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WHITEGATE-AGHADA SEWERAGE SCHEME, CO. CORK (FS007027)

Stage 2 Appropriate Assessment Report

February 2023

Client:
Foreshore Unit
Department of Housing, Local Government and Heritage
Newtown Road
Wexford
Y35 AP90

ROD
ROUGHAN & O'DONOVAN

Foreshore Licence Application for Whitegate-Aghada Sewerage Scheme, Co. Cork (FS007027)

Stage 2 Appropriate Assessment Report

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Background 1
1.2 Competent Experts 1
1.3 Application Documents 1
1.4 Relvant Consultation Responses 2
1.5 Assessment of Observations and Responses 2
1.6 Assessment of Further Information Requested 20
1.7 Legislative Context 21
2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT 24
2.1 Summary 24
2.2 Site Location 25
2.3 Project Components 30
3.0 FINDINGS OF THE AA SCREENING REPORT 36
3.1 Summary of AA Screening Report 36
4.0 COMMENTARY ON STAGE 2 APPROPRIATE ASSESSMENT 40
4.1 Introduction 40
4.2 Identifcation and Assessment of Adverse Effects 40
4.3 Mitigation Measures 42
4.4 In-Combination Impacts 42
4.5 Evaluation of Mitigation Measures 47
5.0 CONCLUSION 49
6.0 RECOMMENDED CONDITIONS 50

1.0 INTRODUCTION

1.1 Background

Roughan & O'Donovan (ROD) has been commissioned by the Foreshore Unit of the Department of Housing, Local Government and Heritage (DHLGH) as Independent Environmental Consultants (IEC) to prepare this Appropriate Assessment (AA) Stage 2 Report. The aim of the report is to inform and assist the Competent Authority (here, the Minister for Housing, Local Government and Heritage) in carrying out its AA determination on whether or not an application by Irish Water ("the Applicant") for a foreshore licence (FS007027) for the proposed wastewater collection and treatment system for the combined villages of Whitegate and Aghada in Co. Cork ("the proposed development"), either individually or in combination with other plans and projects, will adversely affect one or more European sites identified at the AA Screening stage for likely significant effects, in view of their Conservation Objectives.

A Foreshore Licence is required in order to complete the proposed development. An application for such a licence was submitted to the Foreshore Unit of the DHLGH by Irish Water on 23rd November 2020 ("the Application").

It is the considered opinion of ROD, as the author of this Stage 2 Report, that given the full and proper implementation of the mitigation prescribed in the NIS, the proposed development, either individually or in combination with other plans or projects, will not adversely affect the Cork Harbour SPA or any other European Site in view of the site's Conservation Objectives.

1.2 Competent Experts

This report has been undertaken by Patrick O'Shea and Rachel Heaphy. Patrick has a degree in Botany from Trinity College Dublin and an MSc in Ecological Management and Conservation Biology from Queen's University Belfast. He is a Full Member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has ten years' experience in the ecological assessment including impact assessment and Appropriate Assessment. Rachel holds a BSc (Hons) in Zoology from University College Cork and an MRes degree (with distinction) from the University of Roehampton. She is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (QualCIEEM) and has one year's experience in experience in ecological assessment.

1.3 Application Documents

The following documents submitted with the Foreshore Licence Application were reviewed:

- Foreshore Licence Application Form (dated 23rd November 2020)
- Natura Impact Statement Report (dated 22nd October 2020)
    - Appendix A: AA Screening Report (dated September 2020)
    - Appendix B: Site Synopsis for the Cork Harbour SPA
    - Appendix C: Winter Bird Survey Report (dated 26th October 2020)
    - Appendix D: Invasive Species Report (dated 28th October 2020)
    - Appendix E: Site Location Drawings
    - Appendix F: Far Field Modelling Report (dated 13th August 2020)
    - Appendix G: Construction Environmental Management Plan (CEMP) (dated 27th October 2020)

- Site Investigation Monitoring Report (dated May 2019)
- Foreshore Licence Area Overall Plan Map and Site Location Maps (dated 11th November 2019)
- Admiralty Chats (dated 11th November 2019)
- Aquaculture Site Location Map (dated 11th November 2019)
- Rostellan Shellfish Areas Location Map (dated 11th November 2019)
- Archaeological Impact Assessment Report (dated 21st March 2018)
- Archaeological Testing Report (dated May 2019)
- Underwater Archaeological Impact Assessment Report (dated September 2019)
- An Bord Pleanála Inspector's Report for Compulsory Purchase Order (CPO) (dated 2nd July 2019)
- CPO drawings (dated 29th November 2018 and 22nd January 2019)
- Copies of Newspaper notices (dated 1st April 2021 and 3rd April 2021)
- The submissions received from prescribed bodies and members of the public as part of the first public consultation which was undertaken between 7th April 2021 and 6th May 2021.
- The responses from the Applicant to the submissions received as part of the first public consultation which was undertaken between 7th April 2021 and 6th May 2021.
- The submissions received from prescribed bodies as part of the second public consultation which was undertaken in accordance with Regulation 42 of SI 477/2011 between 17th November and 16th December 2022.
- The responses from the Applicant to the submissions received as part of the public consultation which was undertaken in accordance with Regulation 42 of SI 477/2011 between 17th November and 16th December 2022.

1.4 Relvant Consultation Responses

The first Public Consultation for the proposed development was held between 7th April 2021 and 6th May 2021. Observations from Prescribed Bodies with relevance to AA during the first Public Consultation and the Applicant's responses are provided in in Table 1.1.

The second Public Consultation for the proposed development was held between 17th November and 16th December 2022. Observations from Prescribed Bodies during the second Public Consultation and Applicant's responses are provided in Table 1.2.

1.5 Assessment of Observations and Responses

The submissions received from members of the public as part of the public consultation process did not raise any issues pertinent to Appropriate Assessment. The submissions, nor the Applicants' responses, do not change the findings of the NIS. The submissions received from Prescribed Bodies which relate to AA and the Applicant's responses to same, are summarised in below in **Error! Reference source not found.** and **Error! Reference source not found.**.

Table 1.1 Submissions/Observations Received from Prescribed Bodies during the first Public Consultation

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
Department of Agriculture, Food, and the Marine (DAFM)	02/06/2021	This Department has no objection to this application by Irish Water, given the following condition is included in any licence that is issued. The Marine Institute advises that the duration of laying of the outfall pipe into White Bay be kept as short as possible and that all mitigation measures proposed be fully implemented.	The Applicant have no comments on these observations. **The conditions recommended by the Department of Agriculture, Food and the Marine have been brought through to Section 6 of this report as a recommended condition to be attached to any licence that may be granted.**
Environmental Protection Agency (EPA)	28/04/2021	The respondent has made the following observation in their submission: The population equivalent of the agglomeration to which the current Wastewater Discharge License (WWDL) relates is 2,000. The foreshore application relates to a wastewater treatment plant designed for a population equivalent of 2,479. Therefore, the EPA proposes a review of the current WWDL as the proposed development will result in the wastewater works serving the agglomeration with a population equivalent greater than that for which the license was granted. Additionally, the location of the outfall pipe for the proposed development differs from the primary discharge location specified in the WWDL and therefore a review of the WWDL is required. The respondent has made the following recommendations to be considered in determining the granting of a foreshore licence: • The proposed development requires a review of the WWDL. • Whether the discharge causes or exacerbates breaches of the combined approach or cause serious water pollution. • The requirements and conclusions, as appropriate, of your EIA process and Appropriate Assessment process.	The Applicant acknowledges that wastewater discharges from the Whitegate/Aghada agglomeration are currently authorised under an EPA Wastewater Discharge Licence (WWDL), Reference No. D0423-01, in accordance with the Wastewater Discharge (Authorisation) Regulations 2007, as amended, and the population equivalent of the agglomeration to which this licence relates is 2,000 PE. The proposed development, when commissioned, will cater for additional loading up to design population of 2,479 PE and therefore a review of the existing agglomeration WWDL will be required. The Applicant propose to submit an application to the EPA for a review of the existing licence. The Wastewater Discharge (Authorisation) Regulations 2007 (Part II – Duties on a Water Services Authority and the Agency), require that such an application be made "within the 6 months preceding the date prescribed in column (2) of Schedule 2 opposite the specified

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		The respondent also provides the following condition to be contained within the foreshore licence: • Irish Water to submit an application for review of the license to the Agency within six months and before any development starts, unless with prior written agreement of the EPA.	population equivalent of the agglomeration served by a wastewater works or at least 6 months before the date on which a wastewater works becomes operational, whichever is later". However the Applicant propose to submit a licence review application to the EPA shortly after planning has been granted and well in advance of the commencement of construction work. The Applicant also note that the EPA is a statutory consultee to the planning process and has been consulted by Cork County Council in that regard. **The Applicant's response to the submission is adequate. The condition made by the Environmental Protection Agency, whereby a review of the Wastewater Discharge Licence is required, has been brought through to Section 6 of this Report as a recommended condition.**
Inland Fisheries Ireland (IFI)	17/05/2021	The respondent provides a brief project description and details the elements of the project which will occur on the foreshore. With regard to the proposed development, IFI are particularly concerned about resident and migratory species traversing the coastline and entering the Cork Harbour SPA such as Atlantic salmon, sea trout, sea and river lamprey and European eel. In terms of the timing of migrations, the following are relevant to planning of construction: • Summer inward migration of 1-sea winter salmon or grilse into the Cork Harbour SPA, • Migration of adult river lamprey into the area from late summer through Autumn and Winter, • Spring downstream migration (March – May) of salmon smolts moving out to sea,	The Applicant in their response referred to the '*Response to Observations by IFI on a Proposed Wastewater Treatment Marine Outfall at Aghada-Whitegate, Cork Harbour (August 2021)*' report, prepared by DixonBrosnan Environmental Consultants and Aquafact International Services which provided responses to the observations from IFI. This document was provided by the Foreshore Unit to inform this assessment. The report prepared by DixonBrosnan Environmental Consultants details: • The avoidance of critical windows for fish movement as identified in the Table provided in IFI's submission will leave insufficient time

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<tr><th>Prescribed Bodies</th><th>Date Response Received</th><th>Details of Submission/Observation</th><th>Applicant's Response to Submission</th></tr>
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Winter – Spring glass eel recruitment and elver upstream migrations of European eel,
Autumn – Spring downstream migration of adult silver eel, European eel.

Depending on the timing of the proposed works, these migratory species, (as well as sea trout) would be passing through the area where construction work would be on-going with potential to generate noise into the water column, and where suspended solids, construction materials and cements may be at risk of entering the water column.

In a marine context, the timings should be examined in regard to the spawning time and spawning area of commercially important fish species and input of Sea Fisheries Protection Authority (SFPA) should be sought here. Species of note would be sharks, such as tope and smoothhound. IFI recommend the local angling clubs and fishermen are notified in advance of works commencing. The respondent acknowledges that the proposed application, while making reference to the importance of the Cork Harbour SPA for several fish species as spawning and/or nursery waters (including Atlantic mackerel, Horse Mackerel, Atlantic Cod, Atlantic Herring and Whiting) and shellfish aquaculture; does not consider the further importance of the waterbody to the migratory species listed in the Table below.
<table>
<tr><th>Fish species</th><th>EU Status</th><th>Life Stage</th><th>Timing in Cork harbour SPA</th></tr>
<tr><td rowspan="2">Atlantic Salmon</td><td rowspan="2">Habitats - Annex II</td><td>Adult upstream migration</td><td>All times of year: 'Spring' fish, grilse run in June - July</td></tr>
<tr><td>Smolt downstream run</td><td>March - June</td></tr>
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for the works completion. It is also noted by the Applicant that following consultation with the contractor it was determined that while multiple options were assessed at planning stage for the construction of the marine outfall including both float and flood and HDD, ground conditions are considered unsuitable for HDD, therefore the contractor's preferred methodology is float and flood. This means that piling will not be required for the construction of the marine outfall. Piling will only be required, if at all, for an underground concrete chamber partially in the foreshore area at Rostellan.

The Aquafact report in the states that migratory fish are adapted to the high levels of suspended solids that commonly occur in estuaries and any impact on migratory fish species will not be significant. Their report concluded that all migratory fish except for Sea Trout, move rapidly though estuaries and do not deviate from their journeys. Therefore, the fish, if they are present, will swim directly through the location where the pipe is being laid.
The implementation of mitigation measures as specified by IFI will ensure that impacts on fish species will not be significant. However, it has been concluded that avoidance of the critical windows for fish movement is not possible or required given the proposed methodology.
The Applicant's response states that Mr.

