabedhabitats.eu).

4.2 Potentially affected Natura 2000 sites

4.2.1 Relevance of Scheme to Management of Natura 2000 Sites

The proposed WwTP and its operations are not directly connected with or necessary to the management of any Natura 2000 site and, as such, does not undertake measures for site conservation management. However, the treatment provided by the WwTP, and the screening of the stormwater outfalls will result in better quality of the effluent with potential for some localised improvement in water quality within Ballycotton Bay SPA. See Section 1.2 for further details of the proposed project. Following the initial AA Screening report, Ballycotton Bay SPA is the only Natura 2000 site that is considered to be impacted by the operational phases of the proposed WwTP.

4.2.2 Ballycotton Bay SPA

The site assessment examined the Flora, Fauna and Habitats protected under the EU Habitats and Birds Directives. Ballycotton Bay supports an excellent diversity of wintering waterfowl and has nationally important populations of eleven species (NPWS, 2014). The Conservation Objectives for Ballycotton Bay SPA can be summarised as follows: To maintain the favourable conservation condition of all QI's including all bird species and the habitats upon which they rely (NPWS, 2022). The QIs for Ballycotton Bay SPA are set out in Table 4-1.

Table 4-1: Qualifying Interests, Key features, and Conservation Objectives identified for the Ballycotton Bay SPA

Ballycotton Bay SPA	
Qualifying Interests (QIs)	Teal (<i>Anas crecca</i>) Ringed Plover (<i>Charadrius hiaticula</i>) Golden Plover (<i>Pluvialis apricaria</i>) Grey Plover (<i>Pluvialis squatarola</i>) Lapwing (<i>Vanellus vanellus</i>) Black-tailed Godwit (<i>Limosa limosa</i>) Bar-tailed Godwit (<i>Limosa lapponica</i>) Curlew (<i>Numenius arquata</i>) Turnstone (<i>Arenaria interpres</i>) Common Gull (<i>Larus canus</i>) Lesser Black-backed Gull (<i>Larus fuscus</i>) Wetlands and Waterbirds
Features of biodiversity note	The principal habitat within this SPA site of approximately 281ha is inter-tidal sand and mudflats. The site comprises two sheltered inlets which receive the flows of a number of small rivers. It supports a range of estuarine habitat types including a formerly lagoonal lake, saltmarsh, sand and mudflats and some shallow marine water. The inter-tidal flats provide the main feeding habitat for the wintering birds. It supports an excellent diversity of wintering waterfowl species, and it is well known location for passage waders in the autumn.

Key planning requirements to protect/restore site integrity

Prevent disturbance to wintering birds; Maintain a high standard of water quality in discharging rivers and transitional coastal zones in bay area; prevent direct loss of estuarine habitats within the SAC; prevent drainage of wetland habitats; prevent contamination or deterioration of estuarine habitats.

Source: Cork County Council (2014) “Cork County Development Plan: Volume 3”
http://corkcocodevplan.com/wp-content/uploads/2017/10/CCDP_Volume_3.pdf

There is potential for impacts to the Ballycotton Bay SPA during the operations of the proposed WwTP with treated effluent being discharged in close proximity to the SPA. Water quality may be impacted by the operations of the proposed WwTP, whilst there may be further indirect impacts to QI habitats and species within the nearby Ballycotton SPA.

4.3 Marine Coastal Fauna

The following information pertains to the specialist ecological surveys conducted at Ballycotton near the existing discharge points (*sensu* Sweeney, 2021). Information pertaining to rocky shore/coastal habitats and the invertebrate communities within is additionally sourced from Fossit (2018), CleanOcean.org (2021), and Healy and McGrath (1998). These species provide a food source for some of the QI’s of the Ballycotton Bay SPA. Therefore, any negative impacts on these species can impact on the Natura 2000 site as it can result in a reduction of the populations of the QIs.

4.3.1 Invertebrate Communities

The dominant habitat documented at the eastern discharge point near Ballycotton harbour comprised exposed intertidal rocky habitats (LR1), and are typified by communities of common mussel (*Mytilus edulis*), barnacles (e.g. *Semibalanus balanoides*, *Chthamalus* spp.) and limpets (*Patella* spp.). Robust algae such as *Corallina officinalis*, *Mastocarpus stellatus* and *Himanthalia elongata*, which are capable of tolerating the physical stresses of wave wash may occur on the lower shore.

The stony shore habitat (LR4) recorded at the western outflow (i.e., Cow Lane Slipway) is a likely habitat for a diverse assemblage of macroalgae, with zonation likely evident. Species likely to occur include channel wrack (*Pelvetia canaliculata*) above spiral wrack (*Fucus spiralis*) on the upper shore, giving way to knotted wrack (*Ascophyllum nodosum*) and/or bladder wrack (*Fucus vesiculosus*) on the mid-shore, and serrated wrack (*Fucus serratus*) on the lower shore. Barnacles or dense aggregations of common periwinkle (*Littorina littorea*) or common mussel may also be present. In summer months, blankets of ephemeral green and red seaweeds (*Enteromorpha*, *Ulva* and *Porphyra* spp.) may also occur.

Exposed circalittoral rock habitats (Habitat Code SR4) are characterised by robust faunal communities that are capable of withstanding strong water movement. Faunal communities within the lower tidal zone typically consist of a range of crustose or low-growing bryozoans, anemones, sponges and hydroids. However, soft coral communities including *Alcyonium digitatum* or sponges with massive growths, such as *Haliclona viscosa* may also be present. Areas that are

subjected to daily current effects are also colonised by hydroids (*Sertularia* spp.), bryozoans (*Flustra foliacea*), anemones (*Urticina felina*), barnacles (*Balanus crenatus*) and calcareous tubeworms (*Pomatoceros triqueter*).

Circalittoral gravels and sands (Habitat Code SS5) are characterised by epifaunal species such as brittlestars (*Amphiura* and *Ophiura* spp.), sea cucumbers (*Neopentadactyla mixta*), polychaete worms, king scallops (*Pecten maximus*), hermit crabs (*Pagurus bernhardus*) and starfish (*Astropecten irregularis*) and infauna such as razor clams (*Ensis* spp.).

Circalittoral muddy sands (Habitat Code SS6) are characterised by a variety of animal communities including, polychaete worms, bivalve molluscs (*Abra alba*, *Nucula nitidosa*), sea urchins (*Echinocardium cordatum*), brittlestars and low densities of seapens (*Virgularia mirabilis*).

4.3.2 Fish communities

The European Commission designated the waters to the south-west of Ireland as a biological sensitive area in 2003 (Council Regulation (EC) No 1954/2003) due to its importance as a nursery and spawning ground to a wide range of species (Marine Institute, 2018). This area encompasses Ballycotton Bay and the surrounding coastal area, whilst the area is identified as a nursery for several commercially important fish species such as cod (*Gadus morhua*), hake (*Merluccius merluccius*), whiting (*Merlangius merlangus*), mackerel (*Scomber scombrus*) and horse mackerel (*Trachurus trachurus*). Ballycotton Bay is also identified as a spawning ground for herring (*Clupea harengus*) and whiting (*Merlangius merlangus*) (Marine Institute, 2018). Several commercial fisheries occur in the area including potting for lobster (*Homarus gammarus*) and brown crab (*Cancer pagurus*), gillnetting for pollack (*Pollachius pollachius*), trawling for whitefish, and pelagic trawling for herring (*Clupea harengus*) and sprat (*Sprattus sprattus*) (Gerritsen and Kelly, 2019; Tully, 2017). The area is also a likely habitat of a number of common marine fish species not supporting directed fisheries which typify such habitats in the Celtic Sea and may include species such as flounder (*Platichthys flesus*), dab (*Limanda limanda*) grey thick lipped mullet (*Chelon labrosus*), ballan wrasse (*Labris bergylta*), or lesser spotted dogfish (*Scyliorhinus canicula*) (Gerritsen and Kelly, 2019).

4.4 Ballycotton Bay Coastal Water

According to the EPA website (www.epa.ie), Ballycotton Bay was classified as “Not at risk” in accordance with the WFD Risk Status (2021) and was classified as “Unpolluted” under the EPA Coastal Waterbody Score system 2018-2020, and the ecological status was reported as “Good” for the 2020 – 2021 reporting period. Considering the continued discharge of effluent from the current sewerage system in place in Ballycotton, any deoxygenation or enrichment of the marine habitat from the existing discharge has evidently been very localised and quickly diluted.. However, in the more recent coastal data on the EPA website, (2015-2018), Ballycotton Bay was classified as “Unassigned”. Any deoxygenation or enrichment of the marine habitat from the existing effluent discharge appears to be localised and quickly diluted (Sweeney, 2018).

Ambient water quality monitoring data (2019-2022) for Ballycotton Bay is provided in Table 4-2, below (information downloaded from Catchments.ie 31/05/23). Comparison with the European

Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019 (S.I. No. 77 of 2019) (SWR) is also shown below.

Table 4-2: Ambient Monitoring Data – Ballycotton Bay.

Parameter	BOD (mg/L)	Dissolved O ² (% Saturation)	Dissolved Inorganic Nitrogen (mg/L)
Number of Samples	5	6	6
Max Concentration	3.3	107.7	1.6
Min Concentration	0.5	97.3	0.018
Median Value	-	-	0.083
Mean value	1.34	102.07	-
95%ile Value	2.92	106.75	-
EQS High Status as per S.I. No. 77/2019	≤ 3.0 (95%ile) ⁽¹⁾	95%ile Lower limit >80-85% Upper limit <115-120%	≤0.585 ⁽³⁾
EQS Good Status as per S.I. No. 77/2019	≤ 4.0 (95%ile) ⁽¹⁾	95%ile Lower limit > 70-80% Upper limit < 120-130%	≤1.425 ⁽³⁾
Overall compliance with relevant EQS High Status	Yes	Yes	Yes

Note 1: Value for transitional water body under S.I. No. 77 of 2019

Note 2: Where data was reported as less than the limit of detection, LOD/2 was applied

Note 3: In the absence of salinity level data, the DIN EQS has been taken as the median value in accordance with S.I. No 77 of 2019

In coastal waters, the main physico-chemical elements assessed are dissolved oxygen (DO) and nitrogen (as dissolved inorganic nitrogen (DIN)). The monitoring data presented in Table 4-3 above indicate that the waters of Ballycotton Bay met the “High status” environmental quality standards set out in the Surface Water Regulations 2009 to 2019. Compliance limits for BOD5 in the water body are not stipulated in the SWR for coastal water bodies. For information purposes, the concentrations of BOD5 have been assessed against the limits as set in the SWR for transitional waters to achieve good/high status, as this would represent the most similar waterbody class. In the above assessment, the ambient water quality monitoring indicates high status under the SWR.

The existing Wastewater Discharge Licence for the Ballycotton agglomeration (no. D0516-01) includes Schedule C.1: Specified Improvement Programme where the specified improvement is described as “Construct a new primary wastewater treatment plant to include inlet screens and appropriately sized primary settlement capacity”. Schedule C.2: Discharges to be Discontinued includes the secondary discharge point SW002. The proposed Ballycotton WwTP will provide inlet screens and primary treatment of wastewater, with treated effluent quality achieving 20 % reduction in BOD and 50 % reduction in Suspended Solids and it will also eliminate the discharge of untreated wastewater at SW001 and SW002 (existing WWDL codes). The Ballycotton WwTP will be operational as of Q4 2024. Both foregoing will result in a betterment of the water quality within Ballycotton Bay and support the objective of the waters continuing to meet the “High Status”

standard in accordance with the European Union Environmental Objectives (Surface Waters) Regulations 2009-2019.

4.5 Avifauna

Bird species were observed within the vicinity of the Ballycotton harbour and the outfall locations. Dominant species observed included Gulls (*Larus spp*), Terns (*Sterna spp.*), Shags (*Phalacroxax aristotelis*), Cormorants (*Phalacroxax carbo*), Herons (*Ardea cinerea*), and Northern diver (*Gavia immer*). A large colony (> 300 individuals) of Gulls and Cormorants were observed upon the western cliff face of the Ballycotton Island, proximal to the Ballycotton lighthouse.

The Site Synopsis for SPA 004022 states, “The inter-tidal flats provide the main feeding habitat for the wintering birds. Salt marshes fringe the flats in the sheltered inlets, and these provide high tides roosts”. There are no suitable bird roosting or nesting habitats in close proximity of the outfall locations. No nesting birds were observed between the Ballycotton pier and the intertidal flats of the Ballycotton SPA (Sweeney, 2021; Hean and Starr, pers. Obs, 2023). Table 4-3 provides a summary of the winter bird counts conducted between 9th February 2023 and the 20th March 2023.

Table 4-3: Summary of Winter Bird count survey data conducted near Ballycotton.

Common Name	Latin name	Average Count	Max Count	QI Species for nearby Natura Site (Y/N)
Wigeon	<i>Anas penelope</i>	37	40	Y
Great Northern Diver	<i>Gavia immer</i>	1	1	N
Diver spp	<i>Gavia spp.</i>	5	7	N
Brent Goose	<i>Branta bernicla hrota</i>	50	82	N
Tern sp.	<i>Sterna sp.</i>	22	34	N
Gull sp.	<i>Larus sp.</i>	232	262	Y
Curlew	<i>Numenius arquata</i>	5	7	Y
Shag	<i>Phalacroxax aristotelis</i>	6	11	N
Cormorant	<i>Phalacroxax carbo</i>	13	18	N
Unidentified Shag/Cormorant	<i>Phalacroxax sp.</i>	29	67	N
Green Sandpiper	<i>Tringa ochropus</i>	3	6	N
Little Egret	<i>Egretta garzetta</i>	2	5	N
Oystercatcher	<i>Haematopus ostralegus</i>	28	46	N
Dunlin	<i>Calidris alpina</i>	26	45	Y
Grey Heron	<i>Ardea cinerea</i>	1	3	N
Bar-tailed Godwit	<i>Limosa lapponica</i>	37	73	Y
Mallard	<i>Anas platyrhynchos</i>	1	2	N
Redshank	<i>Tringa totanus</i>	10	16	Y
Common Sandpiper	<i>Actitis hypoleucos</i>	3	5	N
Great Crested Grebe	<i>Podiceps cristatus</i>	1	2	N
Golden Plover	<i>Pluvialis apricaria</i>	100	300	Y

5 Impact Assessment (Source-Pathway-Receptor Model)

The potential impact zone within which habitats and species could potentially be affected by the proposed development is taken as being the entire designated area of Ballycotton Bay SPA, particularly in areas immediately surrounding the discharge of treated effluent and stormwater. As noted above in Section 4, other Natura 2000 sites in the vicinity of the Upgrade Project have been screened out as they are deemed to be outside of the Zone of Influence of the proposed WwTP and its outfalls, and are, therefore, unaffected by its operation.

5.1 Sources

5.1.1 Discharge of Treated and Screened Effluent

The primary discharge from the proposed Ballycotton WwTP will be to Ballycotton Bay (coastal waterbody, WFD code IE_SW_040_0000). The primary discharge will be via an existing marine outfall (SW004) at the Cow Lane slipway, whilst there is an additional discharge point located near the Ballycotton harbour that the existing outfall at Ballycotton Pier will be used as an emergency/stormwater overflow. It must be noted once again that these discharge points are currently in use and currently discharge untreated effluent into Ballycotton Bay.

5.1.2 Noise and Vibration

No construction works are proposed for the operational phase of the project. The operation of the WwTP and associated pump stations will be the only sources of noise and vibration. The proposed development will not produce underwater noise or vibration emissions during operation.

The permitted noise levels under the planning permission for the propose WwTP granted by Cork County Council are shown below.

The WWTP will be designed and operated to ensure that noise from the plant does not exceed the limits set out below at the site boundary.

Time	Standard (15 min L _{eq})	Time	Standard (15 min L _{eq})
08:00 – 20:00	55 dB(A)	20:00 – 08:00	45 dB(A)

In addition, noise levels at the pumping stations at Ballycotton Pier and Cow Lane will be significantly reduced as the submersible pumps will be located in 4m deep tanks and submersed in liquid. There will be no connectivity from the pumping stations to Ballycotton Bay.

5.2 Pathways

The treated effluent discharge from the WwTP and emergency/stormwater overflow discharge points do not overlap with any Natura 2000 sites. The emergency/stormwater overflow at the Ballycotton pier is ca. 900m to the East of the Ballycotton Bay SPA, whilst the primary discharge point located by the Cow Lane slipway is ca.100m to the East of the Ballycotton SPA boundary. Potential impacts will therefore be imparted directly onto the foreshore and shallow marine environment near the Ballycotton harbour and shingle/rocky habitat near the Cow slipway.

5.3 Receptors

The connectivity of the Ballycotton Bay SPA is assessed below. Habitats and species detailed in Natura 2000 sites identified as sites that are likely to receive impacts from the operation of the proposed WwTP are provided in the sections hereunder. Additionally, any sensitive/protected species/habitats within the immediate vicinity of the proposed works have also been considered.

5.3.1 Potential Impacts to Development Site Habitats

The proposed development will not result in any loss of habitat within SPA 004022, nor will it have any significant impact on the availability of open ground on which wading birds could roost at high tide. It is considered there will not be any significant impacts on the Features of Interests of the SPA arising from habitat loss as a result of the operations of the proposed WwTP.

5.3.1.1 Potential Impacts from Eutrophication

The WwTP has been designed and specified to ensure that the final effluent will be to a higher standard in comparison to the current situation, even with the screened discharge from the emergency/stormwater outfalls, which will only occur on an infrequent basis. Information on coastal water quality and coastal waterbodies risk on the EPA website indicates that in the recent past, the existing discharges are not having a significant impact on water quality in that there was no impact on the unpolluted status of Ballycotton Bay and the Ballycotton WwTP has not been identified as a pressure to this Ballycotton Bay waterbody under the second cycle of the Water Framework Directive. The information is included in Appendix E. The reduction in the concentration of plant nutrients in the discharge at operational phase of the project will therefore not have any significant effects on eutrophication.

While domestic and urban wastewater discharges are noted in the Conservation Objectives Supporting Document for the Ballycotton Bay SPA (NPWS, 2014), they are not highlighted as activities that have the potential to cause disturbance to waterbirds. It is therefore unlikely that the food resources of waterbirds in Ballycotton Bay will be negatively affected. Furthermore, considering the quality of current wastewater discharge into Ballycotton Bay, it must be highlighted that the winter bird counts (2023) revealed that the mudflats and sandflats of the Ballycotton Bay are frequented by high numbers of waterbirds, including several protected species (e.g., Wigeon, Brent Geese, Whimbrel, and Dunlin). Consequently, an improvement in the quality of wastewater discharge under the proposed development operational phase is highly unlikely to negatively impact the food resources or foraging habitats of bird species within Ballycotton Bay. The resulting impacts of these changes will be long-term positive but will not

have any significant effects on the favourable conservation status of the qualifying interests or on the conservation objectives of Ballycotton Bay SPA. The long-term population growth for this area has been accounted for, therefore ensuring that an increase in discharge will not have a larger negative effect on the receiving water local to the outfalls.

5.3.1.2 Coastal Habitats and Marine Fauna.

The operation of the proposed WwTP will result in a significant reduction in the input of suspended solids (50 % reduction) to the marine environment and a significant reduction in cBOD (20 % reduction). The reduction in the concentration of these parameters have varying impacts on marine species, dependent on species and its biology. These coastal habitats and marine fauna provide foraging and feeding opportunities for the QI's of Ballycotton Bay SPA. The projected reduction in suspended solids may lead to a small and localised increase in water clarity, facilitating the growth of epifaunal macroalgae in the immediate vicinity and where the sediment permits attachment, providing further habitat/refugia for juvenile fish and crustaceans. The reduction in suspended solids may have negative consequences for suspension feeding organisms (e.g., mussels (*Mytilus edulis*)). Most marine fauna are sensitive to de-oxygenation and thus will benefit from a reduction in cBOD (Jessen, et al., 2015).

