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D866: NATIONAL WATERSPORTS CAMPUS DÚN LAOGHAIRE

NATURA IMPACT STATEMENT - NIS

For
Dún Laoghaire-Rathdown County Council

16 September 2026

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1 INTRODUCTION

1.1 PROJECT CONTRACTUAL BASIS & PARTIES INVOLVED

This Natura Impact Statement (NIS) has been prepared by O'Connor Sutton Cronin & Associates Ltd. (OCSC) on behalf of Dún Laoghaire-Rathdown County Council in relation to the proposed marine and coastal site investigation works associated with the National Watersports Campus at Dún Laoghaire Harbour, Co. Dublin. The proposed site investigation works are being undertaken to inform the design, feasibility and environmental assessment of future watersports infrastructure and to support an application for a Maritime Usage Licence (MUL) to the Maritime Area Regulatory Authority (MARA). As part of its consideration of the MUL application, MARA requested that a Natura Impact Statement be prepared to inform Stage 2 Appropriate Assessment. This NIS has therefore been prepared in response to MARA's request. The location of the proposed works are shown in Figure 1.1.

The proposed site investigation works comprise a programme of temporary marine and coastal investigations within and adjacent to Dún Laoghaire Harbour. The works include marine and terrestrial boreholes, Cone Penetration Testing (CPT), vibrocore sampling and multibeam bathymetric surveying. The investigations will provide information on seabed conditions, subsurface geology, sediment characteristics and bathymetry within the defined MUL application area. The proposed works are temporary in nature and will be undertaken at discrete locations within intertidal and subtidal areas.

A Stage 1 Screening for Appropriate Assessment was previously completed for the proposed site investigation works in support of the Maritime Usage Licence (MUL) application. The Screening for Appropriate Assessment concluded that the proposed works, either alone or in combination with other plans and projects, would not be likely to have a significant effect on any European Site and that a Stage 2 Appropriate Assessment and Natura Impact Statement (NIS) were not required.

As part of its consideration of the MUL licence application, the Maritime Area Regulatory Authority (MARA) requested that a Natura Impact Statement be prepared under section 117(6)(a) of the Maritime Area Planning Act 2021, to further assess the potential implications of the proposed site investigation works for European Sites. This NIS has therefore been prepared in response to that request and provides additional scientific information to support the competent authority in undertaking an Appropriate Assessment of the proposed works.

The European Sites considered in this NIS are:

- South Dublin Bay and River Tolka Estuary SPA (004024)
- South Dublin Bay SAC (000210).

The NIS considers the potential effects of the proposed site investigation works on the relevant Qualifying Interests (QIs), Special Conservation Interests (SCIs) and conservation objectives of these European Sites,

including potential effects arising from temporary sediment mobilisation, changes in water quality and disturbance to SCI species, and considers the potential for effects in combination with other plans and projects.

The NIS describes the proposed site investigation works and the receiving ecological environment and assesses the potential effects of the works, both alone and in combination with other plans and projects, on the relevant QIs, SCIs and conservation objectives of the screened-in European Sites. Where potential impact pathways have been identified, appropriate mitigation measures and environmental controls have been incorporated into the proposed works and associated methodologies to avoid, prevent or reduce potential adverse effects on the integrity of the European Sites.