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<tr><td>River lamprey</td><td>Habitats - Annex II</td><td>Adult upstream spawning migration</td><td>Autumn - Winter</td></tr>
<tr><td></td><td></td><td>Seaward migration of young adults</td><td>Autumn - Winter</td></tr>
<tr><td>European eel</td><td>EU Eel Action Plan</td><td>Upstream migration of elvers</td><td>Winter - Spring</td></tr>
<tr><td></td><td></td><td>Downstream of adult fish</td><td>Autumn - Spring</td></tr>
</table>
These species were previously highlighted by IFI's observation notes in relation to the initial marine site investigation for the proposed works (file ref FS006835 - Foreshore Application by Irish Water in respect of site investigations at Aghada - Whitegate, Co. Cork by (IFI, R&D, and (IFI, Macroom).
The respondent states that the pipe laying methodology for the proposed marine outfall is not specified and will be determined by the contractor. However, it is likely to be one of the following:
A. Horizontal directional drilling
B. Flood-and-float
C. Bottom-pull
The respondent has a clear preference for Option A (HDD) given its minimal adverse impact on the marine environment and does not require the installation of a concrete mattress for scour protection. The other options (B and C) have significant impacts regarding trench excavation, lining and filling and mattress
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Declan McGabhann of SFPA was contacted it has been confirmed that there are no species of commercial value that breed in the proposed outfall area.
The Applicant's responses to this submission, as detailed in the 'Response to Observations by IFI on a Proposed Wastewater Treatment Marine Outfall at Aghada-Whitegate, Cork Harbour (August 2021)' report are considered adequate. Justification has been provided for the use of flood-and-float method over HDD during the installation of the outfall pipe. It is also acknowledged that migratory fish move directly between between saltwater and freshwater environments and are generally not found lingering in coastal waters around Ireland[1]. They are therefore unlikely to be in the vicinity of the outfall pipe for a sufficient period of time to be negatively impacted by the construction works.
It should be noted that further correspondence is recommended with IFI prior to the commencement of construction works.
The relevant conditions recommended by Inland Fisheries Ireland have been brought through to Section 6 of this report which compiles a list of recommended conditions to
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[1] Rikardsen, A. H., Righton, D., Strøm, J. F., Thorstad, E. B., Gargan, P., Sheehan, T., ... & Aarestrup, K. (2021). Redefining the oceanic distribution of Atlantic salmon. *Scientific Reports*, *11*(1), 12266.

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		installation. In relation to construction of Wastewater Pump Stations and Rising Mains, the works will be intrusive at the construction phase in regard to noise generation due to the proposed sheet piling. The respondent acknowledges the significance of noise and vibration generation into the aquatic environment due to piling activity. The proposed procedures use instruments that can generate high sound pressure levels with potential for impacts to fish species, but such issues are not addressed in the application. Mitigation measures should be undertaken to mitigate adverse impacts to the aquatic biota and should include the following: • Pile driving to be undertaken only in daylight hours and for limited periods of time, • Pile driving should not be occurring during critical environmental windows for migratory fish (see Table 1 and timings to be agreed with IFI Macroom), • Use of vibrating hammer and pile driving in order to reduce noise generation and propagation • Use of bubbler curtain around the immediate area of pile driving to reduce noise dispersal into the aquatic environment • Use of cushion blocks to dampen hammer action • Use of soft start up and ramp up procedures for any noise generating works undertaken both on a day-to-day basis and on restart after any stoppages within any day. • Duration of noise-generating works to be reduced to the minimum necessary to complete works to a sufficient quality In relation to the construction of the proposed Marine Outfall, Wastewater Pump Stations and Rising Mains, IFI refers to its guidance in relation to construction works adjacent to water (Guidelines_Report_2016.pdf (fisheriesireland.ie) and requires that	**be attached to any licence that may be granted.**

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		all relevant measures specified therein should be adhered to. IFI proposes that compliance with this document should be a condition of foreshore permission. Details of Construction Environmental Management Plan (CEMP) should be agreed in advance with IFI.	
Department of Housing, Planning, Community and Local Government (DHLGH) Engineer's Report	14/09/2021	The respondent has no objection to the granting of Foreshore Licence under Section 3 of the Foreshore Act for this application subject to the following conditions: • The licensee shall use that part of the foreshore, the subject matter of this licence for the purposes as outlined in the application and for no other purposes whatsoever. • The drawings titled: Foreshore Licence Map 1, Drg. No: IW-10015229-03-04-001, Rev: I2, Rev Date: 04/08/21, Foreshore Licence Map 2, Drg. No: IW-10015229-03- 04-002, Rev: I2, Rev Date: 04/08/21 and Foreshore Licence Map 3, Drg. No: IW- 10015229-03-04-003, Rev: I2, Rev Date: 04/08/21 shall be attached to and referenced in the licence document. • The works shall be completed in accordance the application documents and drawings submitted by the licensee to the Department of Housing, Local Government and Heritage. • The licensee shall submit to the Department of Housing, Local Government and Heritage a detailed report on the existing outfall pipelines to be repurposed to serve as combined Emergency Overflows/Surface Water Overflows. The report shall include the location, detailed description and drawings, condition, and licensing status etc. of the outfalls. Any short comings identified must be rectified to the satisfaction of the Department of Housing, Local Government and Heritage. Please note it is a requirement of this Department that Emergency Overflows/Surface Water Overflows shall discharge to below the line low water springs. • The construction works shall be scheduled so to avoid the bathing season from 1st May to 30th September at White Bay. • The licensee shall notify the Department of Housing, Local	The Applicant have no comments on these observations. **The conditions recommended by the DHLGH Engineer's Report have been brought through to Section 6 of this report which compiles a list of recommended conditions to be attached to any licence that may be granted. This is with the exception of point 5.** **The CEMP details that the works are proposed for April to October to coincide with suitably calm sea conditions. However, this conflicts with the bathing season restriction mentioned in point 5. It is recommended that the client liaise with the department to clarify a time period that would be suitable for the proposed works.**

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		Government and Heritage at least 14 days in advance of the commencement of any works on the foreshore. This notification shall include an up-to-date Programme of Works for the completion of the project.	
Marine Institute	26/04/2021	The respondent acknowledges that it should be noted that there is a distinction between licensed aquaculture sites and fishery orders as the practices are different and are subject to different regulatory oversight. Given that wastewater generated in Whitegate/Aghada is currently discharged into Cork Harbour with effectively no treatment, it is the view of the Marine Institute that proposed scheme is justified in that it will meet with the requirements of the Urban Wastewater Treatment Directive and will likely improve water quality in Cork Harbour. Based on distance, and outputs of modelling studies, it is unlikely that the proposed developments will impact on aquaculture operations. Furthermore, it is likely the proposed developments will improve the water quality as it relates to Shellfish Growing Waters Directive and the Water Framework Directive generally in Cork Harbour. Upon review of the documentation submitted with the Application, it is apparent that the proposed outfall works in the foreshore are significant. However, it is clear based upon information in the application and accompanying documentation that it is unlikely the development will have lasting impact on the marine features including Natura features, aquaculture operations, and shellfish growing waters. Given most of the disturbance is likely to occur during construction, the Marine Institute advise that the duration of laying of the outfall pipe into White Bay be kept as short as possible and that all mitigation measures proposed be fully implemented.	The Applicant have no comments on these observations. **The conditions recommended by the Marine Institute have been brought through to Section 6 of this report as a recommended condition to be attached to any licence that may be granted.**
Department of Culture, Heritage	02/06/2021	The NPWS have no comment to make.	The Applicant have no comments on these observations.

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
and the Gaeltacht - Development Applications Unit (DAU) National Parks and Wildlife Service (NPWS)			
Sea Fisheries Protection Office (SFPA)	21/04/2021	The respondent has made the following observations: **1**. **Possible impacts, if any, on existing wild fisheries in the area, with an emphasis on the possible implications for the SFPA conducting official controls and possible non-compliance issues that could arise:** Having reviewed the application, it is considered unlikely that the installation will interfere in any major way with any sea-fishing operations. However, there is most likely an existing pot fishery for crustaceans in the proposed area of the single treated water outfall off White Bay, which may be temporarily impacted on by restricted access during the construction phase of the development**. A marker buoy will mark the outfall diffuser.** No implications for the SFPA conducting official controls are envisaged or any possible non-compliance issues. **2. Impacts, if any, on shellfish growing areas adjacent to or within the area and the possible impact on the ability of the SFPA to conduct official controls and possible non-compliance issues that could arise:** The effects on the existing oyster producing operations in the classified shellfish production areas off Rostellan, as described in the applicant's maps, are unknown. It is not envisaged that they would be impacted upon by the proposed development. Any improvements to Wastewater Treatment plants in the area, where effluent has heretofore been discharged untreated, may in fact prove beneficial to the overall seawater quality in that area of Cork Harbour. No implications for the SFPA conducting official controls are envisaged or any possible non-compliance issues. The existing Shellsan monitoring	The Applicant have no comments on these observations. **The condition recommended by the Sea Fisheries Protection Office has been brought through to Section 6 of this report as a recommended condition to be attached to any licence that may be granted.**

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		program, via routine monthly bivalve sampling, will be maintained unhindered at the Rostellan site before, during, and after the completion of the development. It was noted in the Cork UTAS Modelling document, on Page 17, Table 9: List of Classified Bivalve Mollusc in Cork Harbour, that Rostellan is incorrectly regarded as a "Dormant Fishery". **3. Possible impacts, if any, on seafood safety.** It is not anticipated that there will be any negative impacts on Seafood safety.	

Table 1.2 Submissions/Observations Received from Prescribed Bodies during the second Public Consultation.

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
Department of Agriculture, Food, and the Marine (DAFM)	24/11/2022	The respondent has made the following observation: • Although there are no fisheries subjected to a Fisheries Natura Plan in the area of the proposed application there is considerable fishing activity in the area especially potting for velvet and spider crabs. Additionally, there is an active Oyster Fishery order in the area of the proposed application, T05/0020F0 licenced to Atlantic Shellfish. It is an Bhord Iascaigh Mhara's (BIM) view that an Appropriate Assessment would need to take account of "in-combination effects" that the proposed works would have on Natura 2000 sites covered by the area of this application.	The Applicant in their response noted that a small section of the sewer upgrade works for the Rostellan and Lower Aghada pumping stations is location on the southern boundary of the Atlantic Shellfish Ltd Blue Mussel Aquaculture Site (T05/002OFO). The Applicant refers to the Marine Institute's Appropriate Assessment of Aquaculture in Cork Harbour for the Marine Institute Bird Studies Project, which reviewed the potential for in-combination effects with other activities in Cork Harbour. This report noted that any disturbance to foraging birds and the potential energetic and displacement impacts from bottom mussel cultivation will be very small and unlikely to lead to likely significant in-combination effects. Disturbance to the East Harbour and North Channel nocturnal roosts from other marine traffic in winter will likely be very limited due to the small scale of the activity. There is probably very little marine traffic in the East Harbour east of Aghada Pier, in the East Ferry Channel above the East Ferry Marina, or in the North Channel, during winter, so disturbance to the Cormorant roosts at Siddon's Tower and Bagwell's Hill are probably very rare events. This report concluded that bottom mussel cultivation was not likely to cause significant disturbance impacts to Red-breasted merganser, Cormorant or Great-crested grebe during the day, and while potential nocturnal disturbance may occur, this will be limited to 4-5 nights per month. The Applicant also refers to section 9 of the NIS undertaken by DixonBrosnan (2022) for the proposed development, stating that the construction will predominantly take place during daylight hours to minimize disturbance to roosting birds. The construction works associated with the proposed

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
			network and terminal WWPS's will avoid the wintering bird season (September – March). During the summer, where construction works will be carried out adjacent to these sensitive areas, hoarding will be used between the works and water's edge. The operation phase of the proposed development will not significantly increase noise or activity and thus, no significant effects will occur. In the absence of any adverse effects following mitigation, no significant in-combination impacts related to noise and disturbance with aquaculture activities were identified. As per the NIS carried out for the proposed development, mobilisation of sediment and an increase in turbidity will occur in the marine environment during the installation of the proposed outfall pipe. However, given the distance of these works from the SPA (2.9 km via a hydrological connection), the temporary nature of the works, the dilution capacity of the marine environment, the limited potential for elevated turbidity/silt to impact invertebrate populations in the mudflats as well as the mitigation measures proposed, no adverse effects on bird species which are listed as Qualifying Interests of the Cork Harbour SPA have been identified. During the operational phase, the water quality in Cork Harbour SPA will be improved such that it will be in line with the requirements of the Water Framework Directive, the Habitats Directive and the Birds Directive and will create a more sustainable ecosystem for biodiversity. The Appropriate Assessment of Aquaculture carried out by the Marine Institute concludes that given there are no hydrological pressures resulting from intertidal aquaculture activities, pressures resulting from point discharge locations such as the urban waste-water treatment and/or combined sewer outfalls which would likely impact on physio-chemical parameters in the water column will not result in in-combination effects with aquaculture activities. This report

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
			noted the resilience of the habitats listed as Qis in the Great Island Channel SAC and stated that in-combination effects of fisheries within intertidal trestle aquaculture activities on designated habitats can therefore be discounted. Given the range of mitigation measures specified for the construction phase and the improvements to water quality during the operational phase, no adverse effects on European sites are likely to occur. The Applicant concludes that in the absence of any significant potential impacts or adverse effects on the QIs of the Cork Harbour SPA and Great Island Channel SAC and in the absence of significant impacts on its overall integrity, there are no potential in-combination effects from the proposed development with aquaculture activity in European sites. **The Applicant's response to the submission is adequate.**
Environmental Protection Agency (EPA)	03/11/2022	The respondent refers to the correspondence received from the Foreshore Unit on 19th October 2022 requesting observations from the EPA on the Appropriate Assessment for the proposed development. The respondent previously provided observations on the foreshore application (FS0007027) on 28th April 2021 (see Table 1.1). In accordance with the requirement as set out the Foreshore Regulations 2011 (S.I. No. 353 of 2011), the respondent makes the following observations: • A Waste Water Discharge Licence (WWDL) application (Reg. No. D0423-02) was submitted by Irish Water to the EPA on 6th December 2021. It is currently under assessment by the EPA. The Natura	The Applicant notes this response and has no further comment.