While the possible effects on the individual species are complex, the overall impact of the development will have a **net positive impact** on the coastal and marine ecosystems which support the QIs of Ballycotton Bay SPA, particularly wading birds. Reductions in cBOD and suspended solids have positive impacts on species richness, biodiversity and ecosystem functioning (Jessen, et al., 2015). Larger, long-lived species (demersal fish, macrobenthos and suspension feeders) are generally more sensitive to decreased oxygen availability. Reductions in populations of these species can result in reduced prey availability to species, including intertidal bird species such as those listed as QI's, as well as species occupying higher trophic levels such as larger predatory fish and marine mammals.

5.4 Summary of SPA Qualifying Interests

The likely presence of each Natura 2000 habitat and species within or adjacent to the proposed WwTP as well as the assessment of connectivity are summarised in Table 5-1 below. Those habitats and species that are either 1) definitely, 2) probably, or 3) possibly present and those which have connectivity to the discharge points are screened in for further consideration in this report. Those not present/with no connectivity are screened out for further assessment. The potential for impacts on the following species which are known to be present or are possibly present within the zone of potential impact must be considered in this screening assessment.

5.4.1 Ballycotton Bay SPA Features of Interest

As stated in the Site Synopsis for Ballycotton Bay SPA, “The inter-tidal flats provide the main feeding habitat for the wintering birds. Salt marshes fringe the flats in the sheltered inlets and these provide high tides roosts”. The treated/screened effluent from the marine outfalls will have no impact on habitats that are suitable for the bird species listed as Features of Interest of Ballycotton Bay SPA. The section of upper shoreline between the outfall and the SPA boundary consists mainly of ridges of exposed bedrock, with some patches of shingle at the top of the shore

(Appendix B). No nesting birds were seen here and it is considered that the patches of shingle close to the proposed outfall location are currently subject to too much regular human disturbance to be of use to ground-nesting birds.

Results of the bird counts carried out, in 2018/19 and 2023, at the Cow slipway, located approximately 85m from the slipway on the edge of Ballycotton Bay SPA, are presented in the Bird Survey reports in Appendix E. The limited suitability of the stony shore habitat (Appendix B) in this corner of the SPA for roosting or foraging birds is reflected in the count results. A variety of bird species were recorded. Of these, the following five are Features of Interest on Ballycotton Bay SPA: Ringed Plover (*Charadrius hiaticula*), Curlew (*Numenius arquata*), Common Gull (*Larus canus*), Lesser Black-backed Gull (*Larus fuscus*), Golden Plover (*Pluvialis apricaria*), Grey Plover (*Pluvialis squatarola*), and Wigeon (*Anas Penelope*).

5.4.2 Potential Impacts from Habitat Loss

The proposed WwTP will not result in direct physical disturbance of the seabed because there will be no change to the existing outfalls. The intertidal and shallow subtidal macroinvertebrate communities in Ballycotton Bay will therefore not experience any negative impacts from the discharge of treated effluent. It is considered that significant impacts on the QIs of the Ballycotton Bay SPA arising from habitat loss can be screened out.

5.4.3 Potential Impacts from Noise

The operation of the WwTP and associated pump stations will be the only sources of noise and vibration. The proposed development will not produce underwater noise or vibration emissions during operation. Noise emissions from WwTP during daytime operations will be approximately 55 dB, whilst noise emissions during nighttime operations will be approximately 45 dB. . Considering that the guidelines for ambient noise levels is 55dB (British Standards Institution, BS 5228-1:2009+A1:2014), noise emissions from the daily operations of the proposed discharge of treated effluent do not exceed ambient noise levels. Impacts from noise emissions during the operational phase of the development is therefore considered highly unlikely.

Table 5-1: Summary of Potential Impacts to SPA habitats or QI species with connectivity to the Proposed Outfalls

SPA	Process/Emission	Source of Impact	Impact Effects	Likelihood of significant effect	Comments
Ballycotton Bay SPA	Discharge of Treated effluent	Treated effluent discharge, screened effluent discharge, stormwater discharge	Deterioration in water quality, habitat degradation, loss of prey resources	Unlikely	The current water quality at this location is 'Good'. The operation of the WwTP will mean effluent will undergo primary treatment. This will improve the quality of the final effluent which will contribute to the improvement of waterbody status. Moreover, the screening of stormwater and emergency effluent is unlikely to impact on the waterbody status. Impacts are therefore considered Unlikely.
	Noise Emissions	Operation of the plant and its associated pump stations	Noise and vibration impacts may cause disturbance of individuals that will most likely vacate the immediate area	Unlikely	The discharge of treated effluent will not result in noise emissions that exceed the recommended ambient noise and vibration levels (see Section 5.4.3, above). Impacts are therefore considered Unlikely.

5.5 Cumulative Impacts

It is a requirement of AA that the cumulative or in-combination effects of the proposed development together with other plans or projects are assessed. Cumulative impacts can be defined as a project/plan/programme likely to have a significant effect thereon, either individually or in combination with other plans or projects.

The following sources were consulted in order to determine if there were any other plans or projects in the area which could result in cumulative impacts⁴:

- Department of Housing, Local Government and Heritage (DHLGH) – Foreshore Applications <https://www.housing.gov.ie/planning/foreshore/applications/>
- DHPLG EIA Portal <https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal>
- Cork County Council - Planning System <https://www.corkcoco.ie/en/resident/planning-and-development>

Table 5-2 overleaf provides a list of the plans/projects in the immediate vicinity of the proposed development works, which have the potential to interact. Each plan/project is assessed in terms of the likelihood for in-combination impacts to lead to significant negative effects on Natura 2000 sites.

Only those applications which give rise to potential impacts to the QI habitats and species within the corresponding SPAs have been addressed in previous sections. All other committed/approved developments are for individual residential properties, all of which are not considered to be a risk of in-combination effects given that none will involve further modification of the SPA.

Table 5-2: Assessment of In-combination Effects

Plan/Project (Date); Approval Status	Overview	Potential significant effects from plan/project	Potential in-combination effects
Local			
Foreshore licence granted. AA screening Determination made. Contractor appointed. Works to commence in summer of 2023 and be completed in advance of the WwTP becoming operational.	Dredging of the Ballycotton Harbour	<p>Given the nature of the proposed dredging works, several cumulative impacts and/or in-combination impacts could occur including:</p> <ul style="list-style-type: none"> • Direct loss of habitat from dredging and construction works within the Ballycotton harbour and foreshore region of works. • Damage / degradation of habitats and disturbance to species due to dredging and development activities proximal to the marine environment. • Impacts to marine water quality (increased turbidity, increased nutrient loading, hydrocarbon spills, etc). • Displacement/loss of marine invertebrates and fish species • Medium to Long term impact include prolonged turbidity of the water column in the immediate area surrounding the Ballycotton harbour, further potentially impacting fish species and marine mammals. 	The dredging works will encompass the removal of a large volume of sediments from the Ballycotton harbour. The dredging works will result in the removal of benthic sediment, fauna, as well as a significant increase in turbidity and nutrient influx into the water column. A NIS was prepared for the proposed dredging works. The NIS concluded that the mitigation measures detailed in the NIS are appropriate and sufficient to avoid significant adverse effects on the Conservation Objectives of any Natura 2000 site/s alone or in-combination with other projects and plans. The proposed dredging works are programmed to take place in advance of WwTP becoming operational. There is no potential for cumulative impacts .
Cork County Council Planning Applications past 3 years (Decision due date from 2020 onwards)			
Planning Ref: 224884;	Demolition of part of an existing dwelling and complete demolition of a shop, construction of a two storey semi-detached dwelling in its place and all associated site work;	<p>Potential for:</p> <ul style="list-style-type: none"> • Sediment run-off into the marine environment 	Considering the location of the proposed works and the extent of the works, the likelihood of significant effects to impact the SPA and/or the marine environment

Plan/Project (Date); Approval Status	Overview	Potential significant effects from plan/project	Potential in-combination effects
Granted / Conditional 08/08/2020	Modifications to existing dwelling house, consisting of the construction of 6 dormer windows, proposed changes to windows at the rear of the house, internal modifications and all associated site works	<ul style="list-style-type: none"> Contaminated surface water run-off / hydrocarbon spills 	is low. There is no potential for cumulative impacts
Planning Ref: 214483; Under Review for approval	Construction of a sewerage scheme and associated ancillary site development works for the village of Ballycotton. The scheme consists of the following components: 1. Construction of a proposed Waste Water Treatment Plant (WWTP) with associated and ancillary development works including an access road, inlet works, tanks, kiosks, pumping stations and perimeter boundary fence. 2. Access track from Church Road (the L-3633) public road to the WWTP site. 3. A proposed gravity sewer to convey flows from Cliff Road to existing sewer at Atlantic Terrace. 4. The Pier Pump Station (PS), a proposed underground pumping station and associated infrastructure at Ballycotton Pier, including an underground pump sump, underground storm water storage tank, kiosks, surge vessel and an adjacent temporary working area. 5. A proposed rising main to convey flows from the Pier PS to a header manhole on Main Street. 6. A proposed gravity sewer to convey flows from the header manhole to the existing gravity sewer on Main Street. 7. A proposed gravity sewer to convey flows from the existing gravity	The proposed works are located < 1 km from the boundary of the Ballycotton SPA. Potential impacts include; <ul style="list-style-type: none"> Sediment run-off into the marine environment Contaminated surface water run-off / hydrocarbon spills Noise and human presence disturbance to bird species 	An NIS was prepared for the proposed sewerage scheme upgrade works. The NIS concluded that if all mitigation measures detailed in the NIS are implemented in full, there will be no adverse effects of the proposed development on the Features of Interest of SPA 004022 and therefore no adverse effects on the Conservation Objectives and site integrity of this Natura 2000 site (Ballycotton SPA). There is no potential for cumulative impacts.

Plan/Project (Date); Approval Status	Overview	Potential significant effects from plan/project	Potential in-combination effects
	<p>sewer on Main Street to the proposed pump station at The Cow Slipway. 8. The Cow Pump Station (PS), a proposed underground pumping station with associated infrastructure at The Cow Slipway including an underground pump sump, underground storm water storage tank, kiosks, and surge vessel. 9. A proposed rising main to convey flows from the proposed Cow PS, to the WWTP. 10. A proposed gravity sewer to convey treated effluent from WWTP to existing outfall. 11. Upgrade of the public watermain along public roads (Cliff Road and Main Street). 12. Demolition of existing toilet block at Ballycotton Pier. 13. Construction of new toilet block at Ballycotton Pier. 14 . All associated ancillary site development works above and below ground.</p>		
<p>Planning Ref: 217119; Granted 21/01/2022</p>	<p>To demolish an existing single storey dwelling and to construct a single and two storey three-bedroom dwelling, new site entrance and access ramp, site contouring, retaining and boundary walls, connection to public sewer and all associated site works.</p>	<p>The proposed works are located < 1 km from the boundary of the Ballycotton SPA.</p> <p>Potential impacts include;</p> <ul style="list-style-type: none"> • Sediment run-off into the marine environment • Contaminated surface water run-off / hydrocarbon spills • Noise and human presence disturbance to bird species 	<p>Considering that the proposed planning works have been completed, there is no potential for cumulative impacts with the operation of the proposed WwTP near Ballycotton harbour.</p>

5.6 Impact Prediction

It has been deemed that the operation of the WwTP will not have a ‘significant negative impact’ on the conservation objectives of the Ballycotton Bay SPA either individually or in combination with other plans or projects. The structure and function of the habitats protected for the QI’s of Ballycotton Bay SPA will not be impacted by the works. Overall, no significant effects on either SPA are foreseen and indeed, a slight positive effect is predicted. The treatment provided by the proposed WwTP will likely result in a betterment of water quality. Effects of discharge during the operational phase of the project from the proposed upgrades will therefore have imperceptible impact on habitats and species listed within Ballycotton Bay SPA.

6 References

- CIEEM. 2018. The Guidelines for Ecological Impact Assessment in the UK and Ireland. <https://cieem.net/wp-content/uploads/2018/08/ECIA-Guidelines-2018-Terrestrial-Freshwater-Coastal-and-Marine-V1.1Update.pdf>
- EMODnet. 2019. EMODnet broad-scale seabed habitat map for Europe (v2019), licensed under CC-BY 4.0 from the European Marine Observation and Data Network (EMODnet) Seabed Habitats initiative (www.emodnet-seabedhabitats.eu), funded by the European Commission.
- EPA. 2015. Water Quality in Ireland Report 2010-2012. EPA, Wexford, Ireland.
- Fossitt, J.A. 2000. A Guide to Habitats in Ireland. The Heritage Council.
- Gerritsen, H.D. and Kelly, E. 2019. Atlas of Commercial Fisheries around Ireland, third edition. Marine Institute, Ireland. ISBN 978-1-902895-64-2. 72 pp.
- Healy, B. & McGrath, D. 1998. Marine fauna of county Wexford, Ireland: The fauna of rocky shores and sandy beaches. Irish Fisheries Investigations No. 2, Marine Institute, Ireland.
- Jessen, et al., 2015. Chapter 11; Marine Eutrophication. In: Coral Bleaching, pp.27.
- Marine Institute. 2018. Species Spawning and Nursery Area Dataset. <https://data.gov.ie/dataset/species-spawning-and-nursery-areas>, [Accessed 28/05/21].
- Newell, R. C., Seiderer, L. J., and Hitchcock, D. R. 1998. The impact of dredging works in coastal waters: a review of the sensitivity to disturbance and subsequent recovery of biological resources on the seabed. *Oceanography and Marine Biology: an Annual Review of Ecology and Systematics*, 36: 127–178.
- NPWS (2014a) Ballycotton Bay SPA (Site Code 4022) Conservation Objectives Supporting Document. Version1 .August 2014.
- Sweeney, P. 2021. Habitats Directive Appropriate Assessment Report (Screening and Natura Impact Statement) for a Proposed Waste Treatment Facility for Ballycotton Agglomeration.
- Tully, O., (2017). Atlas of Commercial Fisheries for Shellfish around Ireland. Marine Institute, March 2017. ISBN 9781902895611, 58pp.

Appendix A – EPA Determination

Appropriate Assessment Screening Determination

In accordance with Regulation 42(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 as amended, the Agency has undertaken Appropriate Assessment screening to assess, in view of best scientific knowledge and the conservation objectives of the site, if the waste water discharges, individually or in combination with other plans or projects is likely to have a significant effect on a European Site. In this context, particular attention was paid to the European Site listed below.

Consent Details:

Reg. No.	D0516-02
Applicant Name:	Uisce Éireann
Type of Consent Sought:	Review Waste Water Discharge Licence
Location of agglomeration:	Ballycotton, Co. Cork
Licence Review Application Date:	09/11/2022
European Site(s) assessed:	Ballycotton Bay SPA (Site Code: 004022)
Date of AA Screening Determination:	02/03/2023

AA Screening Determination:

That the waste water discharges are not directly connected with or necessary to the management of any European site and that it cannot be excluded, on the basis of objective information, that the waste water discharges, individually or in combination with other plans or projects, will have a significant effect on any European site and accordingly determined that an Appropriate Assessment of the waste water discharges is required, and for this reason determined to require the applicant to submit a Natura Impact Statement.

This determination has been made in light of the following reasons:

- The qualifying interests of Ballycotton Bay SPA include water dependent habitats/species.
- Due to the potential for impacts from waste water discharges on the water dependent qualifying habitats and species of Ballycotton Bay SPA as a result of proximity (c. 100 m distance) and they are hydrologically connected.

Documents relating to the licence review application are available on the Agency's website at www.epa.ie



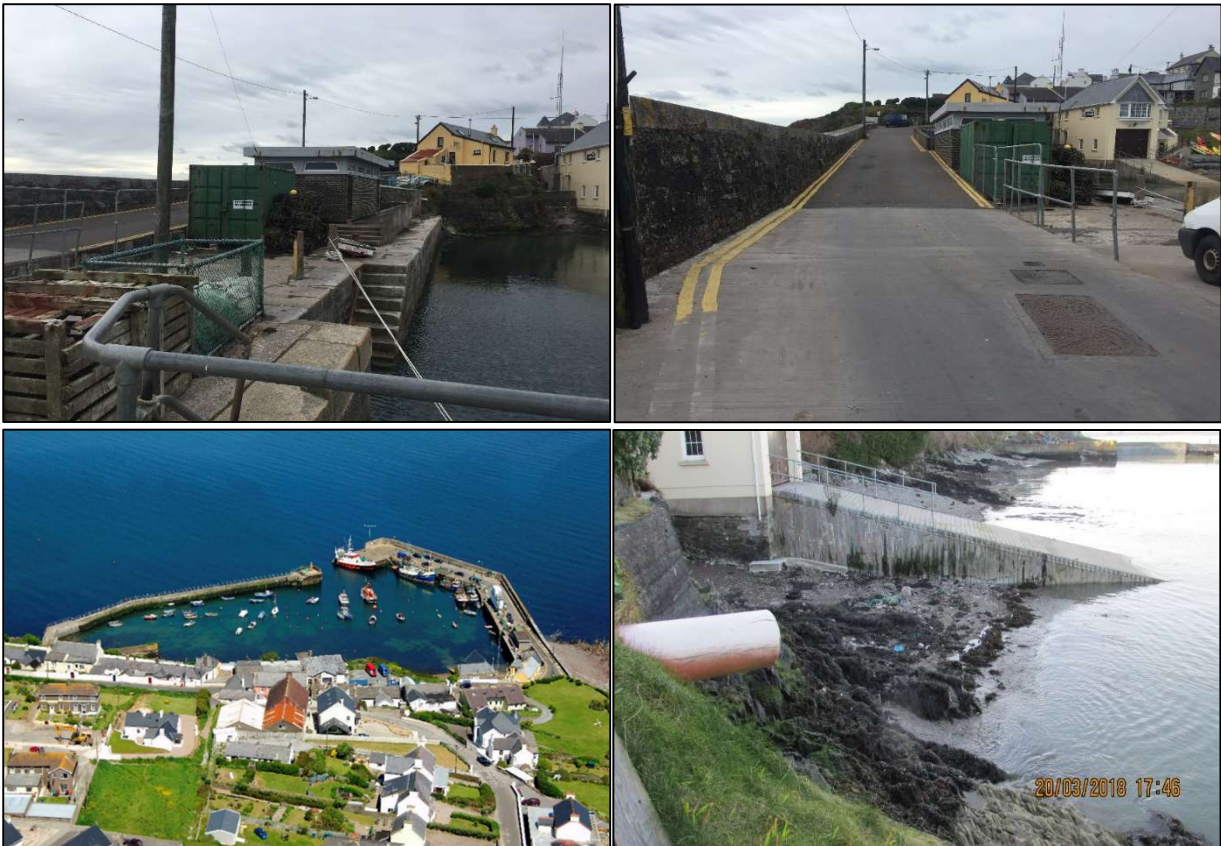
Aimie Cranch
Office of Environmental Sustainability

Date: 02/03/2023

Appendix B – Site Photos



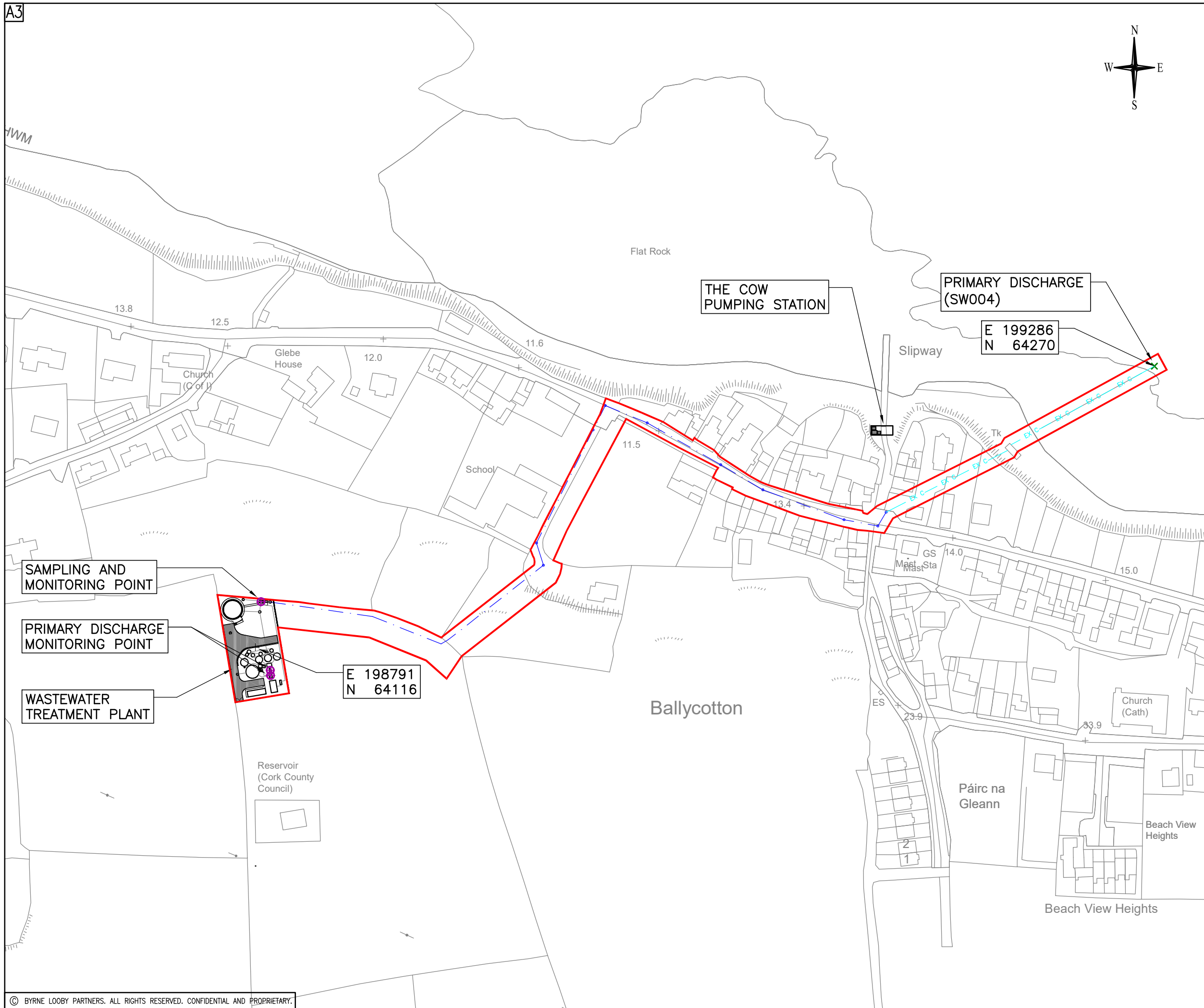
Views of the existing discharge point at the Cow Lane slipway and immediate surrounding area.