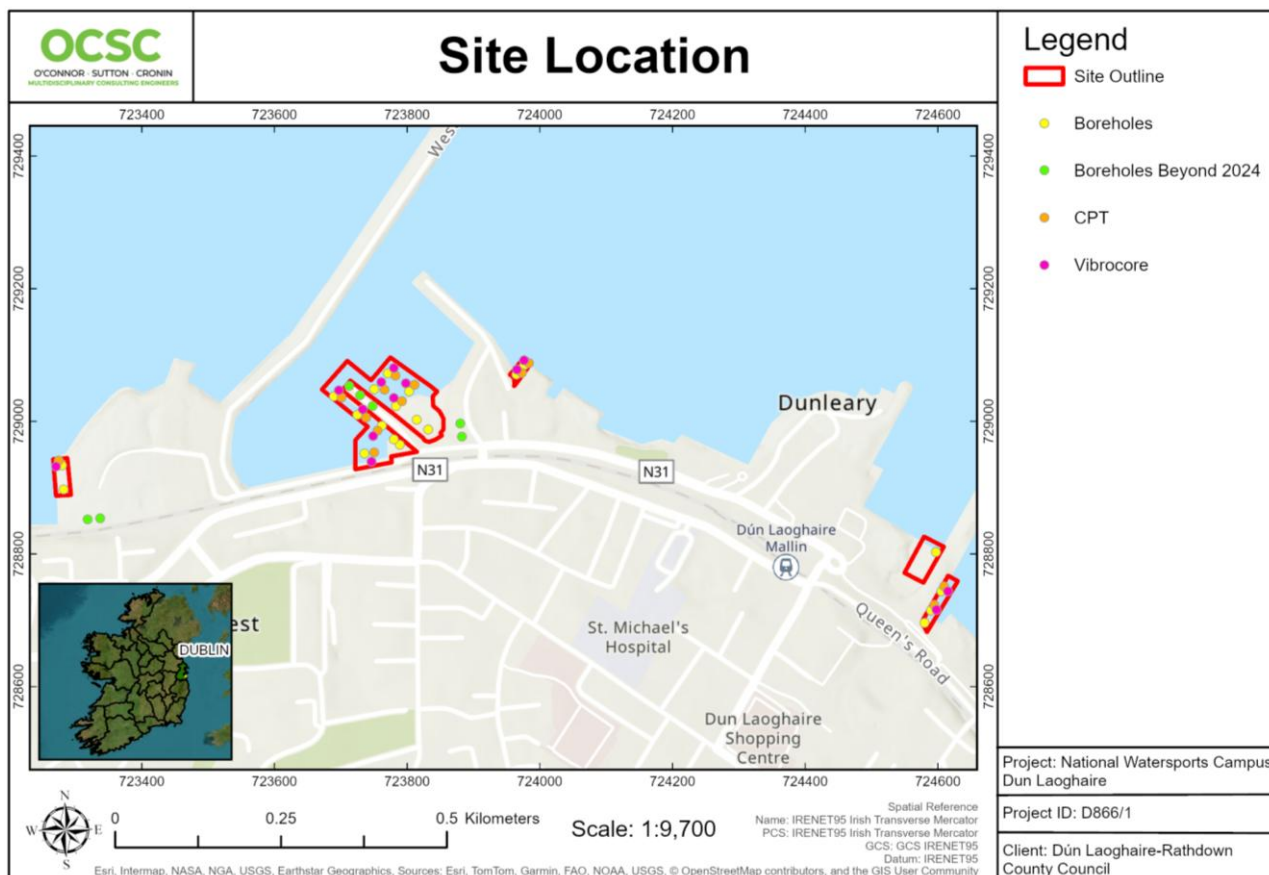


Figure 1.1: Site Location (Source: OCSC, 2026)

The report was completed by Torchia McQuaid, BSc, MSc and Rebecca Duane BSc MCIEEM; reviewed by Eadaoin Butler, BSc, MCIEEM, Consultant Ecologist; and approved by Eleanor Burke, BSc, MSc, DAS, MEnvSc, CSci, OCSC Environmental Director.

1.2 PURPOSE OF THE PROJECT

The proposed site investigation works comprise a programme of marine and coastal site investigation works associated with the proposed National Watersports Campus at Dún Laoghaire Harbour, Co. Dublin. The site investigation works will be undertaken within and adjacent to Dún Laoghaire Harbour and are required to inform

the design, feasibility and environmental assessment of future watersports infrastructure. The works are also required to support an application for a Maritime Usage Licence (MUL) to the Maritime Area Regulatory Authority (MARA).

The purpose of the proposed site investigation works is to obtain information on the existing seabed and subsurface conditions within the defined MUL application area. The investigations will provide information on seabed conditions, subsurface geology, sediment characteristics and bathymetry, which will inform the engineering design and environmental assessment of the proposed future National Watersports Campus infrastructure.

The proposed site investigation works will comprise marine and terrestrial boreholes, Cone Penetration Testing (CPT), vibrocore sampling and multibeam bathymetric surveying. Marine boreholes will be undertaken using either sonic drilling or cable percussion boring, followed by rotary core drilling where required. CPT investigations will provide in-situ information on soil strength and deformation properties, while vibrocore sampling will facilitate the recovery of sediment samples for laboratory-based environmental and geotechnical testing. A multibeam echosounder survey will also be undertaken to provide high-resolution bathymetric data of the harbour seabed.

The proposed site investigation works are temporary in nature and will be undertaken at discrete locations within and adjacent to the harbour, including intertidal and subtidal areas. The works will not involve the construction of the future National Watersports Campus and are intended solely to obtain the information required to support the future design, feasibility and environmental assessment of the proposed watersports infrastructure.

The site investigation works will involve the use of marine and terrestrial plant and equipment and will require limited, localised disturbance of seabed and ground materials at individual investigation locations. Appropriate construction methodologies and environmental controls will be implemented during the works to manage potential effects associated with sediment mobilisation, water quality, noise, vibration and other environmental risks. Figure 1.2 shows the proposed MUL application area, and the location of the proposed site investigation works.