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		Impact Statement submitted in support of the foreshore application was also submitted in support of the WWDL application. • The WWDL application and associated documentation can be viewed at this link: <https://epawebapp.epa.ie/terminalfour/wwda/wwda-view.jsp?regno=D0423-02> • In considering and deciding on the foreshore application, the proposed activity should not result in a contravention of the Water Framework Directive 2000/60/EC, Habitats Directive 92/43/EEC, Birds Directive 2009/147/EC, Marine Strategy Framework Directive 2008/56/EC, Bathing Water Directive 73/160/EEC or Environmental Liabilities Directive 2004/35/EC.	
Inland Fisheries Ireland (IFI)	21/11/2022	IFI have no further comment to make on this Application.	The Applicant notes this response and has no further comment.
Department of Housing, Planning, Community and Local Government (DHLGH) Marine Advisor Engineer's Report	30/11/2022	The respondent has made the following observations: • As part of the assessment of the foreshore licence application, the Minister has determined, in accordance with Regulation 42(6) of the European Communities (Birds and Natural Habitats) Regulations 2011, that an Appropriate Assessment is required in respect of the proposed plan or project. Details of all documents considered by the Minister in his determination, can be accessed on the Foreshore Noce webpage for this application: <https://www.gov.ie/en/consultaon/a9c85-fs007027-irish-water-whitegate-at-aghada/> • The Minister will make a determination as to whether or not the proposed plan or project would adversely affect the integrity of a European site in accordance	The Applicant notes this response and has no further comment.

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		with Regulation 42(11) of the European Communities (Birds and Natural Habitats) Regulations 2011 and, in doing so, shall have regard to the matters in Regulation 42(12). A further public consultation will therefore take place in accordance with Regulation 42(13). • In accordance with the requirement as set out in Statutory Instrument 353/2011 – Foreshore Regulations 2011, please forward your observations on Appropriate Assessment as soon as possible, but not later than 16th November 2022. Please include in your observations details of other developments, plans or projects that may, in conjunction with this application, have a cumulative effect on a Natura 2000 site. If you wish to add no further comment or observations, please reply as soon as possible to that effect.	
Department of Housing, Planning, Community and Local Government (DHLGH) Marine Advisor Environment Report	14/11/2022	The respondent has made the following observations: • The works overlap with Cork Harbour SPA [IE004030]. This site is of major ornithological significance, being of international importance both for the total numbers of wintering birds (i.e. > 20,000) and also for its populations of Black-tailed Godwit and Redshank. In addition, it supports nationally important wintering populations of 22 species, as well as a nationally important breeding colony of Common Tern. Several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive. • As the Applicant will note from the Screening Stage Report Environmental Report of the 25th of May 2022, the respondent agreed with and accepted the outcome of the IEC's review of the environmental reports associated with this application.	The Applicant notes this response and has no further comment.

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		The respondent has no objection to this application and on completion of the IEC's work on this second consultation, the respondent will provide their final report with determinations which may include site specific conditions having regard to the information obtained during public participation.	
Marine Institute	21/12/2022	The respondent states that their observations provided during the first public consultation still stand (Table 1.1). Additionally, the respondent advises the following: • During assessment of likely significant effects, the licensing body consider the in-combination effects on species (e.g. marine mammals and birds, in particular) that the proposed development may have with other activities likely to occur in the vicinity. The respondent notes that there are some Aquaculture licensed areas and Fishery Orders near the proposed areas within Cork Harbour. The exact locations can be found at the following link: <https://dafm-maps.marine.ie/aquaculture-viewer/> • Additionally, DAFM have overseen the Appropriate Assessment reports which consider the interactions between QIs and aquaculture operations, both existing and proposed, that have been carried out nationally as well as in Cork Harbour. These reports cover both SAC and SPA sites, give an indication of likely aquaculture activities occurring in the general vicinity and provide a conclusion on their likely impact on European sites. The respondent concludes by drawing the Department's attention to fishery risk assessments which relate to QIs that have been carried out nationally and along the south	The Applicant notes this response and has no further comment.

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		and west coasts. These reports provide an indication of likely fisheries activities occurring in the area in question.	
Department of Culture, Heritage and the Gaeltacht – Development Applications Unit (DAU) Underwater Archaeology & National Parks and Wildlife Service (NPWS)	22/11/2022	The respondent has no further observations or comments to make further to the first Public Consultation in 2021 in relation to this Application.	The Applicant notes this response and has no further comment.
Sea Fisheries Protection Office (SFPA)	30/11/2022	The respondent has made the following observations: • The location of the application is the Upper harbour East in the Port of Cork. There is an active fishery for Common prawn (*Palaemon serratus*) which is fished for by vessels in the under 10 m category on an annual basis. Due to the size category of vessels engaged in the fishery, catch data and fishing effort is lacking. • The proposed construction of the marine outfall is unlikely to have any impact on the SFPA conducting its official control duties in the area. • The application is adjacent to the shellfish growing waters of Rostellen, where Pacific Oysters (*Crassotrea gigas*) are cultivated. Currently the shellfish growing waters are subjected to uncontrolled and untreated sewage from the environs of Aghada and Whitegate. The proposed waste water treatment plant and marine outfall should improve the quality of the receiving waters by a minimum of 50% in suspended solids with the proposed primary treatment.	The Applicant notes this response and has no further comment. **The condition recommended by the Sea Fisheries Protection Agency has been brought through to Section 6 of this report as a recommended condition to be attached to any licence that may be granted.**

Prescribed Bodies	Date Response Received	Details of Submission/Observation	Applicant's Response to Submission
		• The application is unlikely to have any effect on the SFPA conducting fisheries control activities and seafood activities in the area. • A pollution event during the construction phase of the proposed development could cause a contamination risk to the shellfish growing in the area. **Should a pollution event occur, the SFPA Clonakilty Port office should contacted immediately so measures can be put in place to restrict potentially contaminated shellfish being placed on the market. sfpa_clonakilty_port@sfpa.ie**	

1.6 Assessment of Further Information Requested

As the Independent Environmental Consultant, ROD reviewed all documents submitted by the Applicant on behalf of the Department to assist with their AA determination. During the review process, further information was requested from the Applicant. The following points list the further information that was requested, all of which were addressed in a revised NIS from the Applicant.

1. **Further Information Request:** The language used throughout NIS in incorrect. The legal test being applied, contained in Article 6(3) of the Habitats Directive, used the term "adverse effects" rather than "potential impacts" and "in-combination effects" rather than "cumulative impacts". The purpose of the NIS is to satisfy the legal tests contained in Article 6(3), and it is important that the language in the document reflects the legal test. In accordance with best practice guidance, the term "Likely Zone of Impact", rather than "Zone of Influence" should be used.

   Applicant's Response: The relevant text has been amended in a revised NIS from the Applicant.

   The Applicant's Response is adequate.

2. **Further Information Request:** Throughout the report, the text and visuals in the figures are illegible.

   Applicant's Response: Figures have been updated in a revised NIS from the Applicant.

   The Applicant's Response is adequate.

3. **Further Information Request:** The Likely Zone of Impact has not been defined in the NIS. It is assumed to be the same as in the AA screening report, which appended to the NIS.

   Applicant's Response: Further text was provided in Section 3.1 of a revised NIS from the Applicant.

   The Applicant's Response is adequate.

4. **Further Information Request:** The in-combination assessment should be carried out after the individual project has been assessed with the mitigation measures. In this case, the in-combination assessment is directly after the assessment of potential impacts. This is not in line with the legal test being applied.

   Applicant's Response: The in-combination effects assessment was moved to follow the 'Mitigation Measures' section and renamed 'In-combination Impacts' in a revised NIS from the Applicant.

   The Applicant's Response is adequate.

5. **Further Information Request:** The use of hoarding in the summer months is not justified and no summer bird surveys were carried out. It is understood that this

mitigation applies to the Qualifying Interests of the Cork Harbour SPA which are resident and to summering non-breeding Qualifying Interests. It is unclear why hoarding has been prescribed at the Lower Aghada WWPS and the Rostellan PS only.

Applicant's Response: Further text was provided in Section 8.2 of a revised NIS from the Applicant.

The Applicant's Response is adequate.

1.7 Legislative Context

Council Directive 92/43/EEC of the 21st May 1992 on the conservation of natural habitats of wild fauna and flora ("the Habitats Directive") and Directive 2009/147/EC of the European Parliament and of the Council of the 30th November 2009 on the conservation of wild birds ("the Birds Directive") list habitats and species which are important for conservation and in need of protection. This protection is afforded in part through the designation of sites which support significant examples of habitats or populations of species ("European sites"). Sites designated for birds are termed "Special Protection Areas" (SPAs) and sites designated for natural habitat types or other species are termed "Special Areas of Conservation" (SACs). The complete network of European sites is referred to as "Natura 2000".

In order to ensure the protection of European sites in the context of land use planning and development, Article 6(3) of the Habitats Directive provides for the assessment of the implications of plans and projects for European sites, as follows:

"Any plan or project not directly connected with or necessary to the management of the site [or sites] but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site [...], the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned [...]."

The requirements arising out of Article 6(3) are transposed into Irish law by Part XAB, Appropriate Assessment (including section 177V of the Planning and Development Act 2000 (as amended)) (and in other circumstances by Part 5 of the Habitats Regulations).

The determination of whether or not a plan or project meets the two thresholds for requiring AA is referred to as "Stage 1" or "AA Screening". The first threshold is reached if the plan or project is not directly connected with or necessary to the management of one or more European sites. In its ruling in *Waddenzee*[2], the Court of Justice of the European Union (CJEU) interpreted the second threshold as being reached where *"it cannot be excluded, on the basis of objective information, that [the plan or project] will have a significant effect on that site".* Thus, in applying the Precautionary Principle, the CJEU interpreted the word "likely" to mean that, as long as it cannot be demonstrated that an effect will not occur, that effect is considered

[2] Landelijke Vereniging tot Behoud van de Waddenzee, Nederlandse vereniging tot Bescherming van Vogels *v.* Staatssecretaris van Landbouw, Naturbeheer en Visserij (Waddenzee) [2004] C-127/02 ECR I-7405.

"likely". A likely effect is considered to be "significant" only if it interrupts or causes a delay in achieving the Conservation Objectives of the site concerned[3].

Prior to approval of a plan or project which is the subject of AA (also referred to as "Stage 2"), it is necessary to "ascertain" that the plan or project will not "adversely affect the integrity of the site". In its guidance document (EC, 2018), the European Commission stated that *"the integrity of a site involves its constitutive characteristics and ecological functions"* and that "*the decision as to whether it is adversely affected should focus on and be limited to the habitats and species for which the site has been designated and the site's conservation objectives"*. Regarding the word "ascertain", the CJEU, also in *Waddenzee*, interpreted this as meaning *"where no reasonable scientific doubt remains as to the absence of such effects"*. Therefore, the legal test at Stage 2 is satisfied (and the plan or project may be authorised) when it can be demonstrated beyond reasonable scientific doubt that the plan or project will not interrupt or cause delays in the achievement of the Conservation Objectives of the site or sites concerned. AA is informed by a "Natura Impact Report" (NIR) in the case of plans or a "Natura Impact Statement" (NIS) in the case of projects.

The CJEU has made a relevant judgment on what information should be contained within documents supporting AA[4] (in the NIR or NIS):

"[The AA] *cannot have lacunae and must contain complete, precise and definitive findings and conclusions capable of removing all reasonable scientific doubt as to the effects of the works proposed on the protected site concerned*."

The High Court and Supreme Court[5] have also provided clarity on how competent authorities should undertake AA[6] and has stated that the following four matters require to be addressed:

- First, an appropriate assessment must identify, in the light of the best scientific knowledge in the field, all aspects of the development project which can, by itself or in combination with other plans or projects, affect (a) European site(s) in the light of its conservation objectives.
- Second, there must be complete, precise and definitive findings and conclusions regarding the previously identified potential effects on any relevant European site(s) this and may not have lacunae or gaps. The requirement for precise and definitive findings and conclusions requires analysis, evaluation and decisions. Further, the reference to findings and conclusions in a scientific context requires both findings following analysis and conclusions following an evaluation each in the light of the best scientific knowledge in the field.
- Third, on the basis of those findings and conclusions, the Competent Authority (here the Minister for Housing, Local Government and Heritage) must be able to determine that no scientific doubt remains as to the absence of the identified potential effects.