Views of Ballycotton harbour pier and surrounding landscape.

Appendix C – Outfall Locations

A3



GENERAL NOTES

NOTES:

1. ORDNANCE SURVEY IRELAND LICENCE NUMBER EN 3-3-34.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.

LEGEND:

- SITE BOUNDARY —
- PRIMARY DISCHARGE POINT AND SWO ✕
- PRIMARY DISCHARGE SAMPLING, AND MONITORING POINT ⊕

Rev	Date	Description	By	Chk	App
F1	26.09.22	ISSUED FOR LICENCE APPLICATION	LT	OL	KT
FO	31.05.21	ISSUED FOR LICENCE APPLICATION	LT	OL	KT

BYRNE LOOBY

2100 Cork Airport Business Park, Kinsale Road, Cork
 tel: +353 (0) 21 2407988
 email: cork@ByrneLooby.com www.ByrneLooby.com

BAHRAIN • IRELAND • QATAR • SAUDI ARABIA • UAE • UK
 CIVIL-STRUCTURAL WATER & GEOTECHNICAL SPECIALISTS

ARUP

Arup,
 One Albert Quay
 Cork
 Tel +353(0)21 422 3200
 www.arup.com

CLIENT
 Obair i gcomhpháirtíocht
 Working in Partnership



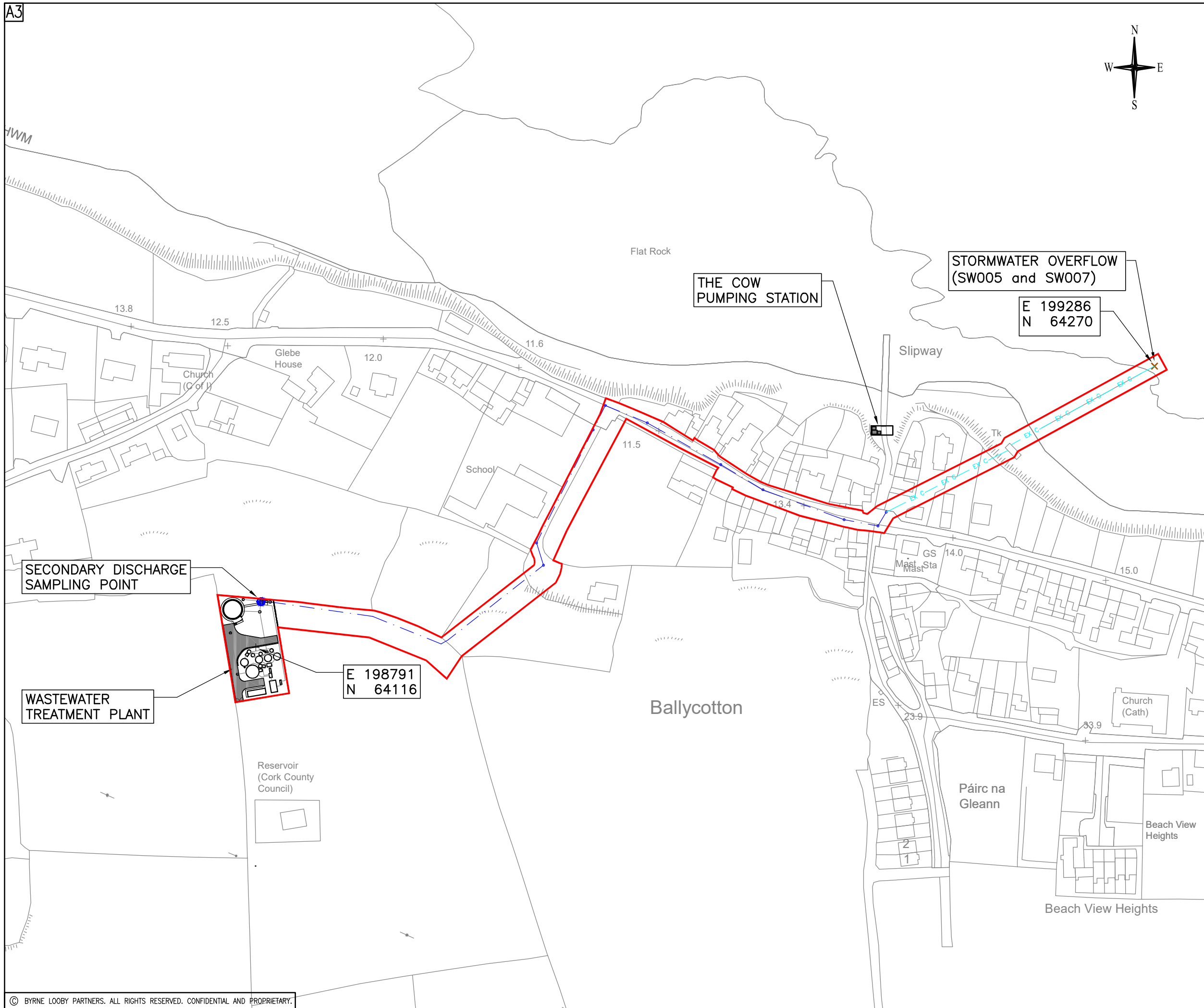
PROJECT
**UTAS – CORK BUNDLE
 BALLYCOTTON SEWERAGE SCHEME**

DRAWING TITLE
**DISCHARGE LICENCE APPLICATION
 ATTACHMENT B.2.2
 PRIMARY DISCHARGE POINTS**

STATUS
FOR LICENCE APPLICATION

Date: 28.07.22	Scale: 1:2000	Drawn: LT	Chk: OL	App: KT
Project No: 257589_00	Drg. No: IW10015230-03-02-004	Rev:		F1

A3



GENERAL NOTES

NOTES:

1. ORDNANCE SURVEY IRELAND LICENCE NUMBER EN 3-3-34.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.

LEGEND:

- SITE BOUNDARY —
- SECONDARY DISCHARGE POINT ✕
- SECONDARY DISCHARGE MONITORING POINT ⊕

Rev	Date	Description	By	Chk	App
F1	26.09.22	ISSUED FOR LICENCE APPLICATION	LT	OL	KT
FO	25.05.21	ISSUED FOR LICENCE APPLICATION	LT	OL	KT

BYRNE LOOBY
 2100 Cork Airport Business Park, Kinsale Road, Cork
 tel: +353 (0) 21 2407988
 email: cork@ByrneLooby.com www.ByrneLooby.com

BAHRAIN • IRELAND • QATAR • SAUDI ARABIA • UAE • UK
 CIVIL-STRUCTURAL-WATER & GEOTECHNICAL SPECIALISTS

ARUP
 Arup,
 One Albert Quay
 Cork
 Tel +353(0)21 422 3200
 www.arup.com

CLIENT

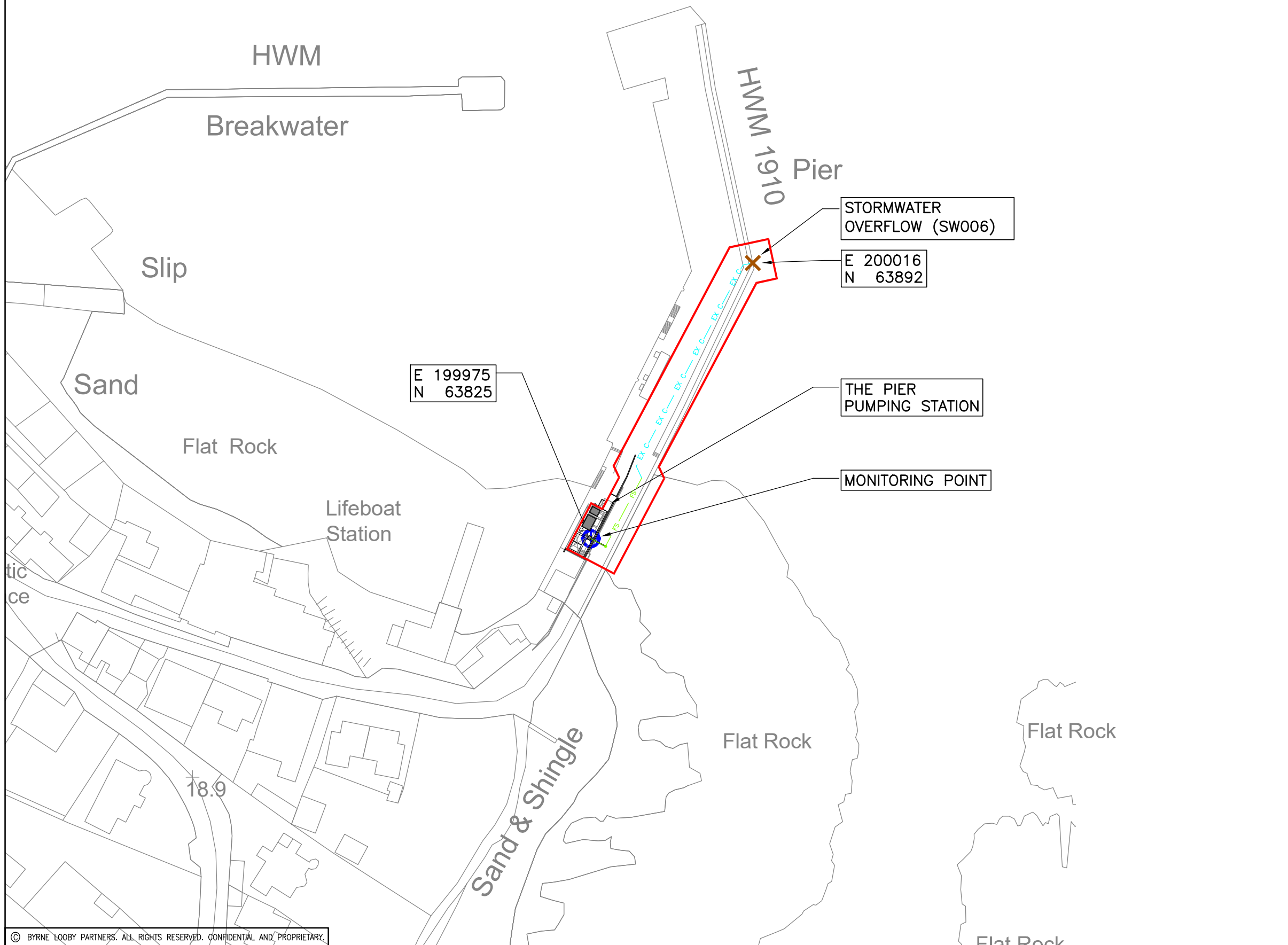
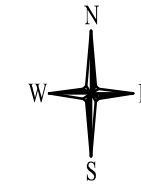
Obair i gcomhpháirtíocht
 Working in Partnership

PROJECT
**UTAS – CORK BUNDLE
 BALLYCOTTON SEWERAGE SCHEME**

DRAWING TITLE
**DISCHARGE LICENCE APPLICATION
 ATTACHMENT B.2.2
 STORMWATER OVERFLOWS**

STATUS
FOR LICENCE APPLICATION

Date: 25.05.21	Scale: 1:2000	Drawn: LT	Chk: OL	App: KT
Project No: 257589_00	Drg. No: IW10015230-03-02-005	Rev:		F1



GENERAL NOTES

NOTES:

1. ORDNANCE SURVEY IRELAND LICENCE NUMBER EN 3-3-34.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.

LEGEND:

- SITE BOUNDARY —
- SECONDARY DISCHARGE POINT ✕
- SECONDARY DISCHARGE MONITORING POINT ⊕

Rev	Date	Description	By	Chk	App
F1	26.09.22	ISSUED FOR LICENCE APPLICATION	LT	OL	KT
FO	31.05.21	ISSUED FOR LICENCE APPLICATION	LT	OL	KT

BYRNE LOOBY

2100 Cork Airport Business Park, Kinsale Road, Cork
 tel: +353 (0) 21 2407988
 email: cork@ByrneLooby.com www.ByrneLooby.com

BAHRAIN • IRELAND • QATAR • SAUDI ARABIA • UAE • UK
 CIVIL-STRUCTURAL-WATER & GEOTECHNICAL SPECIALISTS

ARUP

Arup,
 One Albert Quay
 Cork
 Tel +353(0)21 422 3200
 www.arup.com

CLIENT
 Obair i gcomhpháirtíocht
 Working in Partnership



PROJECT
**UTAS – CORK BUNDLE
 BALLYCOTTON SEWERAGE SCHEME**

DRAWING TITLE
**DISCHARGE LICENCE APPLICATION
 ATTACHMENT B.2.2
 STORMWATER OVERFLOWS**

STATUS
FOR LICENCE APPLICATION

Date: 31.05.21	Scale: 1:1000	Drawn: LT	Chk: OL	App: KT
Project No: 257589_00	Drg. No: IW10015230-03-02-005A	Rev:		F1

Appendix D – Impact Assessment Report

1. Introduction

This Report provides a summary of the Impact Assessment, prepared to determine the impact of the discharges from the Ballycotton agglomeration on the receiving waterbody (Ballycotton Bay IE_SW_040_0000) once the proposed upgrade to the Ballycotton Sewerage Scheme becomes operational.

Currently wastewater is collected in Ballycotton’s public sewer network and is discharged through two existing outfalls to Ballycotton Bay with little or no treatment. By eliminating the discharge of untreated wastewater into Ballycotton Bay, the proposed Ballycotton Sewerage Scheme will improve the water quality in Ballycotton Bay in relation to environmental quality standards and WFD status and will comply with the Urban Wastewater Treatment Directive by providing primary treatment.

The proposed Ballycotton Waste Water Treatment Plant (WwTP) will provide primary treatment of wastewater, with treated effluent quality achieving the emission limit values set out below in accordance with the existing wastewater discharge licence (no. D0516-01) and the Urban Wastewater Treatment Directive.

Parameter	Units	Emission Limit Value
CBOD	mg/l	20% reduction
Suspended Solids	mg/l	50% reduction

2. Water Environment

The primary discharge from the proposed Ballycotton WwTP will be to Ballycotton Bay (coastal waterbody, WFD code IE_SW_040_0000). The primary discharge will be via an existing marine outfall (SW004). The EU Water Framework Directive (WFD) has established a Framework for the protection, improvement and management of surface water and groundwaters. The EPA website (www.epa.ie) indicated that Ballycotton Bay was classified as “*Not at risk*” in accordance with the WFD 2013-2018 Risk Status and the ecological status is noted as “Good” (2013-2018).

The WFD objective for Ballycotton Bay is to achieve “Good” status by 2027.

Ballycotton Bay has not been identified as a significant pressure and does not have high ecological status objectives.

Recent ambient monitoring data (2019-2022) for Ballycotton Bay is shown in the table below. The data presented below is based on chemistry monitoring data for Ballycotton Bay (downloaded from Catchments.ie 31/05/22)⁽³⁾. Comparison with the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019 (S.I. No. 77 of 2019) (SWR) is also shown below.

Parameter	BOD (mg/l)	Dissolved Oxygen (% Saturated)	Dissolved Inorganic Nitrogen (mg/l)
Number of Samples	5	6	6
Max result	3.3	107.7	1.6
Min result	0.5	97.3	0.018
Median Value	-	-	0.083
Mean Value	1.34	102.07	-
95%ile Value	2.92	106.75	-
EQS High Status as per S.I. No. 77/2019	Not Applicable	95%ile Lower limit >80-85% Upper limit <115-120%	≤0.585 ⁽²⁾
EQS Good Status as per S.I. No. 77/2019	Not Applicable	95%ile Lower limit >70-80% Upper limit <120-130%	≤1.425 ⁽²⁾
Overall compliance with relevant EQS High Status	Not applicable	Yes	Yes

Table D.2.1.1 – Ambient Monitoring Data – Ballycotton Bay

Note 1: Where data was reported as less than the limit of detection, LOD/2 was applied

Note 2: In the absence of salinity level data, the DIN EQS has been taken as the median value in accordance with S.I. No 77 of 2019

In coastal waters, the main physico-chemical elements assessed are dissolved oxygen (DO) and nitrogen (as dissolved inorganic nitrogen (DIN)).

The monitoring data presented in Table D.2.1.1 above indicates that the waters of Ballycotton Bay met the “High status” environmental quality standards set out in the SWR in the period 2019-2022.

Compliance limits for BOD₅ in the water body are not stipulated in the SWR for coastal water bodies. For information purposes, the concentrations of BOD₅ have been assessed against the limits as set in the SWR for transitional waters to achieve good/high status, as this would represent the most similar waterbody class. In the above assessment, the ambient water quality monitoring indicates high status under the SWR.

The existing Waste Water Discharge Licence for the Ballycotton agglomeration (no. D0516-01) includes Schedule C.1: Specified Improvement Programme where the specified improvement is described as “*Construct a new primary waste water treatment plant to include inlet screens and appropriately sized primary settlement capacity*”. Schedule C.2: Discharges to be Discontinued includes the secondary discharge point SW002.

The proposed Ballycotton WwTP will provide inlet screens and primary treatment of wastewater, with treated effluent quality achieving 20% reduction in BOD and 50% reduction in Suspended

Solids and it will also eliminate the discharge of untreated waste water at SW001 and SW002 (existing WWDL codes). The Ballycotton WwTP will be operational as of Q4 2024. Both of the foregoing will result in a betterment of the water quality within Ballycotton Bay and support the objective of the waters continuing to meet the “High Status” standard in accordance with the European Union Environmental Objectives (Surface Waters) Regulations 2009-2019.