[3] Conservation Objectives are referred to, but not defined, in the Habitats Directive. In Ireland, Conservation Objectives are set for Qualifying Interests (the birds, habitats or other species for which a given European site is selected) and represent the overall target that must be met for that Qualifying Interest to reach or maintain favourable conservation condition in that site and contribute to its favourable conservation status nationally.

[4] *Sweetman v. An Bord Pleanála* [2013] Case C-258/11.

[5] See *Kelly (Eoin) v An Bord Pleanála* [2014] I.E.H.C. 400 where the High Court (Finlay Geoghegan J.) held that section 177V(1) of the Planning and Development Act 2000 (as amended) must be construed so as to give effect to Article 6(3) of the Habitats Directive, and hence, an appropriate assessment carried out under section 177V(1) of the 2000 Act must meet the requirements of Article 6(3) of the Habitats Directive as interpreted by jurisprudence of the CJEU case law; *Connelly v An Bord Pleanála* [2018] 2 I.L.R.M 453; [2018] I.E.S.C. 31.

[6] *Kelly v. An Bord Pleanála* [2014] IEHC 422.

- Fourth, where the aforesaid three requirements are satisfied, the Minister for Housing, Local Government and Heritage ("the Minister") may determine that the proposed development will not adversely affect the integrity of any relevant European site. Accordingly, an appropriate assessment may only include a determination that the proposed development will not adversely affect the integrity of any relevant European site where upon the basis of complete, precise and definitive findings and conclusions made the Minister decides that no reasonable scientific doubt remains as to the absence of the identified potential effects.

The "Foreshore Act 1933" (as amended) makes provision for the granting of a lease or licence pertaining to any works or installation of structures in the State-owned foreshore. The granting of these leases or licences is made by the Minister for Housing, Local Government and Heritage. In addition, the "Dumping at Sea Act 1996" requires a Dumping at Sea Permit be granted for the disposal of waste materials, including dredged materials, in the maritime area.

2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Summary

The EPA have identified the villages of Whitegate and Aghada in Co. Cork as a Priority Area where untreated wastewater is presently being discharged into the environment. There are no wastewater treatment facilities serving the villages and as a result untreated wastewater is being discharged directly into Cork Harbour. This process is not compliant with obligations of the Urban Wastewater Treatment Directive (UWWTD) 91/271/EEC. These villages have subsequently been included in Irish Water's Untreated Agglomeration Study (UTAS) scheme. As part of this scheme, Irish Water aims to provide new wastewater treatment infrastructure to the two villages and remove the existing untreated wastewater discharge points. The proposed development involves the installation of a new wastewater treatment plant with a marine outfall, three proposed new pumping stations with interconnecting plumbing and upgrades to parts of the existing sewer network.

The Whitegate – Aghada agglomeration comprises the villages of Whitegate, Upper Aghada, Lower Aghada and Rostellan. These settlements are currently discharging untreated wastewater directly into Cork Harbour from three independent collection systems.

In order to comply with the Urban Wastewater Treatment Directive (91/271/EEC), the proposed development will involve the following elements:

- **Wastewater Treatment Plant (WwTP):** A wastewater treatment plant providing preliminary and primary treatment for an initial population equivalent of approx. 2,479 PE (10-year design horizon), with provision for upgrading to a population equivalent of 3,700 PE (30-year design horizon). The plant would be located south-west of Whitegate village in the Ballytigeen townland.
- **Gravity Sewer-Outfall**: A terrestrial gravity sewer to convey treated effluent flows from the proposed WwTP to the outfall launch point in White Bay.
- **Marine Outfall**: A proposed 295m long marine outfall to discharge treated effluent to White Bay.
- **Rostellan Wastewater Pumping Station and Rising Main**
  - Diversion of the existing gravity sewer to convey wastewater from the existing network to the proposed Rostellan PS.
  - Proposed pump station, incorporating an underground pump sump, underground stormwater storage tank, valve and flowmeter chambers, manholes, pipework, access road and gate, control kiosks and vent stack.
  - Proposed rising main to convey wastewater from Rostellan PS to the proposed Lower Aghada pump station.
- **Lower Aghada Wastewater Pumping Station and Rising Main**
  - Diversion of the existing gravity sewer to convey wastewater from the existing network to the proposed Lower Aghada PS.
  - Proposed PS, incorporating an underground pump sump, underground stormwater storage tank, valve and flowmeter chambers, manholes, pipework, access road, gate, control kiosks, a surge vessel and vent stack.
  - Rising main to convey wastewater to the Upper Aghada-Whitegate sewerage network.
  - Existing package treatment plant to be decommissioned.
- **Whitegate Wastewater Pumping Station and Rising Main**
  - Diversion of the existing gravity sewer to convey wastewater from the existing network to the proposed Whitegate PS.

  - Proposed pump station, incorporating an underground pump sump, underground stormwater storage tank, valve and flowmeter chambers, manholes, pipework, control kiosks and vent stack.
  - Overflow pipeline connecting to an existing culvert approximately 25m to east of the proposed PS.
  - Rising main to convey wastewater to the proposed new Wastewater Treatment Plant.
  - Existing pump station adjacent to the site to be decommissioned.
- **Ardnabourkey Gravity Sewer**: Proposed 530m long 225m diameter gravity at Ardnabourkey townland and decommissioning on an existing septic tank.
- **Upgrade Works to Existing Sewerage System**: Proposed upgrades to existing sewers with proposed 300mm diameter sewers at the townlands of Aghada and Curragh.

2.2 Site Location

The proposed development is located along the east coast of Cork Harbour between the villages of Whitegate, Aghada and Rostellan c. 18 km southeast of Cork city centre and c. 9 km from Midleton town centre, as the crow flies. Sections of the proposed development site are situated adjacent to the Cork Harbour SPA. The location of the proposed development is shown below in Figure 2.1.

Elements of the proposed development that will be located in the foreshore area during the operational phase include a marine outfall at White Bay (Figure 2.2) and the Whitegate and Rostellan Pumping Stations and Rising Mains (Figure 2.3 and Figure 2.4).