There are several SPAs and SACs in proximity to the proposed sewerage scheme. These are as follows:

- Ballycotton Bay Special Protection Area (SPA 004022), located within 70m of the discharge point.
- Ballymacoda Bay Special Protection Area (SPA 004023), located approximately 10km from the subject site when measured as a straight line and 14km when measured along an aqueous pathway by the coastline.
- Ballymacoda Bay Special Area of Conservation (SAC 000077), located over 8km from the subject site when measured as a straight line and approximately 14km when measured along an aqueous pathway by the coastline.
- Cork Harbour Special Protection Area (SPA 004030), located over 11km from the subject site when measured as a straight line and approximately 23km when measured along an aqueous pathway by the coastline.
- Great Island Channel Special Area of Conservation (SAC 001058), located approximately 12km from the subject site when measured as a straight line and approximately 31km when measured along an aqueous pathway by the coastline.

Of the five sites listed above as being within 15km of the subject site, the nearest hydrologically connected designated site is Ballycotton Bay Special Protection Area (SPA 004022) which is located within 70m of the WWTP primary discharge point (SW004), the WWTP combined emergency/ stormwater overflow (SW005) and the Cow Pumping Station combined emergency/stormwater overflow (SW007).

As stated in the Site Synopsis for SPA 004022, “The inter tidal flats provide the main feeding habitat for the wintering birds. Salt marshes fringe the flats in the sheltered inlets and these provide high tides roosts”

The proposed development will not result in any loss of habitat within SPA 004022, nor will it have any significant impact on the availability of open ground on which wading birds could roost at high tide. It is considered that significant impacts on the Features of Interests of the SPA arising from habitat loss can be screened out.

Please refer to Section 4 of this impact assessment for further information on potential impacts on nearby Natura 2000 Sites.

There are no designated nutrient sensitive areas or candidate nutrient sensitive areas in Ballycotton Bay under the Urban Waste Water Treatment Regulations, 2001, as amended.

3. Water Quality

The proposed Ballycotton WwTP will provide primary treatment of wastewater, with treatment effluent quality achieving 20% reduction in BOD and 50% reduction in Suspended Solids.

As noted in section 1 of this Impact Assessment Report, wastewater in the Ballycotton agglomeration is currently discharged untreated to Ballycotton Bay via two separate outfalls which serve two separate wastewater networks.

As part of the proposed Ballycotton Sewerage Scheme, the two existing wastewater networks will be rerouted to the proposed WwTP which will provide primary treatment before discharging treated effluent via a single marine outfall (SW004). Therefore, once the proposed sewerage scheme is operational, the quantity of BOD and Suspended Solids being discharged to Ballycotton Bay from the agglomeration will be reduced. However, as (SW004) will now be serving a larger population equivalent, an increased level in BOD and Suspended Solids will occur at SW004 locally.

Based on predicted 10-year design PE, the overall BOD discharge to Ballycotton Bay will reduce from 60.8kg/d (2016) to 51.9kg/d (2026) and the discharge at the primary discharge (SW004) will increase from 30.4kg/d (2016) to 51.9kg/d (2026).

The above assessment is based on a BOD loading of 60g/person/day in accordance with the Urban Waste Water Treatment Regulations 2001 as amended.

Based on predicted 10-year design PE, the overall suspended solids discharge to Ballycotton Bay will reduce from 28.9kg/d (2016) to 15.4kg/d (2026) and the discharge at the primary discharge (SW004) will increase from 14.5kg/d (2016) to 15.4kg/d (2026).

The above assessment is based on a suspended solids loading of 163mg/l (mean domestic loading) in accordance with EPA Wastewater Treatment Manuals – Treatment Systems for Small Communities, Business, Leisure Centres and Hotels and a consumption rate of 175l/person/day in accordance with Irish Water technical guidance document IW-TEC-700-99-02 Inlet Works and stormwater treatment (wastewater).

The BOD and Suspended Solids water quality assessment is summarised in Table D.2.1.2 below.

	BOD	SS
Loading	60 g/PE/Day	70 g/PE/Day
Current PE (2016)	1014	
Future PE (2026)	1082	
Total Agglomeration		
Current Load	60.84 kg/Day	70.98 kg/Day
Future Load*	51.94 kg/Day	37.87 kg/Day
Primary Discharge Point		
Current Load	30.42 kg/Day	35.49 kg/Day
Future Load*	51.94 kg/Day	37.87 kg/Day
*Future Loading calculation above considers a reduction in BOD of 20% and a reduction in SS of 50%.		

Table D.2.1.2 – Ballycotton Bay BOD and Suspended Solids Assessment

The most recent EPA data notes that Ballycotton Bay was classified as “*Not at risk*” in accordance with the WFD 2013-2018 Risk Status and the ecological status is noted as “good” (2013-2018). This indicates that the existing wastewater discharges were not having sufficient impact on water quality to affect the “good” status of Ballycotton Bay. The proposed Ballycotton WwTP will reduce the overall quantity of BOD and Suspended Solids to Ballycotton Bay at operational phase of the project and therefore will not have any negative effects in relation to water quality.

4. Screening for Appropriate Assessment

A Screening for Appropriate Assessment in relation to the discharge of treated effluent from the Ballycotton WwTP and pumping stations, including stormwater overflows and emergency overflows, has been carried out and concluded that “overall no significant adverse effects are foreseen and indeed, a slight positive effect is possible.

On the basis of the information set out, and documentation referenced in the AA Screening Report, it can be excluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant Natura 2000 sites, that the proposed operational discharges from the new Ballycotton Waste Water Treatment Works, individually or in combination with other plans and projects, would be likely to have a significant effect on any Natura 2000 site. It is acknowledged however that it is the EPA, as the Competent Authority, who will formally conduct the formal AA screening process as part of their determination of this WWDA application.

5. Environmental Impact Assessment (EIA) Screening

An Environmental Impact Assessment (EIA) Screening Report has prepared in relation to the construction and operational stages of the proposed Ballycotton Sewerage Scheme, to form an opinion as to whether or not the proposed activities from the Scheme should be subject to Environmental Impact Assessment (EIA) and if so, whether an Environmental Impact Assessment Report (EIAR) should be prepared in respect of it.

The Ballycotton Sewerage Scheme EIA Screening Report concluded the following;

‘It is submitted that the proposed Scheme does not come within the classes of development that European and Irish legislation identify as being likely to have significant effects on the environment, as set out in Part 1 or Part 2 of Schedule 5 of the Planning and Development Regulations 2001-2017. As the proposed Scheme does not come within the specified classes, there is no mandatory requirement for an EIA for the proposed Scheme.

In addition to the above, a sub threshold assessment has been undertaken. The potential for impacts has been identified, both positive and negative but none that would be likely to have significant effects on the environment.’

6. Bathing Waters

The nearest designated bathing waters are at Garryvoe approximately 2.5km north of the proposed works area. Current EPA water quality results indicate that the water at Garryvoe Beach is of ‘sufficient’ quality based on the three-year assessment period 2018 to 2021.

Cork County Council has taken a total of 8no samples at Garryvoe during the 2022 bathing season. Of these 8no samples, 7no samples were noted as being ‘excellent’ while the remaining 1no sample was determined to be ‘good’.

The proposed Ballycotton WwTP will provide primary treatment of wastewater, with treated effluent quality achieving 20% reduction in BOD and 50% reduction in Suspended Solids. The reduction in Suspended Solids will result in a decrease in pathogens in the discharge and will therefore not have any negative effects on the bathing water quality at Garryvoe.

7. Shellfish Waters

The nearest designated shellfish area is at Ballymacoda Bay located over 9km from the subject site.

The proposed Ballycotton WwTP will provide primary treatment of wastewater, with treated effluent quality achieving 20% reduction BOD and 50% reduction Suspended Solids. The reduction in Suspended Solids will result in a decrease in pathogens in the discharge and will therefore not have any negative effects on the water quality at Ballymacoda.

8. Priority Substance Assessment

A priority substance assessment has been carried out to identify substances which are likely to be emitted from the agglomeration to the receiving water. The assessment is included in **Appendix A** of this Impact Assessment Report.

9. Combined Approach

The Waste Water Discharge Authorisation under the European Union (Waste Water Discharge) Regulations 2007 to 2020, specify that a ‘combined approach’ in relation to licensing of waste water works must be taken, whereby the emission limits for the discharge are established on the basis of the stricter of either or both, the limits and controls required under the Urban Waste Water Treatment Regulations, 2001, as amended, and the limits determined under Statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the waterbody into which the discharge is made.

The treated effluent discharge standards for the new WwTP will comply with the requirements for primary treatment with a 20% reduction in BOD and a 50% reduction in suspended solids. In addition, they will give effect to the principle of the Combined Approach as defined in Waste Water Discharge (Authorisation) Regulations, 2007 to 2020 in that they accommodate the Urban Waste Water Regulations and the relevant status/designations of the receiving waterbody, Ballycotton Bay.

10. Compliance with Relevant National or EU Legislation

The proposed Ballycotton WwTP has been designed to ensure that the emissions from the agglomeration will comply with, and will not result in the contravention of, EU Legislation and National Regulations.

The current WFD Ecological Status of Ballycotton Bay is “good” and the WFD risk status is “not at risk”. Regarding in-combination impacts and associated effects, it is envisaged that the improvement in the effluent discharges from the proposed Ballycotton Sewerage Scheme, will have a net positive impact on Ballycotton Bay in terms of assisting it to maintain Good WFD Status for this coastal waterbody. Any improvement in the aquatic environment will have a beneficial impact on the water dependent qualifying features of Ballycotton Bay SPA and all other Natura 2000 sites within the zone of influence of the proposed activity.

11. Mixing zone or transitional areas of exceedance

The EPA publication ‘*EO Regulations Review, Simple Assimilative Capacity Model for Lakes and Coastal Water*’ presents a simple model for carrying out assimilative capacity in lakes and coastal waters. This Assimilative Capacity Model has been applied here to determine the number of dilutions which will be achieved at a given distance from the primary discharge point (SW003).

The calculation for the available dilutions is as follows:

$$D = \frac{8930b}{F}$$

where:

b = average depth of the receiving water (m)

F = Maximum hourly flow rate of the discharge (m³/hr)

In order to estimate the available dilutions, the average depth of the receiving waters of the mixing zone over a distance of 100m from the discharge point is required. Based on available bathymetry and tidal data, the average depth of the receiving waters over a distance of 100m for the discharge point was determined to be 2.747m (b).

The maximum hourly flow rate from the proposed WwTP is 86.8m³/h.

This results in a dilution value (D) of 283. Irish Waters Technical Standards for Marine Modelling (Document Number IW-TEC-100-015) requires a minimum of 100 initial dilutions for new primary treated effluent discharges. As such the calculated 283 is considered more than adequate.

Based on the above calculated dilution and the background water quality data in Ballycotton Bay, the resulting concentrations of BOD₅ and DIN in the receiving water (near field) have been calculated as:

- BOD₅ - 2.18mg/l (<3.0mg/l limit for high status water quality)
- DIN - 0.56mg/l (<0.585mg/l limit for high status water quality).

Therefore, the discharge effluent will not impact on the ability of the receiving water to maintain its current “good” status and in fact, would allow compliance with “high” status.

12. Cumulative and In Combination Effects

The Appropriate Assessment Screening Report addresses combination effects.

13. Dilutions and retention times for lakes

Not applicable. No discharges to lakes.

14. The impact of the discharges on any environmental media other than those into which the emissions are to be made

Not applicable. No other relevant media into which the emissions are to be made.

15. Groundwater Details

Not applicable. No discharge to ground waters.

16. High Status Waterbodies

No High Status water bodies are downstream of the operational discharges.

17. Fresh Water Pearl Mussels

Not applicable. No Fresh Water Pearl Mussels within the region of the primary discharge point

18. For waste water treatment plants with coastal discharges, provide evidence that the end of the discharge pipe is below the mean spring tide low water line

A primary discharge long section demonstrates that the WwTP will discharge treated effluent to Ballycotton Bay via the primary discharge point (SW004) below the mean low water springs level.

Please note that maintenance works will be carried out on the outfall on behalf of Irish Water prior to the operational stage of the Ballycotton sewerage scheme to ensure that the discharge point is in accordance with the levels noted on the long section referenced above and to repair any damage to the outfall pipe. The maintenance works are required in accordance with the Ballycotton Foreshore Licence (November 1953) which states that the outfall is to be kept *‘in a good and proper state of repair and condition to the satisfaction of the Department of the Environment, Community and Local Government’*.

19. Data Sources

The following data sources were used to complete this application.

- Online data available or held by the NPWS, the EPA, NIEA and Irish Water:
 - www.npws.ie
 - epawebapp.epa.ie
 - gis.epa.ie/EPAMaps
 - catchments.ie
- Irish Water/Cork County Council Monitoring & Sampling Data

Appendix A – Ballycotton Sewerage Scheme Priority Substance Assessment

1. Introduction

This assessment has been prepared for the Ballycotton agglomeration in County Cork to inform the review application of the existing wastewater discharge licence (D0516-01).

Ballycotton is a village in east Cork located approx. 18km southeast of Midleton town.

Currently, wastewater flows generated in Ballycotton are collected in two combined collection networks with two separate outfalls. These two networks are referred to as the ‘west’ network and the ‘east’ network throughout this report.

The west of the agglomeration is served by a sewer network that conveys combined wastewater and storm water by gravity to a septic tank located along the foreshore to the west of Ballycotton harbour. The septic tank is an above ground structure and it is believed that it was constructed in the 1950s (for a PE of 50-60). The passage of sewage through the septic tank helps in the removal of suspended solids but there is very little biological activity and the removal of BOD is not significant (Cork County Council (2009)). It is considered to provide negligible treatment.

Effluent from the septic tank is discharged into Ballycotton Bay via a short sea outfall which is approx. 80m in length and is encased in concrete.

The east of the agglomeration is served by a collection network which discharges untreated sewage as well as storm water into Ballycotton Bay via an outfall at the end of the harbour pier. The outfall at Ballycotton pier is exposed at low tide.

The objective of the proposed Ballycotton sewerage scheme is to provide a wastewater treatment plant (WwTP) capable of primary treatment. Two new pumping stations (PS) will be required to deliver the wastewater to the WWTP. The PS’s will be located to intercept the discharges from the eastern and western collection networks.

The proposed Ballycotton Waste Water Treatment Plant (WwTP) will provide primary treatment of wastewater, with treated effluent quality achieving 20% reduction in BOD and 50% reduction in suspended solids in accordance with the requirements set out in the existing wastewater discharge licence (no. D0516-01) and the Urban Wastewater Treatment Directive.

A Waste Water Discharge Licence (WWDL) (Licence Register Number: D05016-01) was granted to Irish Water in accordance with the Waste Water Discharge (Authorisation) Regulations (S.I. No. 684 of 2007) in 2014.

This desk top study has been undertaken to determine the necessity, if any, for further analysis of the discharge based on the *Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*, issued by the EPA. Relevant inputs to the Ballycotton WwTP and estimates for

the emissions from the discharge point have been taken into account in the preparation of this report.

2. Desktop Study

2.1 Review of all industrial inputs into WwTP

A review of all available online mapping and all EPA licensed facilities was undertaken to determine the non-domestic discharge types which will be received at the Ballycotton WwTP.

EPA's online mapping portal doesn't show any IPC (Integrated Pollution Control) sites, IEL (Industrial Emissions Licensing) facilities

The sources of the emissions from the proposed WwTP are largely associated with the residential population of the agglomeration, as well as domestic type wastewater discharge from commercial sources (shops, restaurants, offices etc.).

The proposed Ballycotton Sewerage Scheme will end the practice of the discharge of untreated wastewater from the agglomeration which will have a significant positive impact on the surface water quality.

Upon review of the types of businesses, amenities and educational facilities in Ballycotton, **Table 1** provides an indicative list of non-domestic discharge types to the WwTP and details potential dangerous/priority substance.

Type of Industry within the Agglomeration	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous / Priority Substances Monitoring Undertaken (Yes / No)	List of Potential Dangerous Substances Based on Industry Type (Source: Technical Assessment Manual – Sectoral Profile Data)
School	Yes	Unknown	Dichloromethene Lead and its compounds Nickel and its compounds Trichloromethane
Hairdressers	Yes	Unknown	Nickel and its compounds Cadmium and its compounds

Table 1 – List of Non-Domestic Discharge Types to WwTP and Details of Potential Dangerous/Priority Substance

2.2 Discharge Monitoring

No primary discharge monitoring for the possible presence of Specific Pollutants, Priority and Priority Hazardous Substances as outlined in Table 10, 11 and 12 of European Communities

Environmental Objectives (Surface Waters) Regulations 2009, as amended (now S.I No. 77 of 2019) is available for this agglomeration.

2.3 Downstream monitoring location’s participation in relevant monitoring programme

There is no available record of any priority substances monitoring data for the nearest monitoring stations (National Water Monitoring Station CW05003148BT1001 (Ballycotton Ambient) or National Water Monitoring Station CW31003143BR3003 (BR270 - North of Caple Island)).

Catchments.ie notes that Ballycotton Bay is ‘not on a published monitoring programme’.

2.4 Participation in PRTR reporting

The PRTR section of EPA’s online mapping portal was reviewed. No emissions/discharges in relation to PRTR are noted within the Ballycotton agglomeration.

3. Priority Substance Assessment Conclusion

The desktop study assessed the agglomeration for the presence of relevant priority substances to establish any potential impact on the receiving waters.

The ‘parameters to be screened’ listed in Appendix 1 of EPA’s ‘Guidance on the Screening for Priority Substances for Waste Water Discharge Licences’ have been reviewed. The desktop study didn’t identify any significant sources of the listed parameters within the Ballycotton agglomeration.

The assessment considered the primary discharge relevant to Environmental Quality Standards (EQS) for priority substances in surface waters, as set out in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended (now S.I No. 77 of 2019).

Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of <i>Guidance on the Screening for Priority Substances for Waste Water Discharge Licences</i>, issued by the EPA	Desk Top Study
Does the assessment include a review of licensed / authorised inputs to the works?	Yes
Does the assessment include a review of other (unauthorised) inputs to the works?	No
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes

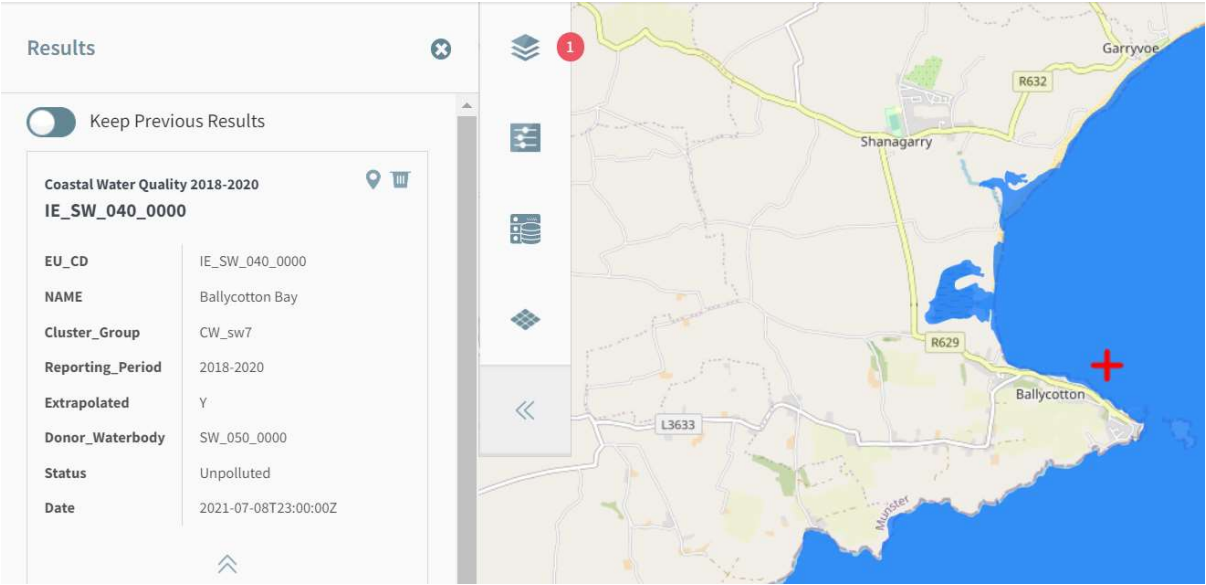
Does the assessment identify that priority substances may be impacting the receiving water?	No
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	N/A

The sources of the emissions from the proposed Ballycotton WwTP are largely associated with the residential population of the agglomeration, as well as domestic type wastewater discharge from commercial sources (shops, restaurants, offices etc.).

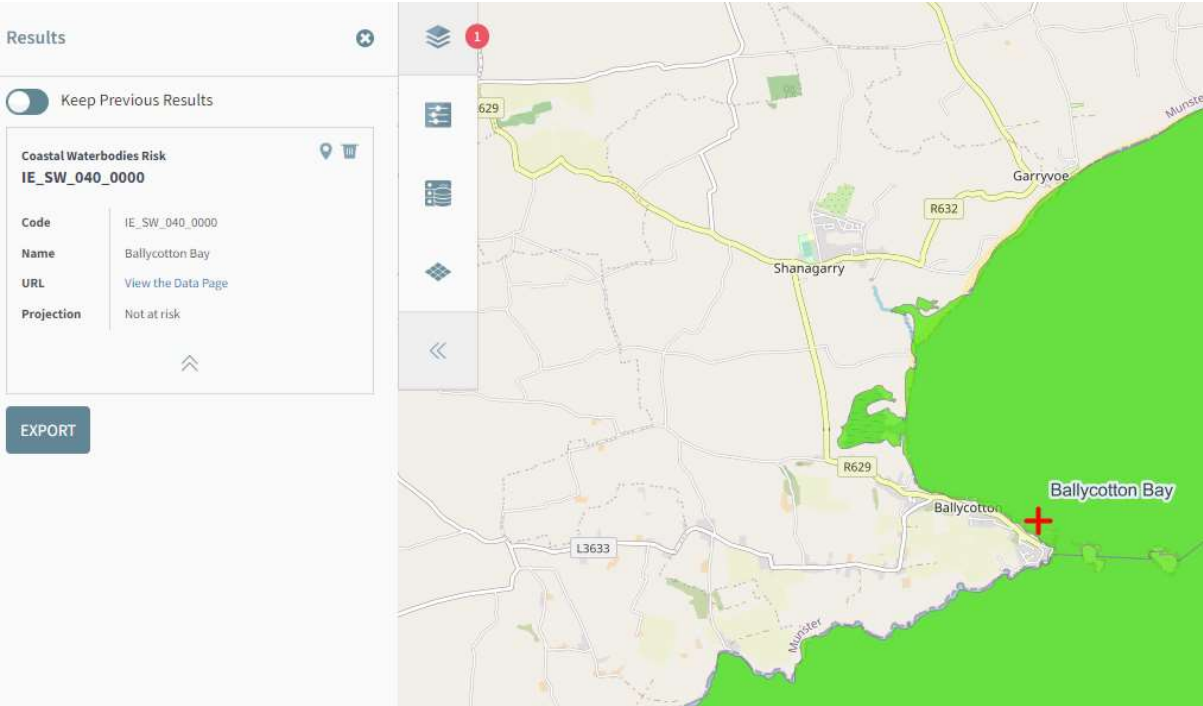
The proposed Ballycotton Sewerage Scheme will end the practice of the discharge of untreated wastewater from the agglomeration which will have a significant positive impact on the surface water quality.

Based on the results of this desk top study, it can be determined that **no for further analysis** of the discharge, based on the *Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*, issued by the EPA, is required.

Appendix E – EPA Coastal Water Data



Coastal Water Quality 2018-2020



Coastal Waterbodies Risk

Appendix F – Bird Survey Reports

Bird Surveys by Pascal Sweeney, 2018/2109 (extract from NIS, Ballycotton Sewerage Scheme, 2019)

Bird counts, following a combination of the guidance of Wetlands International (2010) and Lewis & Tierney (2014), were carried out on four dates during the period when wintering birds are present in the SPA, in winter 2018/2019, on days when both a high and a low tide coincided with daylight hours. On 29 November, 2018, 28 December, 2018, 28 January, 2019 and 26 February, 2019, birds present on the shoreline within line of sight of the proposed works site of The Cow PS were counted for 30 minutes at high tide (Photo 5) and again for 30 minutes at low tide (Photo 6). Distances of these birds from the proposed works site were estimated in the bands, < 50m; 50 – 100m; 100 – 150m; 150 – 200m; >200m. Birds flying past within 100m were also recorded.

Results of the bird counts carried out at the proposed works site for The Cow PS are presented in Appendix 11. The limited suitability of the stony shore habitat (Habitat Code LR4, Photo 4) in this corner of the SPA for roosting or foraging birds is reflected in the count results. Sixteen bird species were recorded. Of these, the following five are Features of Interest on SAC 004022: Ringed Plover (*Charadrius hiaticula*), Curlew (*Numenius arquata*), Common Gull (*Larus canus*), Lesser Black-backed Gull (*Larus fuscus*) and Grey Plover (*Pluvialis squatarola*). None were recorded on the shore within 100m of the proposed works site. The most significant occurrence of any Feature of Interest of the SPA was just two curlews at a distance of 100 – 150m from the works site at low tide on 28/12/18. Photographs of some of the birds recorded are shown below.

Photo 12: Curlew



Photo 13 Oystercatcher



Photo 14: Brent Geese



Photo 15 Great Northern Diver



Bird survey counts are included overleaf

Date & Tide	On Shore					Swimming			Fly Past
	<50m	50-100m	100-150m	150-200m	>200m	100-150m	150-200m	>200m	
29/11/18 High						2 ND			10 RP; 1 OC
29/11/18 Low		1 OC;							4 CM; 1 LB; 1 OC; 1 ET
28/12/18 High								1 CA	4 CM; 6 HG; 2 LB; 1 H
28/12/18 Low	2 OC	3 OC; 1 H	12 PB; 2 CU				1 GG		2 CM; 1LB
28/01/19 High									1 GV; 7 PB 1 OC; 3 BH
28/01/19 Low			1 ET; 2 WN	2 PB	3 CU				1 CA
26/02/19 High									1 BH; 5 CM; 2 GB
26/02/19 Low			6 PB; 1 HG; 1 CU; 3 OC		14 PB; 1 H	2 WN			

Abbreviations, Following Lewis & Tierney (2014)

SPA 004022 Features of Interest

RP: Ringed Plover (*Charadrius hiaticula*)

CU: Curlew (*Numenius arquata*)

CM: Common Gull (*Larus canus*)

LB: Lesser Black-backed Gull (*Larus fuscus*)

GV: Grey Plover (*Pluvialis squatarola*)

Other Species

GB: Great Black-backed Gull (*Larus marinus*)

HG: Herring Gull (*Larus argentatus*)

BH: Black-headed Gull (*Larus ridibundus*)

PB: Light Bellied Brent Goose (*Branta bernicla*)

ET: Little Egret (*Egretta garzetta*)

ND: Great Northern Diver (*Gavia immer*)

GG: Great Crested Grebe (*Podiceps cristatus*)

H: Grey Heron (*Ardea cinerea*)

OC: Oystercatcher (*Haematopus ostralegus*)

WN: Wigeon (*Anas penelope*)

CA: Cormorant (*Phalacrocorax carbo*)

BYRNELOOBY

AN **ayesa** COMPANY

IRELAND | UK | UAE | BAHRAIN | KSA

Ballycotton Wastewater Treatment Plant (WWTP)

Wintering Bird Baseline Survey Report

Glan Agua Ltd

Report No. E1238-BLP-R-ENV-002

18 April 2023

Revision 00



Document Control

Project: Ballycotton Wastewater Treatment Plant (WWTP)
 Document: Wintering Bird Baseline Survey Report
 Client: Glan Agua Ltd
 Report Number: E1211-BLP-R -ENV-002

Document Checking:

Revision	Revision/ Review Date	Details of Issue	Authorised		
			Prepared By	Checked By	Approved By
00	18 th April 2023	Issued for Client Review	Margaret Starr	Jeff Hean	Jackelyn Wren
Disclaimer: Please note that this report is based on specific information, instructions, and information from our Client and should not be relied upon by third parties.					

Contents

1	Introduction	1
1.1	Background	1
1.2	Ecological Sensitivities.....	1
1.2.1	Previous Surveys	4
1.3	Purpose of this Report	4
1.4	Roles and Qualifications	4
2	Methodology.....	6
2.1	Guidelines.....	6
2.1.1	Ethics Statement	6
2.2	Desktop Study	6
2.2.1	National Biodiversity Data Centre	6
2.3	Survey Area.....	7
2.4	Counting Equipment.....	9
2.5	Survey Methodology	9
3	Results	11
3.1	Desktop Study	11
3.1.1	National Biodiversity Data Centre	11
3.2	Bird Count Surveys – February and March 2023	11
4	Conclusions & Recommendations.....	13
4.1	Conclusions	13
4.2	Recommendations.....	13
5	References.....	14
	Appendix A – Scheme Drawing	A
	Appendix B – Previous Bird Counts 2018 & 2019 (Sweeny Consultancy, 2021)	B
	Appendix C – NBDC Avifaunal Records.....	C
	Appendix D – Bird Counts February and March 2023 (ByrneLooby)	I

Table of Figures

Figure 1.1 Ballycotton Bay SPA (SPA 004023) & Proposed Cow PS Location..... 3
Figure 2.1 NBDC 2km square grids – details of recorded bird species in these grids are provided in
in Appendix C..... 7
Figure 2.2 Survey Station & Ballycotton Bay SPA 8

Tables

Table 1.1: Ecology Team Qualifications 4
Table 3.1 Total count of bird species observed over the 3 days of surveys. 11

1 Introduction

1.1 Background

ByrneLooby was commissioned to conduct a wintering bird survey near the coastal town of Ballycotton, Co. Cork. . The winter bird survey was commissioned to inform the ecological baseline of the immediate area surrounding Ballycotton, to accurately determine the potential impacts that may arise from the proposed works encompassed in the Ballycotton Wastewater Sewerage Scheme (referred to as ‘the Project’ herein).

The Scheme Drawing is included in Appendix A.

1.2 Ecological Sensitivities

Natura 2000 sites within a 15km radius of the proposed development and/or with a direct or indirect physical connection to the proposed development site were assessed using current available information (see NPWS, accessed March 2023). Natura 2000 sites identified within 15km of the proposed sewerage development works at Ballycotton include;

- Ballycotton Bay SPA
- Ballymacoda Bay SPA (004023)
- Ballymacoda, Clonpriest and Pillmore SAC (000077)
- Cork Harbour SPA 004030
- Great Island Channel SAC (001058)

At the closest point, the proposed development works are proximal to, but outside the boundary of the Ballycotton Bay Special Protection Area (SPA 004022).

As the latter four Natura 2000 sites have no connectivity with the site of the proposed development, potential impacts on the Conservation Objectives of these site were screened out of the Natura Impact Statement (NIS) completed in 2021 (Sweeny Consultancy, 2021) and Appropriate Assessment Screening Report (ByrneLooby, 2023).

The Ballycotton Bay SPA contains several Special Conservation Interests (SCIs) that may be partial to potential impacts stemming from the proposed development works. . SCIs are species and habitats of conservation interest present in the SPA which qualify it to be protected under the Birds (2009/147/EC) and the Habitats (92/43/EEC) Directives:

- Teal (*Anas crecca*) [A052]
- Ringed Plover (*Charadrius hiaticula*) [A137]
- Golden Plover (*Pluvialis apricaria*) [A140]

- Grey Plover (*Pluvialis squatarola*) [A141]
- Lapwing (*Vanellus vanellus*) [A142]
- Black-tailed Godwit (*Limosa limosa*) [A156]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Curlew (*Numenius arquata*) [A160]
- Turnstone (*Arenaria interpres*) [A169]
- Common Gull (*Larus canus*) [A182]
- Lesser Black-backed Gull (*Larus fuscus*) [A183]
- Wetland and Waterbirds [A999]

Potential noise and disturbance impacts to the above may arise during the construction phase of the Project, particularly if works were to be completed during the winter months (November – March). The construction phase regarded as the most important are those works proposed to construct the new Cow Pumping Station (PS), located within the SPA itself (see Figure 1.1, below).



Figure 1.1 Ballycotton Bay SPA (SPA 004023) & Proposed Cow PS Location

1.2.1 Previous Surveys

A Natura Impact Statement (NIS) was completed in 2021 for the Ballycotton WWTP Project (Sweeny Consultancy, 2021). Corresponding baseline wintering bird counts were conducted at the Cow Slipway in November and December 2018, and January and February 2019. Birds present on the shoreline within sight at this location were counted for 30 minutes at high side and again for 30 minutes at low tide. Distances of the birds from the survey location were estimated in the bands <50m, 50-100m, 100-150m, 150-200m and >200m. Birds flying past within 100m were also recorded.

The results of these counts are included in Appendix B.

1.3 Purpose of this Report

This report intends to present the findings of the baseline wintering bird surveys, conducted over three visits in February and March 2023 in the vicinity of the Ballycotton Bay SPA. These winter bird surveys are intended to provide up-to-date baseline information to supplement the bird counts initially conducted for the proposed development in 2018 and 2019 (Sweeny Consultancy, 2021) and confirm presence/absence of the Ballycotton Bay SPA SCIs.

1.4 Roles and Qualifications

Table 1.1 provides a summary of the staff involved in the surveying and reporting.

Table 1.1: Ecology Team Qualifications

Title	Name	Role	Qualifications	Years' experience
Senior Ecologist	Jeff Hean	Surveyor & report preparation.	BSc (Ecology) BSc Honours (Ecology) MSc (Ecology) Ph. D (Zoology)	>5
Junior Ecologist	Maggie Starr	Surveyor & report preparation.	BSc (Marine Science)	1
Senior Environmental Specialist	Jackelyn Wren	Report reviewer	BA Honours (Geography)	>8

Jeff is a senior ecologist who has recently started with ByrneLooby. His work experience includes biodiversity and conservation projects, Impact assessments of construction projects, including water and fuel pipelines, renewable energy facilities, roads and railways, and wastewater treatment plants, environmental auditing, macro- and micro-plastic waste source-pathway determination, and environmental management.

Maggie started working as an ecologist with ByrneLooby in 2022. She has experience in planning and conducting protected species surveys and ecological report writing in both voluntary and professional capacities.

Jackelyn Wren is a Senior Environmental Specialist with 8 years' experience in environmental assessment and management across Ireland and the Middle East.

2 Methodology

2.1 Guidelines

Survey methodology was designed in accordance with guidance described in:

- Low tide waterbird surveys: survey methods and guidance notes (Lewis and Tierney, 2014); and
- I-WeBS Counter Manual: Guidelines for Irish Wetland Bird Survey Counters
- Bird Census Techniques (Bibby, *et al.*, 2000)
- 'Field Guide to the Birds of Britain and Europe' by John Gooders (Larousse) - identification

I-WeBS best practice guidelines of standard techniques for traditional ground surveying are the recommended methods by Bird Watch Ireland.

2.1.1 Ethics Statement

Precautionary measures were taken to ensure minimal/no disturbances were imposed on the feeding/roosting of wintering birds present. Care was taken at all measures to avoid flushing any species within the sampling sites, with previously researched vantage point locations with recommended distances and wintering waterbird specie-specific responses to human disturbances.

2.2 Desktop Study

2.2.1 National Biodiversity Data Centre

Prior to visiting site, a desktop review of available information was conducted. The desk study included review of the National Biodiversity Data Centre (NBDC) – 2km square grids, including W96X, W96W, and X06B, species reports (for reference see Figure 2.1) - accessed online in March 2023.

The findings of the desktop survey are outlined in Appendix C (NBDC records).

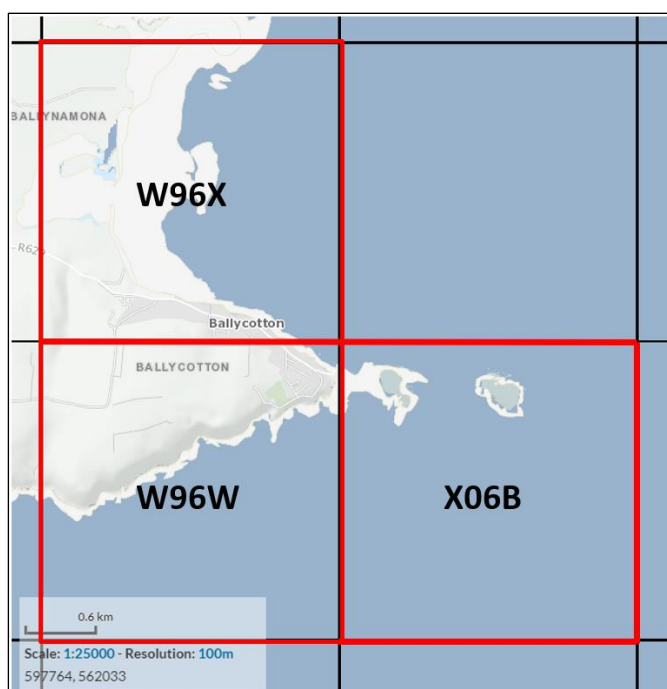


Figure 2.1 NBDC 2km square grids – details of recorded bird species in these grids are provided in Appendix C.

2.3 Survey Area

A distinctive feature of Ballycotton Bay is that it is comprised of various habitat types, such as the saltmarsh mudflats (estuarine system from the River Kilmacahill entering the sea through the bay) and the sandflats. This estuarine habitat provides the ideal sampling sites for censusing a wide range of wintering waterbirds at low tide exposure periods that specialise in feeding within these habitats.

The ecologists identified three predefined stationary vantage points located along the coastline adjacent to the Cow Slipway (Figure 2.2) from which to carry out the point counts/surveys. The three stations provided optimal visibility of the tidal areas of the Ballycotton Bay SPA and surrounding landscape.