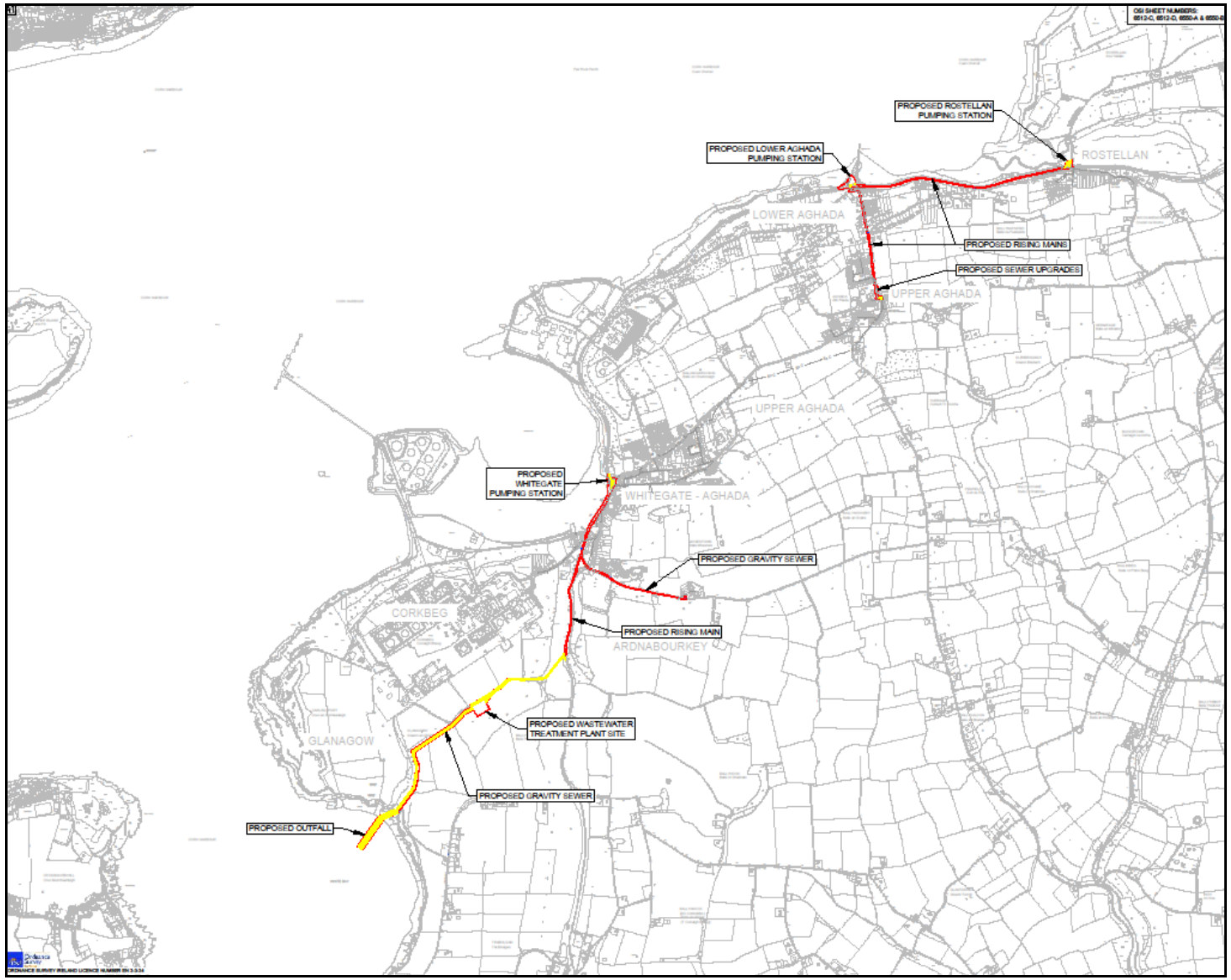

Figure 2.1 Whitegate – Aghada Agglomeration Site Boundary, Co. Cork

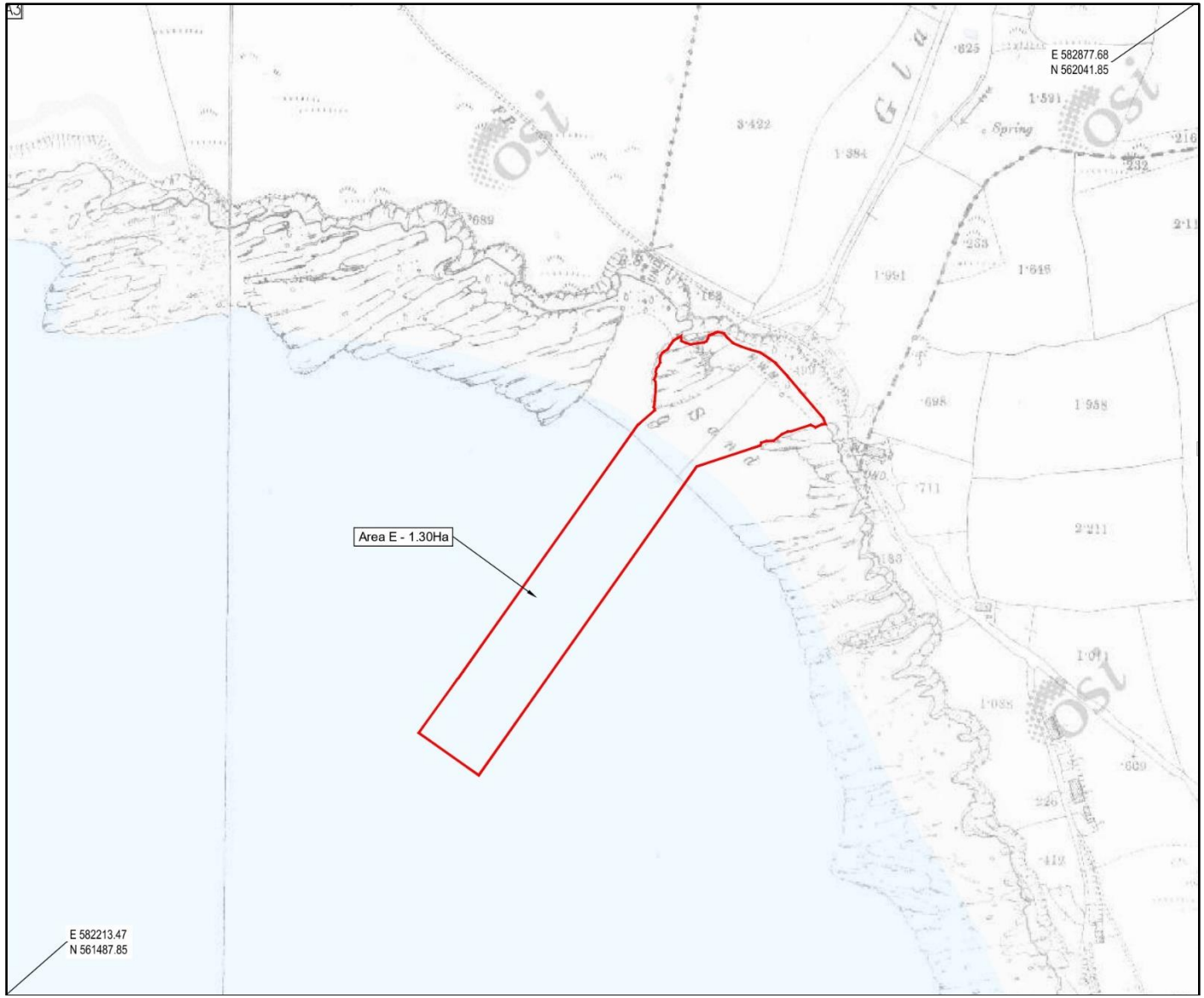

Figure 2.2 Foreshore Licence Area for the proposed marine outfall

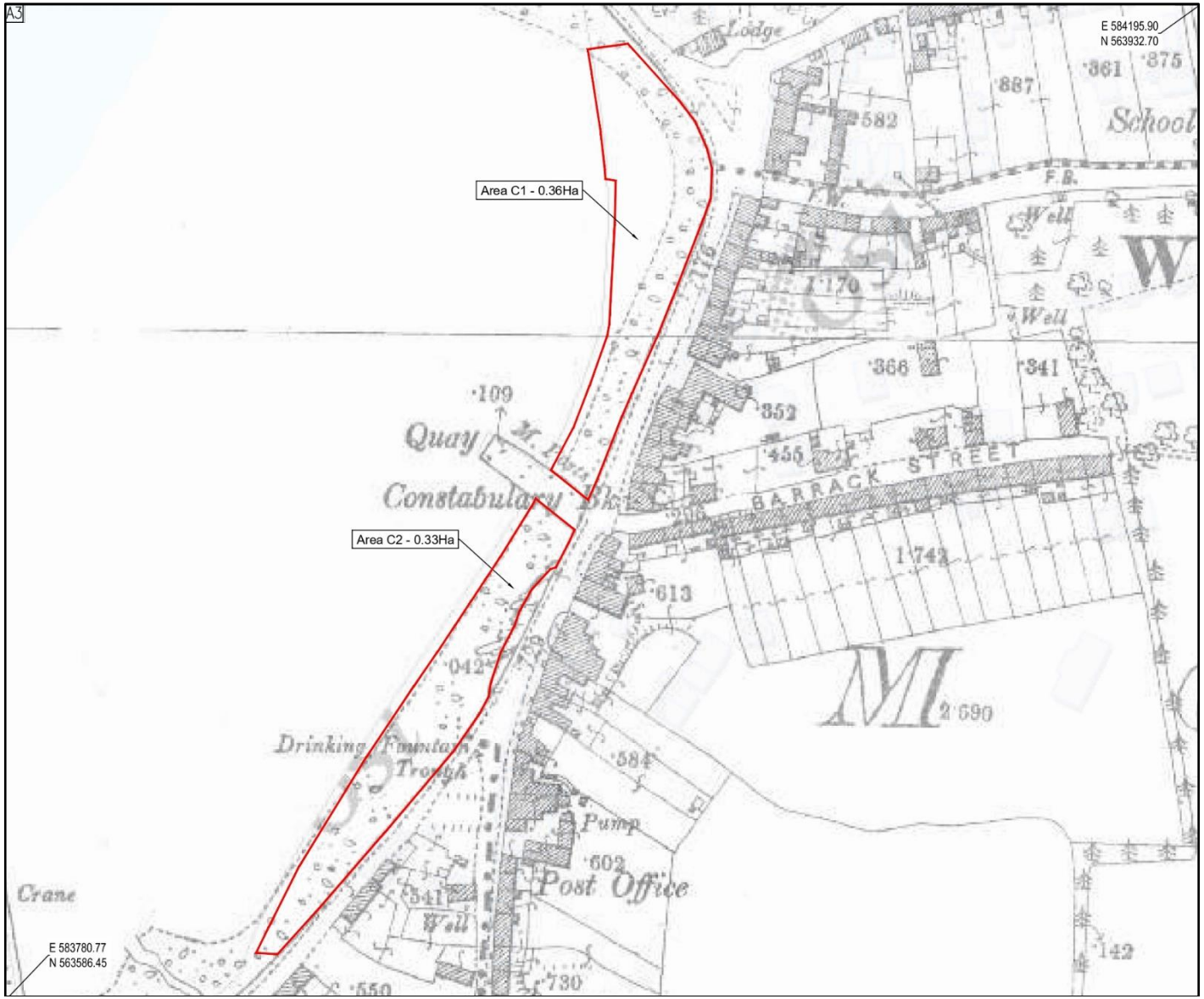

Figure 2.3 Foreshore Licence Area for the proposed Whitegate pumping station

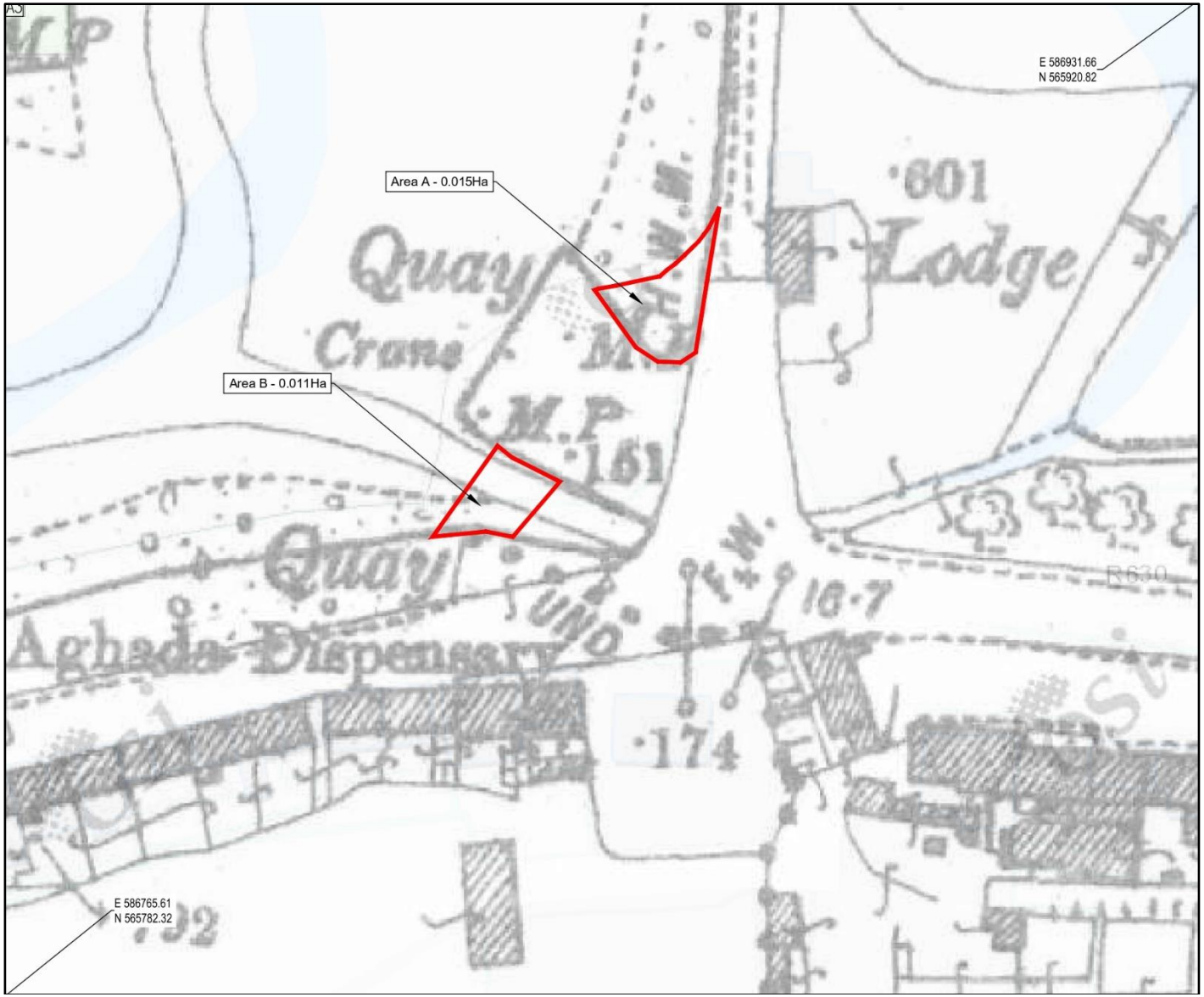

Figure 2.4 Foreshore Licence Area for the proposed Rostellan Rising Main

2.3 Project Components

This section contains a summary of the proposed activities which will be undertaken as part of the proposed development. This information was contained in the NIS, which the Applicant submitted as part of the Application.

The construction of the proposed development was anticipated to commence during Q2 of 2021, subject to planning approval. The total duration of all construction works is expected to last approximately 16 months. The main elements to be constructed are the three separate pumping stations, rising mains connections, gravity mains connections, gravity sewer connections, the wastewater treatment plant and the effluent outfall pipeline. The construction details for each of these elements is outlined below.

Pumping Stations

The three proposed pumping stations at Rostellan, Lower Aghada and Whitegate will be located underground, with their control kiosks, 7.6 m-high vent stack, paved areas and perimeter fencing located above ground. The pumping stations will be installed as a concrete caisson using the typical open cut excavation methodology. All excavated material will be removed from the site.

With regard to the construction of the proposed Rostellan Pumping Station, it is likely that minimal dewatering and over-pumping will be required due to its proximity to Cork Harbour. This will have a limited impact on the groundwater resource and on receiving waters. There are no groundwater wells or springs located within this proposed development area or in its immediate vicinity.

With regard to the existing pumping station at Whitegate, this will be decommissioned prior to the commencement of the construction works for the proposed new pumping station at this location.

Rising Mains, Gravity Mains Connections and Gravity Sewer Connections

The rising mains pipelines, of various lengths, will be laid between each of the three proposed pumping stations and the existing gravity network. Gravity mains connections will be required in some areas to convey flows. These connections will be laid below existing ground levels, most of which within existing roads. As per the pumping stations, an open cut methodology will be used, with excavated material being used for backfill and any extra material will be removed to a suitably licensed facility.

Gravity sewer pipelines, of various lengths, will be installed to divert flows to the proposed pumping stations and to the effluent outfall point. Material excavated during the construction of these connections will be returned to the trenches.

Wastewater Treatment Plant

The construction of the proposed WwTP at Whitegate will involve the following:

- Inlet works: Earthworks, formwork and concrete, incoming and outgoing pipework and associated chambers, inlet channel, inlet screen, screenings handline unit, bypass channel with screen and associated control, testing and commissioning equipment.

- Primary settlement and stormwater holding tank: Earthworks, formwork and concrete, incoming and outgoing pipework and associated chambers, pyramidal prefabricated primary settlement tanks, circular stormwater tank, desludging valves and pipework and associated control, testing and commissioning equipment.
- Sea outfall: Earthworks, formwork and concrete, pipework and diffuser(s).
- Sludge handling – Picket Fence Thickener: Earthworks, formwork and concrete, incoming and outgoing pipework, associated chambers and testing and commissioning equipment.
- Miscellaneous: land purchase (agricultural), site clearance, road to site, road within site, green paladin fencing, control kiosks, welfare facilities, manholes, watermain to site, watermain within site and water supply break tank.

Effluent Outfall Pipeline

The proposed WwTP at Whitegate requires an outfall pipeline to White Bay, which will discharge treated effluent from the proposed WwTP site. The outfall will comprise of a terrestrial and marine section. The terrestrial section will be located along a public road, agricultural fields and along White Bay beach and constructed via open cut excavation. The marine section will extend approximately 295 m beyond the high-water mark and approx. 190 m beyond the low water mark into White Bay. The endpoint of the outfall pipeline will be fitted with a diffuser, while the seabed around the pipeline will be protected with a woven Gabion mattress.

It will be necessary to temporarily restrict public access to White Bay beach in order to safely construct the outfall. It is anticipated that closure of the beach would be required for a full summer season.

Construction of the outfall will involve works from the terrestrial and marine environment. Several vessels are expected to be required during construction of the outfall and diving support is also likely to be required at times. The outfall area is approximately 1.16 Hectares.

The marine section of the outfall pipeline is likely to be constructed via the following options (outline methodology for each is provided below), according to the contractor's methodology and based on current best practice guidelines:

- Horizontal Directional Drilling (HDD) method;
- Float and Flood method;
- Bottom-Pull method.

Horizontal Directional Drilling (HDD)

Horizontal directional drilling would be undertaken in three phases: pilot boring, pre-reaming and pipe positioning. This method would not involve any changes to the seabed geometry during the construction or operation phases and as such, there is no requirement to install scour protection along the route of the outfall pipeline.