The three survey areas (A, B and C) included three different habitats:

- Area A: classified as a rocky shore habitat - exposed shoreline (75% rock, 25% sand) and pier (good vantage point where visibility allowed identification/observation of diving species); low intertidal to subtidal zone
- Area B rocky (100% rock) narrow shoreline – Proposed Cow Pump Station; mid to low intertidal zone
- Area C: sheltered bay – large, exposed sand- and mudflats at low tide mark; intertidal zone

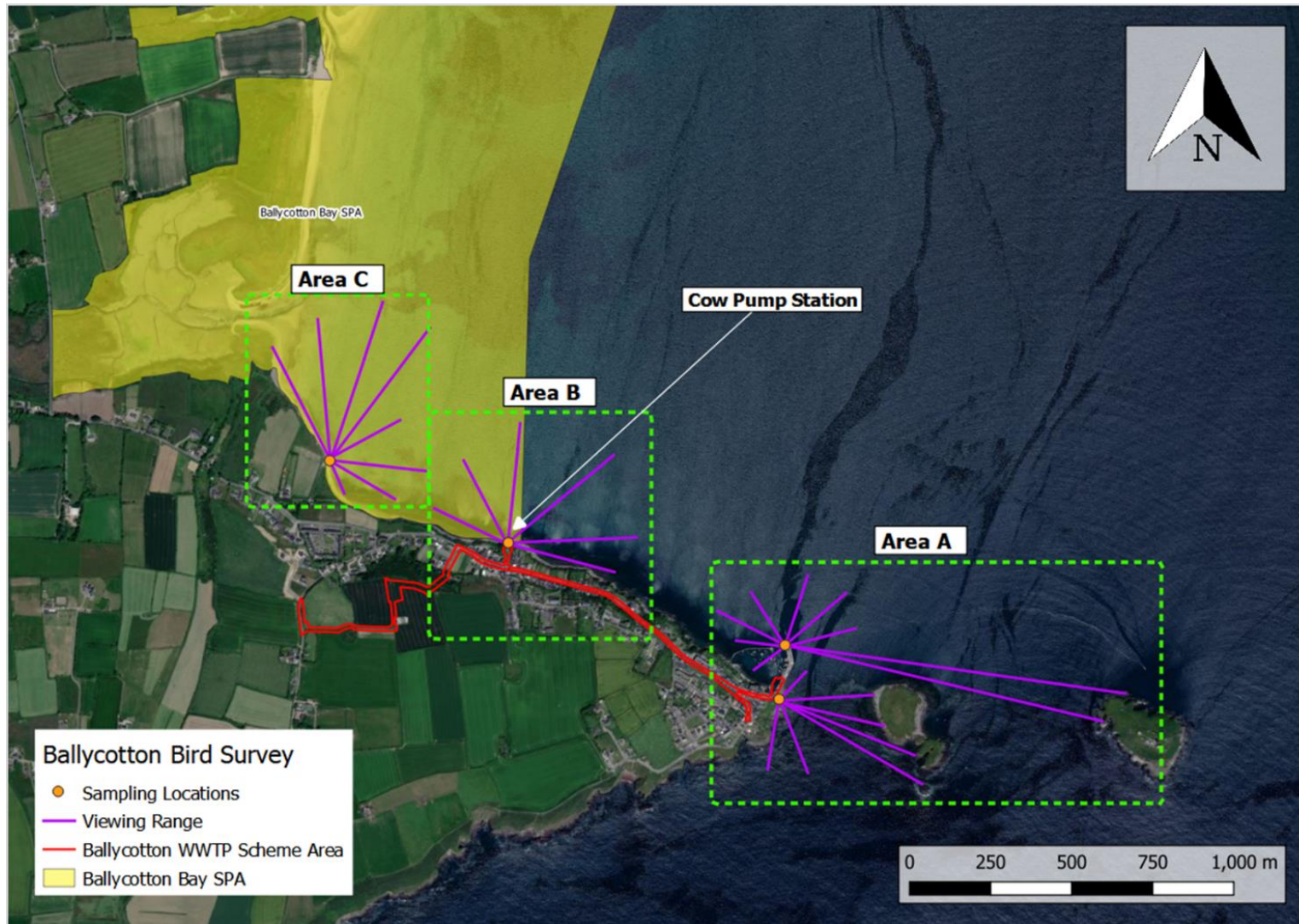


Figure 2.2 Survey Station & Ballycotton Bay SPA .

2.4 Counting Equipment

The following equipment was used to view and identify bird species at each survey point;

- Svbonv SV13 20-60x80 Spotting Scope with tripod, and
- Celestron 71007 SkyMaster 12 x 60 Binoculars.

Identification of bird species was achieved with the identification guide 'Field Guide to the Birds of Britain and Europe' by John Gooders (Larousse).

2.5 Survey Methodology

Three baseline wintering bird surveys were conducted at each of the survey stations Area A, Area B and Area C as shown in Figure 2.2 on 09/02/2023 (10:30 to 13:25), 06/03/2023 (11:00 to 14:00) and 21/03/2023 (11:15 to 14:00).

Upon arrival at the sample site, an initial inspection of the overall species present in the area was conducted using the binoculars and to acquire spatial understanding of the distributed species. Notes were recorded on the weather conditions within the project site were recorded at the time of the survey, along with visibility and state of the tide. Activities that occur at the site that are or have the potential to cause disturbance to waterbirds were also recorded, regardless of whether they cause a noticeable disturbance to birds at the time of observation, or not.

Using the recommended methods of assessment by I-WeBS Core Counts, point counts were conducted where the observer remained in position (predefined vantage points) for a specified time. Vantage points were chosen carefully, to avoid as much interference from terrain and topography as possible for the ground counts. Counts were completed within 45 minutes at low tide, ± 2 hrs of low-water mark – Low Tide Count to 1-hour periods. I-WeBS Counter Manual: Guidelines for Irish Wetland Bird Survey Counters outlined the methods that were followed in this study. The 'look-see' basis was applied, counting all birds seen and heard within the predefined area (Bibby et al., 2000; Lewis and Tierney, 2014). Count estimates were conducted to estimate flocks of fast-flying birds, estimating numbers in small units to ensure higher accuracy.

Counts were undertaken at the same stage of the tidal cycle to ensure consistency – starting at survey Area A at the low tide mark, counting on a rising tide, continuing then to Area B and then Area C. As a primary focus of wintering waterbirds is to feed, the rising water 'pushed' the wading, dabbling and diving birds closer to the shore or to gather at roost sites, making the count easier. In addition, feeding is concentrated for most species around the low water stage of the tidal cycle, when tidal flats area exposed (Lewis and Tierney, 2014). This ensured the abundance of waders and *Anas* species were at their highest.

The ecologist stood at each of the three locations (Area A, B and C) for 45 minutes. During this time, areas surrounding the stationary vantage points were scanned continuously using a pair of binoculars and spotting scope. All birds observed within this 45-minute period were recorded on a

notepad, counting the number of birds of the same species. Information regarding the bird's behaviour, number of birds (of the same species) and distance from the stationary survey point were also recorded following an observation.

Aural recordings were also be obtained from each stationary survey point. The ecologist used the app BirdNET (Kahl *et al.*, 2021) to record the calls of nearby birds where possible. BirdNET's in-app machine learning was used to determine species, according to Kahl *et al* (2021) BirdNET has a mean average precision of 0.791 for single-species recordings. Regardless of this relatively high level of confidence, the ecologist compared aural records obtained in the field to existing records to add a higher level of certainty to species identification.

For every site sampled a site-specific risk assessment was conducted prior to sampling.

3 Results

3.1 Desktop Study

3.1.1 National Biodiversity Data Centre

NBDC records of birds available from within the 2km grid squares (W96X, W96W and X06B, as shown in Figure 2.1) within the study area are shown in Appendix C.

3.2 Bird Count Surveys – February and March 2023

A summary of the bird counts across all three surveys is provide in Table 3.1 below. Detailed information on bird counts for each survey and conditions (weather, disturbances, behaviour, etc.) survey are provided in Appendix D.

Table 3.1 Total count of bird species observed over the 3 days of surveys.

Common name	Latin Name	Survey 1	Survey 2	Survey 3	Designation
Wigeon	<i>Anas penelope</i>	34		40	Wildlife Acts BoCCI: Red List E.U. Birds Directive: Annex II, Annex III
Great Northern Diver	<i>Gavia immer</i>	1	1	1	Wildlife Acts BoCCI: Amber List
<i>Gavia</i> sp.	Unidentified Diver	7	3		Wildlife Acts BoCCI: Amber List EU Birds Directive: Annex I
Brent Goose	<i>Branta bernicla hrota</i>	23	45	82	Wildlife Acts BoCCI: Amber List
Tern sp.	<i>Sterna</i> sp.	34	24	9	Wildlife Acts BoCCI: Amber List EU Birds Directive: Annex I
Gull sp.	<i>Larus</i> sp.	258	262	177	Wildlife Acts BoCCI: Red/Amber List
Curlew	<i>Numenius arquata</i>	7	5	3	Wildlife Acts BoCCI: Red List EU Birds Directive: Annex II
Shag	<i>Phalacrocorax aristotelis</i>	2	11	6	Wildlife Acts BoCCI: Amber List
Cormorant	<i>Phalacrocorax carbo</i>	12	18	9	Wildlife Acts BoCCI: Amber List
Unidentified Shag/Cormorant	<i>Phalacrocorax</i> sp.	3	67	17	Wildlife Acts BoCCI: Amber List
Green Sandpiper	<i>Tringa ochropus</i>	6	0		Wildlife Acts BoCCI: Green List
Little Egret	<i>Egretta garzetta</i>	5	0	2	Wildlife Acts BoCCI: Green List EU Birds Directive: Annex I
Oystercatcher	<i>Haematopus ostralegus</i>	46	22	16	Wildlife Acts BoCCI: Amber List
Dunlin	<i>Calidris alpina</i>	7	45		Wildlife Acts

					BoCCI: Red List EU Birds Directive: Annex I
Grey Heron	<i>Ardea cinerea</i>	1	0	3	Wildlife Acts BoCCI: Green List
Bar-tailed Godwit	<i>Limosa lapponica</i>	73	0		Wildlife Acts BoCCI: Amber List EU Birds Directive: Annex I
Mallard	<i>Anas platyrhynchos</i>	0	2		Wildlife Acts BoCCI: Green List EU Birds Directive: Annex II, Annex III
Redshank	<i>Tringa totanus</i>	0	15	16	Wildlife Acts BoCCI: Red List
Common Sandpiper	<i>Actitis hypoleucos</i>	0	5	3	Wildlife Acts BoCCI: Amber List
Great Crested Grebe	<i>Podiceps cristatus</i>	0	0	2	Wildlife Acts BoCCI: Amber List
Golden Plover	<i>Pluvialis apricaria</i>	0	0	~300	Wildlife Acts BoCCI: Red List EU Birds of Directive: Annex I, Annex II, Annex III

4 Conclusions & Recommendations

4.1 Conclusions

The main findings throughout the winter season are as follows:

- The Ballycotton Bay SPA, which stretches northwards to Ballynamona (c. 2km), supports an excellent diversity of wintering waterbirds. The principal habitat within the site is intertidal sand and mudflats, are mostly well-exposed, and the estuarine system (located behind the bay) running through the bay provide the main feeding habitat for both nationally and internationally important bird species. In addition, the Ballycotton Bay is a Ramsar Convention site and is a Wildfowl Sanctuary.
- SCIs of the SPA recorded over the 3 different surveys included the Curlew, Common Gull (*Larus canus*), Lesser Black-backed Gull (*Larus fuscus*), Golden Plover (Annex I species), Bar-tailed Godwit (Annex I species), and in general Wetland and Waterbirds. Other important species observed during the surveys were the Red Listed species of BoCC14 (2020-2026) Redshank, and Oystercatcher. Amber Listed species observed during the bird survey included Brent Geese, Great Crested Grebe, Wigeon, Cormorant, Herring Gull, Tern, Great Northern Diver, Mallard, Shag, and Common Sandpiper. It is evident that this site has supports an excellent diversity of wintering waterbirds.

4.2 Recommendations

Reiterating the recommendations made as part of the NIS (Pascal Sweeny, 2021), construction works at The Cow PS should be planned for the period April to October inclusive, avoiding the wintering months of November to March and thereby reducing the probability of impact to wintering bird SCIs of the Ballycotton Bay SPA. This is further reiterated as a condition in the Planning Permission (An Bord Pleanála - Case Number ABP-312229-21, dated May 2022).

5 References

An Bord Pleanála, Case Number ABP-312229-21, Planning Authority Reference No. 214483, dated 9th May 2022.

Birds Directive - Directive 2009/147/EC.

Cork County Council Planning & Development Acts 2000 – 2010, as amended, Notification of Decision to Grant Permission. Reference in Planning Register: 21/04483, including First Schedule and Second Schedule.

European Communities (Birds and Natural Habitats) Regulations 2011. S.I. No. 477/2011.

Habitats Directive - Council Directive 92/43/EEC.

Pascal Sweeny (2021) Habitats Directive Appropriate Assessment Report (Screening and Natura Impact Statement) for a Proposed Waste Treatment Facility for Ballycotton Agglomeration.

Bibby, C.J., Burgess, N.D., Hill, D.A., Mustoe, S., 2000. Bird Census Techniques., Second Edition. ed. Academic Press, London/

Lewis, L.J., Tierney, T.D., 2014. Low tide waterbird surveys: survey methods and guidance notes. Dublin 2. Available at: <https://www.npws.ie/sites/default/files/publications/pdf/IWM80.pdf>

I-WeBS Counter Manual: Guidelines for Irish Wetland Bird Survey Counter. NPWS, DEHLG. Available at: <https://birdwatchireland.ie/app/uploads/2019/03/IWeBS-Counter-Manual.pdf>

Birds of Conservation Concern in Ireland (BoCCI4). 2020-2026. Available @:
[file:///C:/Users/MStarr/Downloads/Red%20and%20Amber%20Lists%20of%20Birds%20of%20Conservation%20Concern%20in%20Ireland%20\(BoCCI4\)%202020-2026_.pdf](file:///C:/Users/MStarr/Downloads/Red%20and%20Amber%20Lists%20of%20Birds%20of%20Conservation%20Concern%20in%20Ireland%20(BoCCI4)%202020-2026_.pdf)

Appendix A – Scheme Drawing

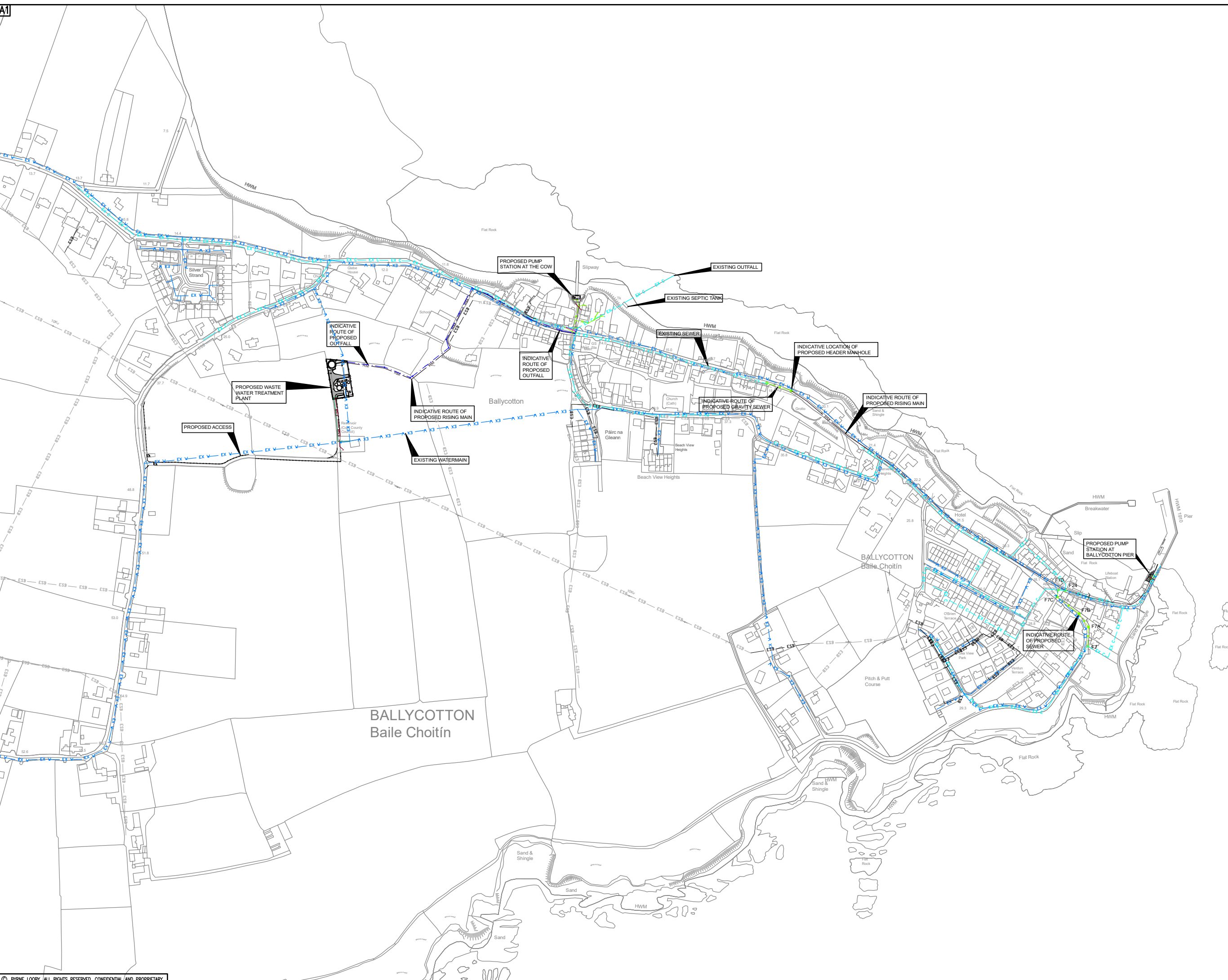


NOTES:

1. ORDNANCE SURVEY IRELAND LICENCE NUMBER EN 3-3-34.
2. FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.
3. ALL DIMENSIONS TO BE CHECKED ON SITE.
4. ANY QUERIES OR DISCREPANCIES SHOULD BE REFERRED TO THE EMPLOYERS REPRESENTATIVE IMMEDIATELY.
5. EXISTING PIPE LOCATIONS ARE INDICATIVE ONLY.

LEGEND:

- EXISTING SEWER — EX C — EX C —
- EXISTING WATERMAIN — EX W — EX W —
- EXISTING ESB — ESB — ESB — ESB —
- PROPOSED SEWER — SW — SW — SW —
- PROPOSED WATER — W — W — W —
- PROPOSED ESB — ESB — ESB — ESB —
- PROPOSED RISING MAIN — RM — RM — RM —
- PROPOSED OUTFALL — OF — OF — OF —
- PROPOSED STORM DRAIN — SD — SD — SD —



F3	25.08.20	WWTP LAYOUT UPDATED	LT	OL	KT
A2	06.12.19	ISSUED FOR INFORMATION	LT	OL	KT
A1	20.08.19	WWTP LAYOUT UPDATED	LT	OL	KT
Rev	Date	Description	By	Chk	App

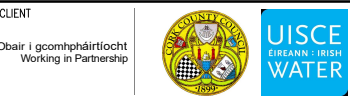
BYRNE LOOBY

2100 Cork Airport Business Park, Kinsale Road, Cork
 tel: +353 (0) 21 2407988
 email: cork@byrne.looby.com www.ByrneLooby.com

BAHRAIN • IRELAND • QATAR • SAUDI ARABIA • UAE • UK
 CIVIL STRUCTURAL WATER & GEOTECHNICAL SPECIALISTS

ARUP

Arup,
 One Albert Quay
 Cork
 Tel +353(0)21 422 3200
 www.arup.com



PROJECT
**UTAS - CORK BUNDLE
 BALLYCOTTON SEWERAGE SCHEME**

DRAWING TITLE
PROPOSED SCHEME LAYOUT

STATUS
FOR INFORMATION

Date: 09.04.19	Scale: 1:2500	Drawn: LBR	Chk: OL	App: KT
Project No: 257589_00	Dwg. No: IW-10015230-04-01-001	Rev: F3		

Appendix B – Previous Bird Counts 2018 & 2019 (Sweeny
Consultancy, 2021)

Source: Sweeny Consultancy, 2021

Date & Tide	On Shore					Swimming			Fly Past
	<50m	50-100m	100-150m	150-200m	>200m	100-150m	150-200m	>200m	
29/11/18 High						2 ND			10 RP; 1 OC
29/11/18 Low		1 OC;							4 CM; 1 LB; 1 OC; 1 ET
28/12/18 High								1 CA	4 CM; 6 HG; 2 LB; 1 H
28/12/18 Low	2 OC	3 OC; 1 H	12 PB; 2 CU				1 GG		2 CM; 1LB
28/01/19 High									1 GV; 7 PB 1 OC; 3 BH
28/01/19 Low			1 ET; 2 WN	2 PB	3 CU				1 CA
26/02/19 High									1 BH; 5 CM; 2 GB
26/02/19 Low			6 PB; 1 HG; 1 CU; 3 OC		14 PB; 1 H	2 WN			

Abbreviations, Following Lewis & Tierney (2014)

SPA 004022 Features of Interest

RP: Ringed Plover (*Charadrius hiaticula*)
 CU: Curlew (*Numenius arquata*)
 CM: Common Gull (*Larus canus*)
 LB: Lesser Black-backed Gull (*Larus fuscus*)
 GV: Grey Plover (*Pluvialis squatarola*)