Although it is expected that the rig would be location on-land in proximity to the beach, the contractor may locate the rig on a suitable jack-up platform on the seaward end of the outfall. In this instance, pilot boring would be undertaken from the seaward end of the outfall towards the land and therefore, geotechnical risks associated with exiting the seabed would be avoided. This would also avoid sand

material at the end point and lend more support to the hole at the seaward end of the outfall. The reaming and pull-back stages would be conducted from the landward side of the outfall.

Float and Flood

Float and flood would require the use of open trenches and placement of suitable material to provide support and protection for the sea outfall once it's in position.

Prior to the installation of the pipeline, a trench is to be excavated along the route of the sea outfall. In order to achieve the required depth and slope of the trench, removal of some seabed material is required. Trenching would be undertaken from a barge anchored to the sea bed or on a jack-up barge using steel piles. It is anticipated that backhoe dredgers or grab samplers will be used, although the chosen equipment will depend on the successful contractor. It is also anticipated that the excavated material will be laid on the side of the trench, with some material re-used as backfill material in the trench when the pipe has been laid. The remaining material will naturally disperse locally within the water column.

Once the seabed material has been removed and the trench has been dug, bedding stone will be placed along the bottom of the trench, which will form the bedding layer. The bedding layer materials will be imported from local quarries via the sea or trucks. Bedding layer is to be laid via barges, although the precise methodology will be confirmed by the contractor.

The float and flood method involves floating and towing the entire outfall pipeline into position on the surface of the water and subsequent lowering of the pipe into the trench. The pipe and diffuser would be temporarily sealed while full of air, which would allow the pipe to achieve the necessary buoyancy to float. The outfall pipe will be towed along the surface of the water and into position using barges. Lowering of the outfall pipe will be conducted by replacing the air with water, causing the pipe to sink into position. The rate of submergence will be controlled by the rate of air release. If required, additional weight (e.g. concrete ballast collars) will be added in order to allow the pipeline to sink to the bottom of the trench.

Following the laying of the outfall pipe, backfill material is to be placed in the trench in order to protect, support and stabilise the pipeline. A filter layer will first be installed to surround the pipe, followed by a layer of rock armour which will provide protection on the sea bed.

Following the laying of the outfall pipeline, the diffuser is to be assembled at the seaward end of the outfall. The diffuser is to be prefabricated on-land and placed onto the seabed as one unit. It is expected that backfill will be undertaken from barges, although the methodology and depths of the backfill layers is dependent on the contractor's equipment along with the programme and cost considerations.

Suitable protection of the pipeline is required to ensure against any long-term effects from scour on the seabed. It is proposed to install a concrete mattress layer approx. 300 mm thick which would be finished at the existing bed level in order to avoid scour-related issues during the operational phase.

Bottom-Pull

This is similar to the float and flood method, as described above, as it would require the construction of trenches and placement of suitable support and protection

material for the proposed pipeline. The trenching, placement of bedding layer, backfilling, diffuser assembly and scour protection procedures would be undertaken as described above for the float and flood method.

Laying of the outfall as per the bottom-pull method would be conducted by joining and pulling sections of the outfall pipeline towards the sea using a barge. These sections would be arranged on land and readied for placement on rollers, which would be aligned with the route of the outfall to ensure correct pipe alignment. Sections of the pipes would be joined in sequence to make pipe strings that could be placed onto the rollers. The numbers and lengths of pipe strings is to be determined by the contractor.

The pipe strings would be pulled by winches mounted on an anchored offshore barge in a stepped process. The first pipe string would be pulled towards the sea and then the next string would be moved across the rollers and joined to the first string at the tie-in position. This process is to be repeated until all the strings have been connected and the outfall pipe has been laid in position.

Construction Phase

Proposed Rostellan Pumping Station

It is proposed to construct an underground wastewater pumping station north of the regional R630 road, within Thomas Kent Memorial Park. Elements above ground will include a new access gate from the public road at the north of the Memorial Park, a paved area and entrance gate, control kiosks and a 7.6 m high vent stack which is to be designed in the form of a streetlight pole.

The main habitat which will be impacted by the proposed development is amenity grassland, which is mown regularly to maintain short swards. The park is bound by a metal post-and-chain fence along the north and western boundaries, a small stone wall to the east and a small concrete wall to the south.

Proposed Rising Main connecting Rostellan Pumping Station to Lower Aghada

A proposed 1,417 m and 110 mm diameter rising main will allow flows from the proposed Rostellan pumping station to the proposed Lower Aghada pumping station. This rising main will be installed either under the public road or in the verge alongside the public road. The R630 road is a tarmacadam, 10-15 m wide road flanked on either side by amenity grassland. A footpath known as ‘the People’s Path’ runs along the northern side of the road. The road is approximately 2 m from the boundary of Cork Harbour.

Proposed Lower Aghada Pumping Station

An underground wastewater pumping station is proposed to the west of the junction leading to the pier in Lower Aghada. As with the proposed Rostellan pumping station, the above ground elements include a paved area, vent stack, control kiosks and perimeter fencing. The control kiosks will be located on the eastern side of the site along the boundary of the public road. The existing gate access location will be used for access to the new proposed pumping station. The proposed pumping station is located within a greenfield site at the southwestern corner of the Lower Aghada pier. The habitat is classified as low-value grassland. A tarmacadam drive, approx. 35 m in length, runs through the greenfield site. This drive provides access to a TITAN package plant, which is located underground and secured with lockable covers. An existing modern stone control building is also found on this site. The pier bounds the

northern and eastern boundaries of the site. Mudflats which are found to the east of the site are largely screened from the proposed development site by a coastal wall, signage and parked cars. The estuary and a small vegetated embankment bounds the western and southern boundaries of the site.

Proposed Rising Main connecting Lower Aghada Pumping Station to Aghada Gravity Sewer

A proposed 656 m-long rising main will allow flows from the proposed Lower Aghada pumping station to an existing sewer in the Upper Aghada sewerage network. The proposed rising main is to be approx. 160 mm in diameter and is to be laid approx. 1.2 m below existing ground level. The proposed rising main will be laid within the existing L3658 local road. This road is bound on both sides by private dwellings, associated boundary hedgerows, private residential estates, small areas of amenity grassland as well as associated concrete footpaths and modern stone walls. Proposed upgrade works to the existing sewerage network consists of the replacement of approx. 143 m of 150 mm diameter section of sewer with a 225 mm diameter sewer in the townlands of Aghada and Curragh.

Proposed Whitegate Pumping Station

The proposed pumping station will be located in Whitegate village square, in proximity to the main street in an public open space. The associated paved areas, the 7.6 m-high vent stack and control kiosks will be installed above ground. As the pumping station will be installed below ground, the existing public space will continue to function as an open public space with a paved and grass area once construction is completed. The site of the proposed pumping station is in proximity to Whitegate Bay. There is an existing 2-foot tall breeze block wall which separates the footpath from the mud shore habitat within the bay, approximately 4-5 m below the road level.

Proposed Glebe Manor Gravity Mains

A 530 m-long, 225 mm diameter gravity main is proposed to be installed in front of the Glebe Manor housing estate, approx. 1.2 m below existing ground level. The entirety of the gravity main will be installed within the existing road network. The surrounding environment includes the L3635 local road, treelines, hedgerows and narrow bands of broadleaved woodland. Species include Oak, Ash, Beech, Sycamore, Hawthorn and Elm.

Proposed Rising Main to Whitegate Pumping Station and Proposed Wastewater Treatment Plant

A 1,765 m-long, 315 mm diameter rising main is proposed to be installed from the Whitegate Pumping Station to the proposed Wastewater Treatment Plant approx. 1.2 m below existing ground level. The entirety of the rising main will be installed within the existing road network. Most of the route is not located within or in proximity to the Cork Harbour SPA.

Proposed Wastewater Treatment Plant

The proposed Wastewater Treatment Plant will be located within an agricultural field, currently being used for arable crop planting. The site is bounded to the north by a hedgerow and gently slopes in a west, north-west direction. The proposed works will involve the following:

- Inlet Works
  - Earthworks, formwork and concrete; Incoming, outgoing pipework and associated chambers; Inlet channel, inlet screen; Screenings handling unit; Bypass channel with screen; Associated control equipment, testing and commissioning.
- Primary Settlement
  - Earthworks, formwork and concrete; Incoming, outgoing pipework and associated chambers; 3 No. pyramidal prefabricated primate settlements tanks; Desludging valves and pipework; Associated control equipment, testing and commissioning.
- Sludge Handling
  - Picket Fence Thickener (PFT); Earthworks, formwork and concrete; Incoming, outgoing pipework, associated chambers, associated control equipment, testing and commissioning.
- Storm Handling
  - Circular stormwater holding tank; Earthworks, formwork and concrete; Incoming, outgoing pipework and associated chambers; Storm tank mixer; Testing and commissioning.
- Miscellaneous
  - Site clearance; Road within site; Watermain to and within site; Water supply break tank; Kiosks and welfare facility.
- Pumping Stations
  - Sludge pumping station; Storm return pumping station; Wastewater booster set; Final effluent washwater booster set; Control kiosks.

Effluent Outfall

Treated effluent will be discharged into Cork Harbour via a terrestrial and marine gravity system. The terrestrial gravity main will be approx. 880 m long and laid primarily within agricultural fields, while the marine gravity main extends to approx. 190 m from the low-water mark and approx. 295 m from the high-water mark. This pipeline will be located outside of the Cork Harbour SPA.

Operational Phase

Following the completion of the construction phase, wastewater treatment services at Whitegate-Aghada will be upgraded. The upgrade works will ensure that no further untreated sewerage will be discharged into Cork Harbour and also provide sufficient capacity to cater for future population growth in the villages of Whitegate and Aghada.

The wastewater treatment plant building, associated tanks/structures and control kiosks for each pumping station will be constructed above ground. All other components of the proposed development will be below ground.

During the operational phase, the proposed development will cause emissions to be released into the environment. For instance, treated effluent will be discharged into Cork Harbour from the proposed outfall and diluted storm water discharges will overflow from the pumping stations to receiving waters infrequently. Noise emissions during the operational phase will also occur as a result of the proposed development. However, noise emissions will be minimal as the main pumping equipment will be underground and no air blowers, typically high-noise generating equipment are proposed as part of the wastewater treatment plant.

3.0 FINDINGS OF THE AA SCREENING REPORT

3.1 Summary of AA Screening Report

This section contains a summary of the AA Screening Report which the Applicant submitted as part of the Application. The purpose of the AA Screening Report was to determine whether or not the proposed development, either individually or in combination with other plans and projects, had the potential to significantly affect one or more European sites in view of their Conservation Objectives.

The AA Screening Report identified the zone of influence as being all European sites within 15 km of the proposed development. Table 3.1 below presents the European sites in the zone of influence and states whether or not there was potential for likely significant effects. Figure 3.1 below shows the location of these European sites in relation to the location of the proposed development.

The AA Screening Report concluded that the proposed development, either individually or in combination with other plans or projects, is likely to have a significant effect on one European site, namely the Cork Harbour SPA, in view of its Conservation Objectives.

A separate AA Screening Report was prepared by ROD on behalf of the DHLGH and reached the same conclusions.

Table 3.1 European Sites within the zone of influence of the proposed development

European site [site code]	Distance from the proposed development site	Qualifying Interests of the European site	Likely Significant Effect (LSE)? Explain.
Ballycotton Bay SPA [004022]	13.3 km east in a direct overland distance	• 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]	**No LSE.** This European site screened out for Stage 2 AA for the following reasons: Given the distance and the lack of impact pathway (i.e. hydrological connection), there is no potential for the proposed development to have likely significant effects on this European site, in view of its Conservation Objectives for these Qualifying Interests.
Great Island Channel SAC [001058]	4 km north via Cork Harbour coastal waterbody and the North Channel Great Island transitional waterbody.	• Mudflats and sandflats not covered by seawater at low tide [1140] • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	**No LSE.** This European site screened out for Stage 2 AA for the following reasons: • The proposed development is not located within this European site and will not have direct impacts (e.g. habitat loss) on the Annex I habitats which are listed as Qualifying Interests (QI's) to this European site. • Given the distance between the proposed development and this European site as well as the dilution capacity of Cork Harbour, any water quality impacts during the construction (e.g., surface run-off, spillage of hydrocarbons) and operational phases (e.g., increase in organic and nutrient load) would dissipate before they reached this European site. • No pathway for invasive species to be spread to this European site due to the proposed

European site [site code]	Distance from the proposed development site	Qualifying Interests of the European site	Likely Significant Effect (LSE)? Explain.
			development.
Cork Harbour SPA [004030]	0 km	• Little Grebe (*Tachybaptus ruficollis*) [A004] • Great Crested Grebe (*Podiceps cristatus*) [A005] • Cormorant (*Phalacrocorax carbo*) [A017] • Grey Heron (*Ardea cinerea*) [A028] • Shelduck (*Tadorna tadorna*) [A048] • Wigeon (*Anas penelope*) [A050] • Teal (*Anas crecca*) [A052] • Pintail (*Anas acuta*) [A054] • Shoveler (*Anas clypeata*) [A056] • Red-breasted Merganser (*Mergus serrator*) [A069] • Oystercatcher (*Haematopus ostralegus*) [A130] • Golden Plover (*Pluvialis apricaria*) [A140] • Grey Plover (*Pluvialis squatarola*) [A141] • Lapwing (*Vanellus vanellus*) [A142] • Dunlin (*Calidris alpina*) [A149] • Black-tailed Godwit (*Limosa limosa*) [A156] • Bar-tailed Godwit (*Limosa lapponica*) [A157] • Curlew (*Numenius arquata*) [A160] • Redshank (*Tringa totanus*) [A162] • Greenshank (*Tringa nebularia*) [A164] • Black-headed Gull (*Chroicocephalus ridibundus*) [A179] • Common Gull (*Larus canus*) [A182] • Lesser Black-backed Gull (*Larus fuscus*) [A183] • Common Tern (*Sterna hirundo*) [A193] • Wetland and Waterbirds [A999]	**LSE.** This European site screened in for Stage 2 AA for the following reasons: • Parts of the proposed development are located with this European Site and as such, an impact pathway exists. • There is potential for noise and disturbance to impact the Qualifying Interests of this European site during the construction phase. • There are potential for water quality impacts to reach this European site during the construction phase. • There is also potential for invasive alien species to be spread to this European site during the construction phase, impacting the Qualifying Interests of the site.

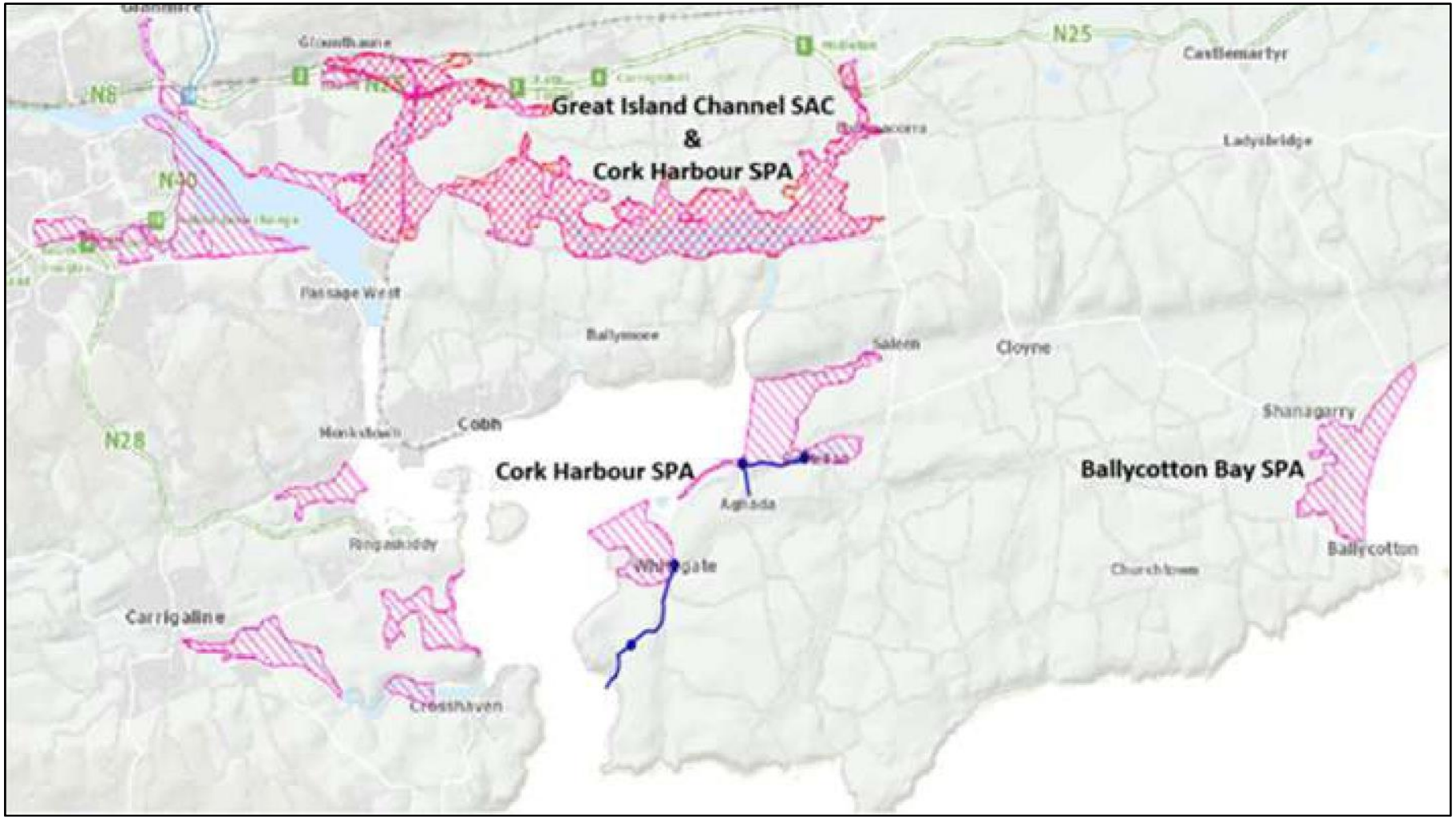

Figure 3.1 Location of the European sites in relation to the location of the proposed development (shown in dark blue).

4.0 COMMENTARY ON STAGE 2 APPROPRIATE ASSESSMENT

4.1 Introduction

This section contains a summary of the Natura Impact Statement (NIS) which the Applicant submitted as part of the Application. The purpose of the NIS was to determine whether or not the proposed development, either individually or in combination with other plans and projects, had the potential to adversely affect one or more European sites in view of their Conservation Objectives.

4.2 Identifcation and Assessment of Adverse Effects

Section 8 of the NIS, titled 'Assessment of Potential Impacts' identifies the construction and operational impacts of the proposed development which have the potential to adversely affect the Cork Harbour SPA, in view of the site's Conservation Objectives.

Potential impacts were identified as follows:

- Loss of habitat during construction
- Impacts from noise, visual disturbance and vibration during construction
- Impacts on water quality during construction
- Impacts on water quality during operation
- Spread of invasive species during construction
- Cumulative impacts during construction and operation

The potential impacts are described in the following sub sections:

Loss of habitat during construction

Habitat loss or habitat fragmentation of European sites has the potential to reduce suitable habitat available for Qualifying Interests of these sites. This would decrease the viability of existing habitats while simultaneously increasing pressures, potentially resulting in further deterioration.

Elements of the proposed development such as the Rostellan Network pumping station and sections of the rising main to Lower Aghada are within the Cork Harbour SPA and require minimal land take from the SPA. The habitats within the SPA at these locations and are of low ecological value and only provide low value foraging habitat for the QI's of Cork Harbour SPA. No breeding habitats will be impacted. Considering the availability of suitable habitat in the wider area, the proposed development will not result in significant habitat loss within the Cork Harbour SPA.

Noise, vibration and visual disturbance during construction

Noise, vibration and visual impacts from the proposed development have the potential to cause disturbance to or displacement of fauna during construction. Noise levels of 70 dB and above are considered within the literature as the threshold at which disturbance to estuarine birds is likely to occur (Cutts et al., 2013). However, greatest levels of disturbance to birds occurs when the difference between ambient noise levels and peak noise levels is greatest, especially in combination with visual human presence (Cutts et al., 2013). Disturbances to wetland birds can result in an interruption of normal activity and the displacement of birds, often into sub-optimal habitats. These impacts can be heightened during severe winters and can lead to a reduction in the carrying capacities of important overwintering sites. However, most

bird species tend to habituate to regular and continual sources of noise and visual disturbance, provided there is no excessive 'startling' components.

Common Tern, which are a QI for Cork Harbour SPA are known to nest on the Martello Tower on the western side of Cork Harbour but may also forage along the eastern side of the harbour in the vicinity of the proposed development. There is no suitable nesting habitat for Common Tern in the vicinity of the proposed development.

The areas of the proposed development which are located within the Cork Harbour SPA overlap with the outskirts of the villages of Whitegate, Aghada and Rostellan. The proposed development is likely to cause significant disturbance/displacement effects if construction works are carried out during the overwintering and passage season due to the close proximity of the proposed development site to the SPA.

With regard to the location of the proposed marine outfall, the shortest distance to Cork Harbour SPA via a hydrological connection is approx. 2.9 km at Curraghbinny Woods. The shortest distance over land is approx. 1.81 km at Whitegate village. The field surveys undertaken for the proposed development confirmed low usage of the proposed outfall location by bird species listed as Qualifying Interests of the Cork Harbour SPA.

There is no potential for noise and vibration impacts during the construction of the proposed marine outfall to cause disturbance to the Qualifying Interests of Cork Harbour SPA due to the temporary nature and scale of the construction, the distance between the proposed outfall location and the Cork Harbour SPA, the existing levels of disturbance from shipping and industrial activities and the fact that birds are highly mobile. Therefore, it can be concluded beyond reasonable scientific doubt that the construction of the proposed marine outfall will not significantly affect the Cork Harbour SPA in view of its Conservation Objectives for its Qualifying Interests.

Water quality during construction phase

The proposed marine outfall is intended to convey treated effluent from the proposed wastewater treatment plant in Ballytigeen townland to White Bay. The proposed outfall will extend approx. 295 m beyond the high-water mark and as such, water quality impacts that are anticipated to arise during the construction phase include sedimentation, surface water run-off and overland flow from greenfield areas. Potential impacts to aquatic habitats during the construction phase includes increase silt levels in surface water run-off and accidental spillages of hydrocarbons from fuel and hydraulic fluids. The duration and extents of the impact is unpredictable as there are many influencing factors such as dilution, particle size, turbulence and tidal currents.

Increased sediment and silt in aquatic habitats as a result of surface water run-off from the storage areas can impact fish species as their gills can become damaged due to increased exposure to suspended solids. Impacts to fish in terms of water quality could have potential indirect impacts on bird species who depend on fish as a food source. Aquatic invertebrates, algal communities and submerged plants are also at risk as they may become smothered by excessive deposits of silt from suspended solids. Estuaries, mudflats and sandflat habitats are unlikely to be affected at the location of the proposed development as impacts would be imperceptible beyond baseline conditions considering the scale of the proposed development, the dilution

capacity of the marine environment and the naturally fluctuating levels of silt in the environment.

Accidental spillage of hydrocarbons could result in toxic chemicals entering the aquatic environment via surface water run-off or groundwater contamination. Hydrocarbons can have direct phytotoxic effects, including reducing the ability of plants to absorb water and nutrients from their environment. These compounds can also alter the nutrient balance and microbiota in soil and water, which can benefit some plant species while detrimentally affecting others. Such changes have the potential to alter the vegetation structure and composition of the habitat.

Water Quality – Operational Phase

Following the construction of the proposed development, it is possible that an improvement in water quality could result in deterioration in aquatic vegetation and/or invertebrate prey for the QI's of Cork Harbour SPA. However, improvements in water quality in Cork Harbour will bring water quality in line with requirements of the Water Framework Directive as well as the Habitats Directive and Birds Directive and create a more sustainable ecosystem for the QI's. Therefore, considering the improvement of water quality is an important factor in maintaining the conservation objectives of Cork Harbour SPA, the operational phase of the proposed development will have a long-term positive impact on the conservation objectives of the Cork Harbour SPA.

Invasive Species

During the construction phase of the proposed development, there is potential for invasive alien species, namely Japanese Knotweed and Himalayan Balsam which were recorded in proximity to each other along the R630 and White Bay, to be spread within the Cork Harbour SPA and surrounding habitats, thereby resulting in a decline or loss of native species and/or habitats.

4.3 Mitigation Measures

Section 9 of the NIS titled 'Mitigation Measures' prescribes the mitigation measures to be implemented as part of the proposed development to avoid or reduce adverse effects on the integrity of the Cork Harbour SPA. For ease of reference, the Qualifying Interests and their Conservation Objectives, the potential effects and the prescribed mitigation measures are presented in Table 4.1 below.

4.4 In-Combination Impacts

The following existing facilities and proposed developments within Cork Harbour were considered for potential cumulative effects in the NIS (Section 8.6):

- ESB Aghada Power Station/BGE Power Station – approx. 760 m northeast of the proposed development is the ESB Power Station at Whitegate.
- Bord Gáis Energy (BGE) Power Station Whitegate - approx.1.13 km from the proposed development site.
- Cork Lower Harbour Main Drainage Scheme – Irish Water completed construction of a new municipal sewage treatment plant at Shanbally, Ringaskiddy, for the Cork Lower Harbour Main Drainage Scheme. The plant has been operational since December 2016.
- Haulbowline Island Remediation Project – The Ispat steel manufacturing facility, located adjacent to the naval base on Haulbowline Island, ceased

operation in 2001 and the buildings on the site have been demolished. Remediation works are complete and plans are currently being progressed to open the park once a lease has been finalised.