Other Species

GB: Great Black-backed Gull (*Larus marinus*)
 HG: Herring Gull (*Larus argentatus*)
 BH: Black-headed Gull (*Larus ridibundus*)
 PB: Light Bellied Brent Goose (*Branta bernicla*)
 ET: Little Egret (*Egretta garzetta*)
 ND: Great Northern Diver (*Gavia immer*)
 GG: Great Crested Grebe (*Podiceps cristatus*)
 H: Grey Heron (*Ardea cinerea*)
 OC: Oystercatcher (*Haematopus ostralegus*)
 WN: Wigeon (*Anas penelope*)
 CA: Cormorant (*Phalacrocorax carbo*)

Appendix C – NBDC Avifaunal Records

Table C – NBDC avifaunal records of grid cells

Species	Record Count	Date of Last Record	Designation
Alpine Swift (<i>Apus melba</i>)	2	18/04/2006	Wildlife Acts
American Black Duck (<i>Anas rubripes</i>)	1	15/03/1993	Wildlife Acts
American Coot (<i>Fulica americana</i>)	1	04/04/1981	Wildlife Acts
American Golden Plover (<i>Pluvialis dominica</i>)	19	17/11/2013	Wildlife Acts
American Herring Gull (<i>Larus smithsonianus</i>)	7	08/03/2002	Wildlife Acts
American Wigeon (<i>Anas americana</i>)	12	31/12/2001	Wildlife Acts
Arctic Tern (<i>Sterna paradisaea</i>)	1	04/08/2010	Wildlife Acts
Baird's Sandpiper (<i>Calidris bairdii</i>)	22	10/10/2013	Wildlife Acts
Barn Owl (<i>Tyto alba</i>)	1	31/12/2011	Wildlife Acts Birds of Conservation Concern - Red List
Barn Swallow (<i>Hirundo rustica</i>)	4	21/10/2020	Wildlife Acts Birds of Conservation Concern - Amber List
Barnacle Goose (<i>Branta leucopsis</i>)	1	31/12/2001	Wildlife Acts Birds of Conservation Concern - Amber List
Barred Warbler (<i>Sylvia nisoria</i>)	2	08/11/2011	Wildlife Acts
Bar-tailed Godwit (<i>Limosa lapponica</i>)	8	31/12/2011	Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Amber List
Bearded Tit (<i>Panurus biarmicus</i>)	4	27/01/1982	Wildlife Acts
Bewick's Swan (<i>Cygnus columbianus</i> subsp. <i>bewickii</i>)	1	31/12/2001	Wildlife Acts EU Birds Directive: Annex Birds of Conservation Concern - Red List
Black Guillemot (<i>Cepphus grylle</i>)	2	17/04/1998	Wildlife Acts Birds of Conservation Concern - Amber List
Black Redstart (<i>Phoenicurus ochruros</i>)	2	31/12/2011	Wildlife Acts
Black-billed Magpie (<i>Pica pica</i>)	6	27/02/2020	Wildlife Acts
Black-crowned Night Heron (<i>Nycticorax nycticorax</i>)	4	22/03/2005	Wildlife Acts
Black-headed Gull (<i>Larus ridibundus</i>)	10	27/02/2020	Wildlife Acts Birds of Conservation Concern - Red List
Black-legged Kittiwake (<i>Rissa tridactyla</i>)	6	27/02/2020	Wildlife Acts Birds of Conservation Concern - Amber List
Black-tailed Godwit (<i>Limosa limosa</i>)	7	31/12/2011	Wildlife Acts Birds of Conservation Concern - Amber List
Black-winged Stilt (<i>Himantopus himantopus</i>)	3	01/04/1990	Wildlife Acts
Blue Tit (<i>Cyanistes caeruleus</i>)	5	31/12/2011	Wildlife Acts
Blue-headed Wagtail (<i>Motacilla flava</i> subsp. <i>flava</i>)	6	25/05/2014	Wildlife Acts
Bluethroat (<i>Luscinia svecica</i>)	4	31/12/2011	Wildlife Acts
Blue-winged Teal (<i>Anas discors</i>)	3	22/10/2013	Wildlife Acts
Bonaparte's Gull (<i>Larus philadelphia</i>)	1	30/08/2008	Wildlife Acts
Booted Warbler (<i>Hippolais caligata</i>)	1	02/09/2004	Wildlife Acts
Branta bernicla subsp. <i>hrota</i>	1	31/12/2011	Wildlife Acts
Brent Goose (<i>Branta bernicla</i>)	6	01/04/2021	Wildlife Acts Birds of Conservation Concern - Amber List
Broad-billed Sandpiper (<i>Limicola falcinellus</i>)	4	03/05/2005	Wildlife Acts
Buff-bellied Pipit (<i>Anthus rubescens</i>)	3	31/12/2011	Wildlife Acts
Buff-breasted Sandpiper (<i>Tryngites subruficollis</i>)	1	31/12/2001	Wildlife Acts

Canada Goose (<i>Branta canadensis</i>)	2	14/11/2009	Invasive Species: High Impact Regulation S.I. 477 (Ireland) Wildlife Acts EU Birds Directive: Annex II
Caspian Tern (<i>Hydroprogne caspia</i>)	2	20/06/1998	Wildlife Acts
Chaffinch (<i>Fringilla coelebs</i>)	4	31/12/2011	Wildlife Acts
Chiloë Wigeon (<i>Anas sibilatrix</i>)	1	31/12/2001	Wildlife Acts
Citrine Wagtail (<i>Motacilla citreola</i>)	5	02/09/2004	Wildlife Acts
Coal Tit (<i>Parus ater</i>)	2	31/12/2011	Wildlife Acts
Common Blackbird (<i>Turdus merula</i>)	7	27/02/2020	Wildlife Acts
Common Chiffchaff (<i>Phylloscopus collybita</i>)	2	31/12/2011	Wildlife Acts
Common Coot (<i>Fulica atra</i>)	1	31/12/2001	Wildlife Acts EU Birds Directive: Annex II, Annex III Birds of Conservation Concern - Amber List
Common Eider (<i>Somateria mollissima</i>)	2	31/12/2011	Wildlife Acts EU Birds Directive: Annex II, Annex III Birds of Conservation Concern - Amber List
Common Greenshank (<i>Tringa nebularia</i>)	6	31/12/2011	Wildlife Acts Birds of Conservation Concern - Amber List
Common Guillemot (<i>Uria aalge</i>)	1	31/12/2011	Wildlife Acts Birds of Conservation Concern - Amber List
Common Kestrel (<i>Falco tinnunculus</i>)	4	01/04/2021	Wildlife Acts Birds of Conservation Concern - Amber List
Common Kingfisher (<i>Alcedo atthis</i>)	2	31/12/2011	Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Amber List
Common Linnet (<i>Carduelis cannabina</i>)	7	04/07/2020	Wildlife Acts
Common Moorhen (<i>Gallinula chloropus</i>)	1	31/12/2001	Wildlife Acts
Common Nightingale (<i>Luscinia megarhynchos</i>)	1	23/04/2000	Wildlife Acts
Common Pheasant (<i>Phasianus colchicus</i>)	2	31/12/2011	Wildlife Acts EU Birds Directive: Annex II, Annex III
Common Raven (<i>Corvus corax</i>)	3	31/05/2021	Wildlife Acts
Common Redshank (<i>Tringa totanus</i>)	4	31/12/2011	Wildlife Acts Birds of Conservation Concern - Red List
Common Rosefinch (<i>Carpodacus erythrinus</i>)	1	24/09/2011	Wildlife Acts
Common Sandpiper (<i>Actitis hypoleucos</i>)	1	03/08/2010	Wildlife Acts Birds of Conservation Concern - Amber List
Common Shelduck (<i>Tadorna tadorna</i>)	7	24/05/2015	Wildlife Acts Birds of Conservation Concern - Amber List
Common Snipe (<i>Gallinago gallinago</i>)	4	31/12/2011	Wildlife Acts EU Birds Directive: Annex II, Annex III Birds of Conservation Concern - Amber List
Common Starling (<i>Sturnus vulgaris</i>)	9	01/04/2021	Wildlife Acts Birds of Conservation Concern - Amber List
Common Swift (<i>Apus apus</i>)	1	31/12/2011	Wildlife Acts
Common Whitethroat (<i>Sylvia communis</i>)	3	31/05/2021	Wildlife Acts
Common Wood Pigeon (<i>Columba palumbus</i>)	6	04/07/2020	Wildlife Acts EU Birds Directive: Annex II, Annex III
Curlew Sandpiper (<i>Calidris ferruginea</i>)	2	04/08/2010	Wildlife Acts
Dunlin (<i>Calidris alpina</i>)	11	01/04/2021	Wildlife Acts Birds of Conservation Concern - Amber List
Dusky Warbler (<i>Phylloscopus fuscatus</i>)	1	23/10/2007	Wildlife Acts
Eurasian Collared Dove (<i>Streptopelia decaocto</i>)	3	31/12/2011	Wildlife Acts

Eurasian Curlew (<i>Numenius arquata</i>)	10	27/02/2020	Wildlife Acts EU Birds Directive: Annex II Birds of Conservation Concern - Red List
Eurasian Dotterel (<i>Charadrius morinellus</i>)	1	25/08/2013	Wildlife Acts
Eurasian Golden Oriole (<i>Oriolus oriolus</i>)	2	02/05/2005	Wildlife Acts
Eurasian Hobby (<i>Falco subbuteo</i>)	10	20/10/2013	Wildlife Acts
Eurasian Jackdaw (<i>Corvus monedula</i>)	6	27/02/2020	Wildlife Acts
Eurasian Oystercatcher (<i>Haematopus ostralegus</i>)	10	01/04/2021	Wildlife Acts Birds of Conservation Concern - Amber List
Eurasian Sparrowhawk (<i>Accipiter nisus</i>)	1	19/10/2011	Wildlife Acts
Eurasian Spoonbill (<i>Platalea leucorodia</i>)	10	10/05/1996	Wildlife Acts
Eurasian Teal (<i>Anas crecca</i>)	5	31/12/2011	Wildlife Acts EU Birds Directive: Annex II, Annex III Birds of Conservation Concern - Amber List
Eurasian Wigeon (<i>Anas penelope</i>)	4	31/12/2011	Wildlife Acts EU Birds Directive: Annex II, Annex III Birds of Conservation Concern - Amber List
Eurasian Wryneck (<i>Jynx torquilla</i>)	3	07/10/2013	Wildlife Acts
European Golden Plover (<i>Pluvialis apricaria</i>)	2	31/12/2011	Wildlife Acts EU Birds Directive: Annex I, II & III Birds of Conservation Concern - Red List
European Goldfinch (<i>Carduelis carduelis</i>)	5	11/09/2018	Wildlife Acts
European Greenfinch (<i>Carduelis chloris</i>)	2	31/12/2011	Wildlife Acts
European Robin (<i>Erithacus rubecula</i>)	6	27/02/2020	Wildlife Acts
European Shag (<i>Phalacrocorax aristotelis</i>)	3	19/01/2014	Wildlife Acts Birds of Conservation Concern - Amber List
Fieldfare (<i>Turdus pilaris</i>)	1	31/12/2011	Wildlife Acts
Forster's Tern (<i>Sterna forsteri</i>)	1	18/02/2006	Wildlife Acts
Gadwall (<i>Anas strepera</i>)	1	31/12/2001	Wildlife Acts EU Birds Directive: Annex II Birds of Conservation Concern - Amber List
Glaucous Gull (<i>Larus hyperboreus</i>)	4	19/01/2014	Wildlife Acts
Glossy Ibis (<i>Plegadis falcinellus</i>)	5	02/08/2014	Wildlife Acts
Goldcrest (<i>Regulus regulus</i>)	3	31/12/2011	Wildlife Acts
Great Black-backed Gull (<i>Larus marinus</i>)	15	04/07/2020	Wildlife Acts Birds of Conservation Concern - Amber List
Great Cormorant (<i>Phalacrocorax carbo</i>)	10	27/02/2020	Wildlife Acts
Great Crested Grebe (<i>Podiceps cristatus</i>)	2	31/12/2011	Wildlife Acts Birds of Conservation Concern - Amber List
Great Northern Diver (<i>Gavia immer</i>)	3	27/02/2020	Wildlife Acts
Great Tit (<i>Parus major</i>)	5	04/07/2020	Wildlife Acts
Greater Scaup (<i>Aythya marila</i>)	1	31/12/2001	Wildlife Acts EU Birds Directive: Annex II, Annex III Birds of Conservation Concern - Amber List
Greater Short-toed Lark (<i>Calandrella brachydactyla</i>)	4	21/10/2013	Wildlife Acts
Greater White-fronted Goose (<i>Anser albifrons</i>)	1	31/12/2001	Wildlife Acts EU Birds Directive: Annex I, II & III Birds of Conservation Concern - Amber List
Greater Yellowlegs (<i>Tringa melanoleuca</i>)	2	06/05/1978	Wildlife Acts
Green Sandpiper (<i>Tringa ochropus</i>)	2	03/08/2010	Wildlife Acts
Greenish Warbler (<i>Phylloscopus trochiloides</i>)	1	25/09/1997	Wildlife Acts
Green-winged Teal (<i>Anas carolinensis</i>)	1	31/12/2001	Wildlife Acts
Grey Heron (<i>Ardea cinerea</i>)	9	27/02/2020	Wildlife Acts
Grey Plover (<i>Pluvialis squatarola</i>)	4	31/12/2011	Wildlife Acts Birds of Conservation Concern - Amber List
Grey Wagtail (<i>Motacilla cinerea</i>)	3	31/12/2011	Wildlife Acts
Gull-billed Tern (<i>Gelochelidon nilotica</i>)	1	29/04/1993	Wildlife Acts

Hedge Accentor (<i>Prunella modularis</i>)	7	04/07/2020	Wildlife Acts
Hen Harrier (<i>Circus cyaneus</i>)	1	15/01/2005	Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Amber List
Herring Gull (<i>Larus argentatus</i>)	14	04/07/2020	Wildlife Acts Birds of Conservation Concern – Red List
Hooded Crow (<i>Corvus cornix</i>)	9	04/07/2020	Wildlife Acts
House Martin (<i>Delichon urbicum</i>)	1	31/12/2011	Wildlife Acts
House Sparrow (<i>Passer domesticus</i>)	8	01/04/2021	Wildlife Acts Birds of Conservation Concern - Amber List
Iceland Gull (<i>Larus glaucoides</i>)	2	31/12/2011	Wildlife Acts
Icterine Warbler (<i>Hippolais icterina</i>)	4	24/09/2006	Wildlife Acts
Ivory Gull (<i>Pagophila eburnea</i>)	2	09/01/1980	Wildlife Acts
Jack Snipe (<i>Lymnocyptes minimus</i>)	1	31/12/2001	Wildlife Acts
Kentish Plover (<i>Charadrius alexandrinus</i>)	3	24/04/1984	Wildlife Acts EU Birds Directive: Annex I Bird Species
Killdeer (<i>Charadrius vociferus</i>)	4	09/02/2003	Wildlife Acts
Kumlien's Iceland Gull (<i>Larus glaucoides</i> subsp. <i>kumlieni</i>)	12	22/03/2014	Wildlife Acts
Lapland Longspur (<i>Calcarius lapponicus</i>)	1	31/12/2011	Wildlife Acts
Laughing Gull (<i>Larus atricilla</i>)	3	28/12/2014	Wildlife Acts
Laughing Gull (<i>Larus atricilla</i>)	1	19/01/2014	Wildlife Acts
Least Sandpiper (<i>Calidris minutilla</i>)	2	12/08/1988	Wildlife Acts
Lesser Black-backed Gull (<i>Larus fuscus</i>)	10	04/07/2020	Wildlife Acts Birds of Conservation Concern - Amber List
Lesser Crested Tern (<i>Sterna bengalensis</i>)	1	08/08/1996	Wildlife Acts
Lesser Grey Shrike (<i>Lanius minor</i>)	1	06/09/1985	Wildlife Acts
Lesser Yellowlegs (<i>Tringa flavipes</i>)	11	15/10/2010	Wildlife Acts
Limnodromus	7	17/06/1989	Wildlife Acts
Little Bittern (<i>Ixobrychus minutus</i>)	2	16/03/1990	Wildlife Acts
Little Bustard (<i>Tetrax tetrax</i>)	1	24/12/1860	Wildlife Acts
Little Egret (<i>Egretta garzetta</i>)	10	24/05/2015	Wildlife Acts EU Birds Directive: Annex I
Little Grebe (<i>Tachybaptus ruficollis</i>)	1	31/12/2001	Wildlife Acts Birds of Conservation Concern - Amber List
Little Gull (<i>Larus minutus</i>)	1	15/01/2005	Wildlife Acts EU Birds Directive: Annex I
Little Plover (<i>Charadrius dubius</i>)	20	09/04/2013	Wildlife Acts
Little Stint (<i>Calidris minuta</i>)	1	31/12/2001	Wildlife Acts
Long-billed Dowitcher (<i>Limnodromus scolopaceus</i>)	12	31/12/2011	Wildlife Acts
Long-tailed Tit (<i>Aegithalos caudatus</i>)	1	31/12/2011	Wildlife Acts
Long-toed Stint (<i>Calidris subminuta</i>)	1	16/06/1996	Wildlife Acts
Mallard (<i>Anas platyrhynchos</i>)	8	24/05/2015	Wildlife Acts EU Birds Directive: Annex II, Annex III
Manx Shearwater (<i>Puffinus puffinus</i>)	1	04/08/2010	Wildlife Acts
Meadow Pipit (<i>Anthus pratensis</i>)	8	27/02/2020	Wildlife Acts
Mediterranean Gull (<i>Larus melanocephalus</i>)	6	31/12/2011	Wildlife Acts EU Birds Directive: Annex I Bird Species Birds of Conservation Concern - Amber List
Mediterranean Gull (<i>Larus melanocephalus</i>)	1	04/08/2010	Wildlife Acts
Merlin (<i>Falco columbarius</i>)	3	31/12/2011	Wildlife Acts EU Birds Directive: Annex I Bird Species Birds of Conservation Concern - Amber List
Mew Gull (<i>Larus canus</i>)	5	31/12/2011	Wildlife Acts Birds of Conservation Concern - Amber List
Montagu's Harrier (<i>Circus pygargus</i>)	1	28/04/1984	Wildlife Acts
Mute Swan (<i>Cygnus olor</i>)	2	31/12/2011	Wildlife Acts