- Spike Island – Spike Island Masterplan published in 2012 but does not include any planned/permitted projects. Increases in boat traffic to Spike Island and increased activity on the island could potentially impact on bird populations.
- Residential Developments
- Ferry and Cruise Ship Business.

As part of the proposed development, a Water Quality impact assessment was carried out by Arup Consulting Engineers, which determined background concentrations of the modelled water quality parameters by including coliform/nutrient discharges from the following three separate sources:

- All relevant WWTP and industrial outfalls in Cork Harbour;
- Primary rivers that flow into the Cork Harbour;
- Open sea boundary.

In the context of European Union water quality regulations, the predicted increase of WWTP hydraulic loads for future scenarios do not lead to an exceedance of the relevant environmental quality standard (EQS) thresholds at any of the monitoring points. In the absence of any adverse effects associated with this project no in-combination impacts on water quality have been identified. Similarly, no significant in-combination impacts related to noise and disturbance or spread of invasive species have been identified following the implementation of the above mitigation measures.

Table 4.1 Summary of Sources of Adverse Effects and Mitigation Measures on the Cork Harbour SPA.

Qualifying Interest	Conservation Objective (NPWS, 2015)	Source of Adverse Effect	Mitigation Measure
[A004] Little Grebe (*Tachybaptus ruficollis*)	"*To maintain the favourable conservation condition of Little Grebe in Cork Harbour SPA*"	• Loss of habitat during construction • Impacts from noise, vibration and visual disturbance during construction • Impacts on water quality during construction • Impacts on water quality during operation • Spread of invasive species during construction • Cumulative impacts during construction and operation	• Construction Measures- Guidelines • Construction Works- Water Quality • Construction Works- Storage and Waste • Construction Works- Ecology • Construction Works- Noise • Bird Mitigation Measures • Invasive Species
[A005] Great Crested Grebe (*Podiceps cristatus*)	"*To maintain the favourable conservation condition of Great Crested Grebe in Cork Harbour SPA*"		
[A017] Cormorant (*Phalacrocorax carbo*)	"*To maintain the favourable conservation condition of Cormorant in Cork Harbour SPA*"		
[A028] Grey Heron (*Ardea cinerea*)	"*To maintain the favourable conservation condition of Grey Heron in Cork Harbour SPA,*"		
[A048] Shelduck (*Tadorna tadorna*)	"*To maintain the favourable conservation condition of Shelduck in Cork Harbour SPA*"		
[A050] Wigeon (*Anas penelope*)	"*To maintain the favourable conservation condition of Wigeon in Cork Harbour SPA*"		
[A052] Teal (*Anas crecca*)	*"To maintain the favourable conservation condition of Teal in Cork Harbour SPA"*		
[A054] Pintail (*Anas acuta*)	*"To maintain the favourable conservation condition of Pintail in Cork Harbour SPA"*		
[A056] Shoveler (*Anas clypeata*)	*"To maintain the favourable conservation condition of Shoveler in Cork Harbour SPA"*		
[A069] Red-breasted Merganser (*Mergus serrator*)	*"To maintain the favourable conservation condition of Red-breasted Merganser in Cork Harbour SPA"*		

Qualifying Interest	Conservation Objective (NPWS, 2015)	Source of Adverse Effect	Mitigation Measure
[A130] Oystercatcher (*Haematopus ostralegus*)	*"To maintain the favourable conservation condition of Oystercatcher in Cork Harbour SPA"*	[As above]	[As above]
[A140] Golden Plover (*Pluvialis apricaria*)	*"To maintain the favourable conservation condition of Golden Plover in Cork Harbour SPA"*		
[A141] Grey Plover (*Pluvialis squatarola*)	*"To maintain the favourable conservation condition of Grey Plover in Cork Harbour SPA"*		
[A142] Lapwing (*Vanellus vanellus*)	*"To maintain the favourable conservation condition of Lapwing in Cork Harbour SPA"*		
[A149] Dunlin (*Calidris alpina*)	*"To maintain the favourable conservation condition of Dunlin in Cork Harbour SPA"*		
[A156] Black-tailed Godwit (*Limosa limosa*)	*"To maintain the favourable conservation condition of Black-tailed Godwit in Cork Harbour SPA"*		
[A157] Bar-tailed Godwit (*Limosa lapponica*)	*"To maintain the favourable conservation condition of Bar-tailed Godwit in Cork Harbour SPA"*		
[A160] Curlew (*Numenius arquata*)	*"To maintain the favourable conservation condition of Curlew in Cork Harbour SPA"*		
[A162] Redshank (*Tringa totanus*)	*"To maintain the favourable conservation condition of Redshank in Cork Harbour SPA"*		
[A164] Greenshank (*Tringa nebularia*)	*"To maintain the favourable conservation condition of Greenshank in Cork Harbour SPA"*		
[A179] Black-headed Gull (*Chroicocephalus*	*"To maintain the favourable*		

Qualifying Interest	Conservation Objective (NPWS, 2015)	Source of Adverse Effect	Mitigation Measure
ridibundus)	*conservation condition of Black-headed Gull in Cork Harbour"* SPA"	[As above]	[As above]
[A182] Common Gull (*Larus canus*)	*"To maintain the favourable conservation condition of Common Gull in Cork Harbour SPA"*		
[A183] Lesser Black-backed Gull (*Larus fuscus*)	*"To maintain the favourable conservation condition of Lesser Black-backed Gull in Cork Harbour SPA"*		
[A193] Common Tern (*Sterna hirundo*)	*"To maintain the favourable conservation condition of Common Tern in Cork Harbour SPA"*		
[A999] Wetland and Waterbirds	*"To maintain the favourable conservation condition of the wetland habitat in Cork Harbour SPA as a resource for the regularly-occurring migratory waterbirds that utilise it"*	• Loss of habitat during construction • Impacts from noise, visual vibration and disturbance during construction • Impacts on water quality during construction • Impacts on water quality during operation • Spread of invasive species during construction • Cumulative impacts during construction and operation	• Construction Measures- Guidelines • Construction Works- Water Quality • Construction Works- Storage and Waste • Construction Works- Ecology • Construction Works- Noise • Bird Mitigation Measures • Invasive Species

4.5 Evaluation of Mitigation Measures

The mitigation measures are presented below under the headings taken directly from Section 9 the revised NIS. An evaluation of their practicality, suitability and effectiveness is also provided.

Construction Measures- Guidelines

The source of potential adverse effects, or receptor/ Qualifying Interest(s) that these mitigation measures apply to are not stated, however it can be assumed that the mitigation measures provided under this heading relate to all sources of adverse effects. These mitigation measures are appropriate for a development of this nature and reduce the risk of adverse effects arising during the construction phase.

Construction Works- Water Quality

The source of potential adverse effects, or receptor/ Qualifying Interest(s) that these mitigation measures apply to are not stated, however it can be assumed that the mitigation measures provided under this heading relate to all sources of adverse effects. These mitigation measures are appropriate for a development of this nature and reduce the risk of adverse effects arising during the construction phase.

Construction Works- Storage and Waste

The source of potential adverse effects, or receptor/ Qualifying Interest(s) that these mitigation measures apply to are not stated, however it can be assumed that the mitigation measures provided under this heading relate to all sources of adverse effects. These mitigation measures are appropriate for a development of this nature and reduce the risk of adverse effects arising during the construction phase.

Construction Works- Ecology

These measures appear to relate to roosting birds and bats. Waders feed at low tide and roost at high tide, therefore the restriction to daylight working hours would not reduce any effect on roosting birds. Common Tern, which is present as a breeding species during the summer months, does not breed on the eastern side of Cork Harbour, therefore this mitigation measure is not relevant. The inclusion of this mitigation measure to avoid or reduce effects on nocturnal mammals is irrelevant in this NIS. These mitigation measures do not affect the conclusion of the NIS.

Construction Works- Noise

The source of potential sources of adverse effects, or receptor/ Qualifying Interest(s) that these mitigation measures apply to are not stated, however it can be assumed that the mitigation measures provided under this heading relate to all sources of adverse effects.

It is unclear who will take responsibility for ensuring that the ‘least noisy’ plant is used, particularly if there is only a slight difference in noise emissions or if serious cost implications apply. Instead, the NIS should have adopted the precautionary principle and assessed the proposed development based on the worst-case scenario (i.e. the noisiest plant). Construction site typically generate up to 100Db at source and it would be more appropriate to use this. Nevertheless, the seasonal restrictions on the works will avoid adverse effects on QI species.

Bird Mitigation Measures

The seasonal restriction of the works to avoid works in the wintertime is an effective mitigation measure to avoid adverse effects on the Qualifying Interest species that are wintering birds. The use of hoarding in the summer is primarily to prevent disturbance to non-Qualifying Interest species that may be foraging in the mudflats but will also prevent disturbance to QIs that forage or roost within these areas, including Common Tern which have potential to forage on the eastern side of Cork Harbour. This is an effective mitigation measures to avoid adverse effects on QI species during the summer, although there are no records of Common Tern Breeding Colonies on the eastern side of Cork Harbour.

Invasive Species

The mitigation measures for invasive species note that the area and distribution will have changed between the surveys and when the construction phase begins. This statement is correct and the prescribed measures including a survey prior to construction and the adherence to guidelines will prevent the spread to invasive species and avoid adverse effects on the Cork Harbour SPA.

According to the revised NIS, given the full and proper implementation of these mitigation measures, the construction and operation of the proposed development will not give rise to residual adverse effects on the integrity of the Cork Harbour SPA in view of the site's Conservation Objectives.

5.0 CONCLUSION

The information contained in the revised NIS provides clear, concise, and definitive findings, capable of removing all scientific doubt as to the effects of the proposed development on the Cork Harbour SPA. Therefore, the Competent Authority (i.e. the Minister for Housing, Local Government and Heritage) may determine that the proposed development, either individually or in combination with other plans or projects, will not lead to adverse effects on the integrity of the Cork Harbour SPA, or any other European site, in view of the site's Conservation Objectives.

6.0 RECOMMENDED CONDITIONS

As a result of the Public Consultation process, it is recommended that, in addition to the mitigation measures proposed in the NIS, the following conditions be attached to any grant of foreshore licence or lease for the proposed development:

- The duration of laying of the outfall pipe into White Bay be kept as short as possible and that all mitigation measures proposed be fully implemented.
- Irish Water to submit an application for review of the license to the Environmental Protection Agency within six months and before any development starts, unless with prior written agreement of the EPA.
- If piling is required for the underground concrete chamber located partially in the foreshore area at Rostellan, the following mitigation measures, as requested by IFI will be implemented:
  - Pile driving to be undertaken only in daylight hours and for limited periods of time.
  - Use of vibrating hammer for pile driving in order to reduce noise generation and propagation, on a day-to-day basis and on re-start after stoppages within any day.
  - Duration of noise-generating works to be reduced to the minimum necessary to complete works to a sufficient quality.
- Use of soft start up and ramp up procedures for any noise generating works undertaken both on a day-to-day basis and on restart after any stoppages within any day.
  - All relevant measures specified in the IFI guidance document *'Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters'* should be adhered to.
  - Details of Construction Environmental Management Plan (CEMP) should be agreed in advance with IFI.
- The licensee shall use that part of the foreshore, the subject matter of this licence, for the purposes as outlined in the application and for no other purposes whatsoever.
- The drawings titled: Foreshore Licence Map 1, Drg. No: IW-10015229-03-04-001, Rev: I2, Rev Date: 04/08/21, Foreshore Licence Map 2, Drg. No: IW-10015229-03- 04-002, Rev: I2, Rev Date: 04/08/21 and Foreshore Licence Map 3, Drg. No: IW- 10015229-03-04-003, Rev: I2, Rev Date: 04/08/21 shall be attached to and referenced in the licence document.
- The works shall be completed in accordance the application documents and drawings submitted by the licensee to the Department of Housing, Local Government and Heritage.
- The licensee shall submit to the Department of Housing, Local Government and Heritage a detailed report on the existing outfall pipelines to be repurposed to serve as combined Emergency Overflows/Surface Water Overflows. The report shall include the location, detailed description and drawings, condition, and licensing status etc. of the outfalls. Any short comings identified must be rectified to the satisfaction of the Department of Housing, Local Government and Heritage. Please note it is a requirement of this Department that Emergency Overflows/Surface Water Overflows shall discharge to below the line low water springs.

- The licensee shall notify the Department of Housing, Local Government and Heritage at least 14 days in advance of the commencement of any works on the foreshore. This notification shall include an up-to-date Programme of Works for the completion of the project.
- A marker buoy will mark the outfall diffuser.
- Should a pollution event occur, the Sea Fisheries Protection Authority (SFPA) Clonakilty Port office should contacted immediately so measures can be put in place to restrict potentially contaminated shellfish being placed on the market. Email: <SFPA_Clonakilty_Port@sfpa.ie>