			Birds of Conservation Concern - Amber List
Northern Fulmar (<i>Fulmarus glacialis</i>)	7	31/05/2021	Wildlife Acts
Northern Gannet (<i>Morus bassanus</i>)	6	10/06/2017	Wildlife Acts Birds of Conservation Concern - Amber List
Northern Goshawk (<i>Accipiter gentilis</i>)	1	15/09/1979	Wildlife Acts Birds of Conservation Concern - Amber List
Northern Lapwing (<i>Vanellus vanellus</i>)	5	31/12/2011	Wildlife Acts EU Birds Directive: Annex II Birds of Conservation Concern - Red List
Northern Shoveler (<i>Anas clypeata</i>)	3	31/12/2011	Wildlife Acts EU Birds Directive: Annex II, Annex III Birds of Conservation Concern - Red List
Northern Wheatear (<i>Oenanthe oenanthe</i>)	7	19/04/2021	Wildlife Acts Birds of Conservation Concern - Amber List
Pacific Golden Plover (<i>Pluvialis fulva</i>)	9	15/10/1994	Wildlife Acts
Pallas's Leaf Warbler (<i>Phylloscopus proregulus</i>)	1	23/10/2007	Wildlife Acts
Peregrine Falcon (<i>Falco peregrinus</i>)	5	31/12/2011	Wildlife Acts EU Birds Directive: Annex I
Pied Avocet (<i>Recurvirostra avosetta</i>)	4	22/03/1993	Wildlife Acts
Pied Wagtail (<i>Motacilla alba</i> subsp. <i>yarrellii</i>)	6	27/02/2020	Wildlife Acts
Pink-footed Goose (<i>Anser brachyrhynchus</i>)	1	31/12/2001	Wildlife Acts EU Birds Directive: Annex II
Purple Heron (<i>Ardea purpurea</i>)	1	13/06/1981	Wildlife Acts
Purple Sandpiper (<i>Calidris maritima</i>)	1	31/12/2011	Wildlife Acts
Razorbill (<i>Alca torda</i>)	1	31/12/2011	Wildlife Acts Birds of Conservation Concern - Amber List
Red Kite (<i>Milvus milvus</i>)	2	25/01/1998	Wildlife Acts Birds of Conservation Concern - Amber List
Red Knot (<i>Calidris canutus</i>)	4	31/12/2011	Wildlife Acts Birds of Conservation Concern - Red List
Red-backed Shrike (<i>Lanius collurio</i>)	4	28/11/1994	Wildlife Acts
Red-billed Chough (<i>Pyrrhocorax pyrrhocorax</i>)	8	31/05/2021	Wildlife Acts
Red-breasted Merganser (<i>Mergus serrator</i>)	1	31/12/2001	Wildlife Acts EU Birds Directive >> Annex II
Red-necked Phalarope (<i>Phalaropus lobatus</i>)	2	10/10/1992	Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Red List
Red-necked Stint (<i>Calidris ruficollis</i>)	2	01/08/2002	Wildlife Acts
Red-rumped Swallow (<i>Cecropis daurica</i>)	2	06/05/2008	Wildlife Acts
Red-throated Diver (<i>Gavia stellata</i>)	2	31/12/2011	Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Amber List
Red-throated Pipit (<i>Anthus cervinus</i>)	7	21/10/2012	Wildlife Acts
Redwing (<i>Turdus iliacus</i>)	1	31/12/2011	Wildlife Acts
Reed Bunting (<i>Emberiza schoeniclus</i>)	5	24/05/2015	Wildlife Acts
Reed Bunting (<i>Emberiza schoeniclus</i>)	1	31/12/2011	Wildlife Acts
Richard's Pipit (<i>Anthus richardi</i>)	6	19/10/2012	Wildlife Acts
Ring-billed Gull (<i>Larus delawarensis</i>)	1	31/12/2001	Wildlife Acts
Ringed Plover (<i>Charadrius hiaticula</i>)	11	01/04/2021	Wildlife Acts Birds of Conservation Concern - Amber List
Rock Pigeon (<i>Columba livia</i>)	5	27/02/2020	Wildlife Acts EU Birds Directive: Annex II
Rock Pipit (<i>Anthus petrosus</i>)	8	31/05/2021	Wildlife Acts
Rook (<i>Corvus frugilegus</i>)	3	24/05/2015	Wildlife Acts
Rosy Starling (<i>Sturnus roseus</i>)	4	19/10/2011	Wildlife Acts
Ruddy Duck (<i>Oxyura jamaicensis</i>)	2	28/10/1987	Invasive Species: High Impact

			EU Regulation No. 1143/2014, Regulation S.I. 477 (Ireland)
Ruddy Turnstone (<i>Arenaria interpres</i>)	4	31/12/2011	Wildlife Acts
Ruff (<i>Philomachus pugnax</i>)	3	31/12/2011	Wildlife Acts EU Birds Directive: Annex I Birds of Conservation Concern - Amber List
Sand Martin (<i>Riparia riparia</i>)	2	31/12/2011	Wildlife Acts Birds of Conservation Concern - Amber List
Sanderling (<i>Calidris alba</i>)	10	31/12/2011	Wildlife Acts
Sandwich Tern (<i>Sterna sandvicensis</i>)	5	04/07/2020	Wildlife Acts EU Birds Directive; Annex I Birds of Conservation Concern; Amber List
Savi's Warbler (<i>Locustella luscinioides</i>)	1	15/05/1988	Wildlife Acts
Scandinavian Rock Pipit (<i>Anthus petrosus</i> subsp. <i>littoralis</i>)	4	03/03/2011	Wildlife Acts
Sedge Warbler (<i>Acrocephalus schoenobaenus</i>)	7	31/05/2021	Wildlife Acts
Semipalmated Sandpiper (<i>Calidris pusilla</i>)	24	26/10/2013	Wildlife Acts
Sharp-tailed Sandpiper (<i>Calidris acuminata</i>)	2	05/10/2007	Wildlife Acts
Short-eared Owl (<i>Asio flammeus</i>)	2	28/10/2015	Wildlife Acts EU Birds Directive; Annex I Birds of Conservation Concern; Amber List
Sky Lark (<i>Alauda arvensis</i>)	9	31/05/2021	Wildlife Acts Birds of Conservation Concern; Amber List
Snow Bunting (<i>Plectrophenax nivalis</i>)	1	31/12/2011	Wildlife Acts
Song Thrush (<i>Turdus philomelos</i>)	5	31/12/2011	Wildlife Acts
Spotted Crake (<i>Porzana porzana</i>)	2	31/08/1983	Wildlife Acts Birds of Conservation Concern; Amber List
Spotted Redshank (<i>Tringa erythropus</i>)	4	31/12/2011	Wildlife Acts
Spotted Sandpiper (<i>Actitis macularius</i>)	2	03/10/2007	Wildlife Acts
Squacco Heron (<i>Ardeola ralloides</i>)	2	17/06/1996	Wildlife Acts
Stilt Sandpiper (<i>Calidris himantopus</i>)	2	07/08/1988	Wildlife Acts
Stonechat (<i>Saxicola torquata</i>)	15	31/05/2021	Wildlife Acts
Surf Scoter (<i>Melanitta perspicillata</i>)	2	16/06/2013	Wildlife Acts
Tawny Pipit (<i>Anthus campestris</i>)	3	23/04/2010	Wildlife Acts
Temminck's Stint (<i>Calidris temminckii</i>)	2	03/08/1987	Wildlife Acts
Twite (<i>Carduelis flavirostris</i>)	1	31/12/2011	Wildlife Acts Birds of Conservation Concern - Red List
Water Pipit (<i>Anthus spinoletta</i>)	7	31/12/2011	Wildlife Acts
Water Rail (<i>Rallus aquaticus</i>)	2	31/12/2011	Wildlife Acts Birds of Conservation Concern; Amber List
Whimbrel (<i>Numenius phaeopus</i>)	7	21/10/2020	Wildlife Acts
Whiskered Tern (<i>Chlidonias hybrida</i>)	3	29/05/1988	Wildlife Acts
Whistling Swan (<i>Cygnus columbianus</i> subsp. <i>columbianus</i>)	3	27/02/1985	Wildlife Acts
White Wagtail (<i>Motacilla alba</i>)	4	31/12/2011	Wildlife Acts
White-rumped Sandpiper (<i>Calidris fuscicollis</i>)	29	02/11/2013	Wildlife Acts
White-winged Tern (<i>Chlidonias leucopterus</i>)	8	30/08/1983	Wildlife Acts
Whooper Swan (<i>Cygnus cygnus</i>)	1	31/12/2001	Wildlife Acts EU Birds Directive; Annex I Birds of Conservation Concern; Amber List
Wilson's Phalarope (<i>Phalaropus tricolor</i>)	14	13/09/1998	Wildlife Acts
Winter Wren (<i>Troglodytes troglodytes</i>)	6	27/02/2020	Wildlife Acts
Yellowhammer (<i>Emberiza citrinella</i>)	3	05/08/2018	Wildlife Acts Birds of Conservation Concern - Red List

Appendix D – Bird Counts February and March 2023 (ByrneLooby)

Survey 1 (09/02/2023)

Area A

Date	Start time	Finish time	Notes
09/02/2023	10:30	11:15	Fishermen (2) working on the pier, and cars occasionally driving up/down the pier. A male grey seal was observed in the water for the duration of the count.
Weather			
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)
Rain	1 - None	2 - Drizzle	3 - Showers
Wind	1 - Calm	2 - Light	3 - Breezy
Visibility	1- Good	2 - Moderate	3 - Poor

Species	Count	Description of Activity (e.g., foraging, roosting, flying etc).
Wigeon <i>Anas penelope</i>	4	Swimming and foraging/dabbling
Great Northern Diver <i>Gavia immer</i>	1	Foraging/diving (along the pier)
Unidentified Diver (<i>Gavia</i> sp.)	7	Foraging/diving - too far out a distance to identify to species level
Shag <i>Phalacrocx aristotelis</i>	2	One diving, one flying
Cormorant <i>Phalacrocx carbo</i>	12	Perched/drying out – 6 (on Poll na Caoin and including surrounding the Lighthouse). Diving/foraging – 2. Flying – 4.
Unidentified Shag/Cormorant (<i>Phalacrocx</i> sp.)	3	Flying – 2. Diving – 1.
Brent Goose <i>Branta bernicla hrota</i>	5	Feeding/foraging.
Oystercatcher <i>Haematopus ostralegus</i>	10	Flying – 6. Feeding – 4.
Tern (<i>Sterna</i> sp.)	12	Flying – 8. Perched/roosting – 4 (on Poll na Caoin and including surrounding the Lighthouse).
Gulls (<i>Larus</i> sp.)	59	Flying, swimming and perched (on Poll na Caoin and including surrounding the Lighthouse).

Area B

Date	Start time	Finish time	Notes
------	------------	-------------	-------

09/02/2023	11:30	12:15	No human disturbance – quiet location.	
Weather				
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)	
Rain	1 - None	2 - Drizzle	3 - Showers	
Wind	1 - Calm	2 - Light	3 - Breezy	
Visibility	1 - Good	2 - Moderate	3 - Poor	

Species	Count	Description of Activity (e.g., foraging, roosting, flying etc).
Green Sandpiper <i>Tringa ochropus</i>	3	Foraging in trapped pools of water among the rocks.
Curlew <i>Numenius arquata</i>	3	Foraging.
Brent Goose <i>Branta bernicla hrota</i>	5	Foraging- trapped pools/pockets of water.
Oystercatcher <i>Haematopus ostralegus</i>	15	Flying – 8. Foraging – 7.
Tern (<i>Sterna</i> sp.)	18	Flying and foraging/roosting.
Gulls (<i>Larus</i> sp.)	26	Flying, swimming, roosting.

Area C

Date	Start time	Finish time	Notes	
09/02/2023	12:40	13:25	No human disturbance – quiet location.	
Weather				
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)	
Rain	1 - None	2 - Drizzle	3 - Showers	
Wind	1 - Calm	2 - Light	3 - Breezy	
Visibility	1 - Good	2 - Moderate	3 - Poor	

Species	Count	Description of Activity (e.g., foraging, roosting, flying etc).
Green Sandpiper <i>Tringa ochropus</i>	3	Foraging in trapped pools of water among the rocks.
Curlew <i>Numenius arquata</i>	4	Foraging.
Brent Goose <i>Branta bernicla hrota</i>	13	Foraging - trapped pools of water higher up the shoreline, near the estuarine mudflats on the bay.
Oystercatcher <i>Haematopus ostralegus</i>	21	Flying – 7. Foraging – 14.
Tern (<i>Sterna</i> sp.)	4	Flying – 3. Roosting – 1.

Gulls (<i>Larus</i> sp.)	173	Flying, swimming, roosting.
Dunlin <i>Calidris alpina</i>	7	Roosting and foraging.
Little Egret <i>Egretta garzetta</i>	5	Roosting and foraging.
Wigeon <i>Anas penelope</i>	30	Swimming and foraging.
Grey Heron <i>Ardea cinerea</i>	1	Foraging.
Bar-tailed Godwit <i>Limosa lapponica</i>	73	Foraging and flying.

Survey 2 (06/03/2023)

Area A

Date	Start time	Finish time	Notes
06/03/2023	11:00	11:45	No human disturbances.
Weather			
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)
Rain	1 - None	2 - Drizzle	3 - Showers
Wind	1 - Calm	2 - Light	3 - Breezy
Visibility	1 - Good	2 - Moderate	3 - Poor

Species	Count	Description of Activity (e.g., foraging, roosting, flying etc).
Mallard <i>Anas platyrhynchos</i>	2	Foraging/dabbling.
Curlew <i>Numenius arquata</i>	3	Foraging.
Shag <i>Phalacrox aristotelis</i>	10	4 diving, 3 flying, 3 perched/drying out.
Cormorant <i>Phalacrox carbo</i>	12	Perched/drying out – 7 (on Poll na Caoin and including surrounding the Lighthouse). Diving/foraging – 3. Flying – 2.
Unidentified Shag/Cormorant (<i>Phalacrox</i> sp.)	67	All perched/drying on the Poll na Caoin and including surrounding the Lighthouse – too far to differentiate. However – vast majority are thought to be cormorant.
Brent Goose <i>Branta bernicla hrota</i>	11	Feeding/foraging.
Oystercatcher <i>Haematopus ostralegus</i>	4	Flying – 3. Feeding – 1.
Tern (<i>Sterna</i> sp.)	7	Flying – 5. Perched/roosting – 2 (on Poll na Caoin).
Gulls (<i>Larus</i> sp.)	84	Flying, swimming and perched (along the pier, on the rocks and on Poll na Caoin and including surrounding the Lighthouse).

Area B

Date	Start time	Finish time	Notes
06/03/2023	12:10	12.55	No human disturbances.
Weather			
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)
Rain	1 - None	2 - Drizzle	3 - Showers
Wind	1 - Calm	2 - Light	3 - Breezy
Visibility	1- Good	2 - Moderate	3 - Poor

Species	Count	Description of Activity (e.g., foraging, roosting, flying etc).
Cormorant <i>Phalacrox carbo</i>	4	Foraging/diving.
Great Northern Diver <i>Gavia immer</i>	1	Foraging/diving.
Unidentified diver <i>Gavia sp.</i>	3	Foraging/diving.
Oystercatcher <i>Haematopus ostralegus</i>	5	Flying – 1. Foraging – 4.
Tern (<i>Sterna sp.</i>)	6	Flying and foraging/roosting.
Gulls (<i>Larus sp.</i>)	24	Flying, swimming, roosting.

Area C

Date	Start time	Finish time	Notes
06/03/2023	13:15	14:00	Human disturbances; 11 people on the beach (periwinkle pickers), Person walking with their dog (off the lead), 2 people walking.
Weather			
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)
Rain	1 - None	2 - Drizzle	3 - Showers
Wind	1 - Calm	2 - Light	3 - Breezy
Visibility	1- Good	2 - Moderate	3 - Poor

Species	Count	Description of Activity (e.g., foraging, roosting, flying etc).
Redshank <i>Tringa totanus</i>	15	Foraging in trapped pools of water among the rocks, and along shoreline.

Curllew <i>Numenius arquata</i>	2	Foraging/wading.
Brent Goose <i>Branta bernicla hrota</i>	34	Foraging - trapped pools of water higher up the shoreline, near the estuarine mudflats on the bay.
Oystercatcher <i>Haematopus ostralegus</i>	13	Flying – 7. Foraging – 14.
Tern (<i>Sterna</i> sp.)	11	Flying – 3. Roosting – 1.
Gulls (<i>Larus</i> sp.)	153	Flying, swimming, roosting.
Dunlin <i>Calidris alpina</i>	45	Roosting and foraging.
Cormorant <i>Phalacrocax carbo</i>	2	Roosting/drying.
Shag <i>Phalacrocax aristotelis</i>	1	Diving.
Common Sandpiper <i>Actitis hypoleucos</i>	5	Foraging/wading.

Survey 3 (21/03/2023)

Area A

Date	Start time	Finish time	Notes
21/03/2023	11:15	12:00	3 people walking along the rocks – periwinkle pickers.
Weather			
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)
Rain	1 - None	2 - Drizzle	3 - Showers
Wind	1 - Calm	2 - Light	3 - Breezy
Visibility	1- Good	2 - Moderate	3 - Poor

Species	Count	Description of Activity (e.g., foraging, roosting, flying etc).
Curllew <i>Numenius arquata</i>	2	Foraging.
Shag <i>Phalacrocax aristotelis</i>	5	2 diving, 1 flying, 2 perched/drying out.
Cormorant <i>Phalacrocax carbo</i>	3	Perched/drying out (on Poll na Caoin and surrounding the Lighthouse).
Unidentified Shag/Cormorant (<i>Phalacrocax</i> sp.)	17	All perched/drying on the Poll na Caoin and including surrounding the Lighthouse – too far to differentiate. Vast majority are thought to be cormorant.
Brent Goose <i>Branta bernicla hrota</i>	10	Feeding/foraging.
Oystercatcher <i>Haematopus ostralegus</i>	2	Feeding – 1. Flying – 1.

Gulls (<i>Larus</i> sp.)	86	Flying, swimming and perched (along the pier, on the rocks and on Poll na Caoin and including surrounding the Lighthouse).
---------------------------	----	--

Area B

Date	Start time	Finish time	Notes
21/03/2023	12:15	13:00	Human disturbance – builder using angle-grinder on the slip. Not continuous.
Weather			
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)
Rain	1 - None	2 - Drizzle	3 - Showers
Wind	1 - Calm	2 - Light	3 - Breezy
Visibility	1 - Good	2 - Moderate	3 - Poor

Species	Count	Description of Activity (e.g., foraging, roosting, flying etc).
Cormorant <i>Phalacrocorax carbo</i>	3	Foraging/diving.
Great Northern Diver <i>Gavia immer</i>	1	Foraging/diving.
Great Crested Grebe <i>Podiceps cristatus</i>	2	Foraging/diving.
Oystercatcher <i>Haematopus ostralegus</i>	7	Flying – 3. Foraging – 4.
Tern (<i>Sterna</i> sp.)	2	Flying and foraging/roosting.
Gulls (<i>Larus</i> sp.)	13	Flying, swimming, roosting.
Grey Heron <i>Ardea cinerea</i>	3	Foraging/hunting.
Wigeon <i>Anas penelope</i>	6	Swimming and foraging.
Little Egret <i>Egretta garzetta</i>	2	Foraging/hunting/roosting.

Area C

Date	Start time	Finish time	Notes
21/03/2023	12:15	13:00	Human disturbance – builder using angle-grinder on the slip. Not continuous.
Weather			
Cloud cover	1 - (0-33%)	2 - (33-66%)	3 - (66-100%)
Rain	1 - None	2 - Drizzle	3 - Showers
Wind	1 - Calm	2 - Light	3 - Breezy

Visibility	1- Good	2 - Moderate	3 - Poor
------------	---------	--------------	----------

Species	Count	Description of Activity (e.g., foraging, roosting, flying etc).
Redshank <i>Tringa totanus</i>	16	Foraging in trapped pools of water among the rocks, and along shoreline.
Curlew <i>Numenius arquata</i>	1	Foraging/wading.
Brent Goose <i>Branta bernicla hrota</i>	72	Foraging - trapped pools of water higher up the shoreline, near the estuarine mudflats on the bay.
Oystercatcher <i>Haematopus ostralegus</i>	7	Flying - 4. Foraging - 3.
Tern (<i>Sterna</i> sp.)	5	Flying - 2. Roosting - 3.
Gulls (<i>Larus</i> sp.)	78	Flying, swimming, roosting.
Golden Plover <i>Pluvialis aprivaria</i>	~300*	Roosting and foraging - along the shoreline and in flight (occasionally). Count had to be estimated
Cormorant <i>Phalacrox carbo</i>	3	Foraging/diving.
Shag <i>Phalacrox aristotelis</i>	1	Diving.
Common Sandpiper <i>Actitis hypoleucos</i>	3	Foraging/wading.
Wigeon <i>Anas penelope</i>	34	Dabbling/swimming 19. Foraging at area of the estuarine mudflat and among the rocks - 15.

* Count estimates were conducted to estimate flocks of fast-flying birds, estimating numbers in small units to ensure higher accuracy.



IRELAND | UK | UAE | BAHRAIN | KSA

BYRNELOOBY

AN **ayesa** COMPANY

www.byrnelooby.com

www.ayesa.com/en/

Email: info@byrnelooby.com

Technology | Engineering | Consulting

BYRNELOOBY

AN **ayesa** COMPANY

www.byrneology.com

www.ayesa.com/en/

Email: info@byrneology.com