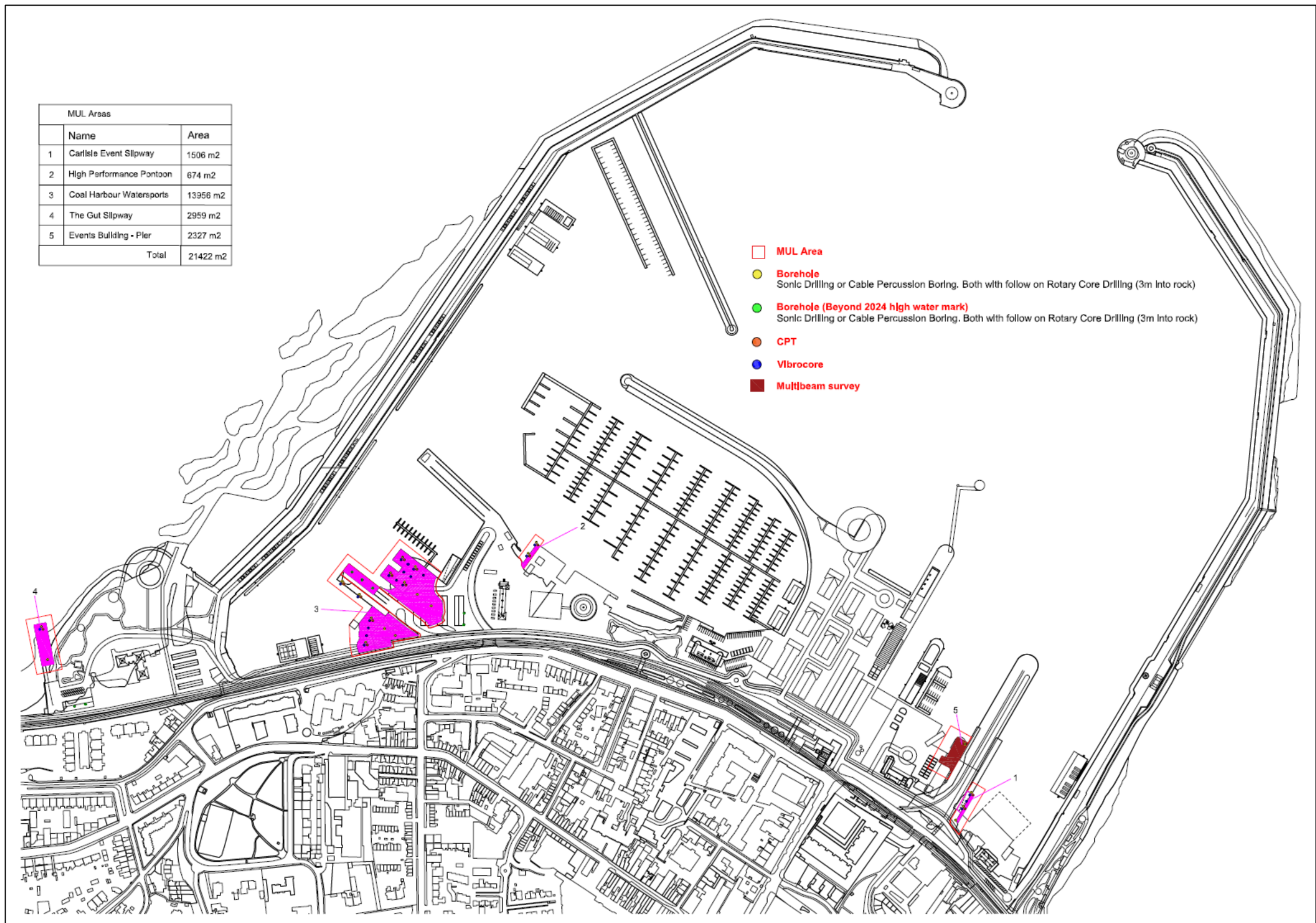


Figure 1.2: Proposed MUL application area, and the location of the proposed site investigation works.

1.3 RELEVANT QUALIFYING INTERESTS, SPECIAL CONSERVATION INTERESTS AND CONSERVATION OBJECTIVES

A portion of the proposed works are located within the South Dublin Bay and River Tolka Estuary SPA with the main body of works within Dún Laoghaire Harbour. A Stage 1 Appropriate Assessment Screening was previously undertaken in support of the MUL licence application and concluded that the proposed site investigation works would not be likely to have a significant effect on the South Dublin Bay and River Tolka Estuary SPA or the South Dublin Bay SAC located greater than 0.2km at its closest point, either alone or in combination with other plans or projects, in view of the conservation objectives of the European Sites.

As part of its consideration of the MUL licence application, MARA requested that a Natura Impact Statement (NIS) be prepared to provide further assessment of the potential implications of the proposed works for European Sites. In response to this request and in an abundance of caution having regard to the potential impact pathways and ecological receptors associated with the proposed works, the South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC have been considered further within this NIS.

The relevant Special Conservation Interests (SCIs) of the SPA and Qualifying Interests (QIs) of the SAC considered further in this NIS are presented in Table 1.1.

Table 1.1: Qualifying Interests and Special Conservation Interests Brought Forward from Stage 1 Appropriate Assessment Screening

European Sites	Qualifying Interest / Special Conservation Interest	Conservation Objective	Reason for Inclusion in Stage 2 AA
South Dublin Bay and River Tolka Estuary SPA (004024) 0km	[A046] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A130] Oystercatcher (<i>Haematopus ostralegus</i>) [A137] Ringed Plover (<i>Charadrius hiaticula</i>) [A141] Grey Plover (<i>Pluvialis squatarola</i>) [A143] Knot (<i>Calidris canutus</i>) [A144] Sanderling (<i>Calidris alba</i>) [A149] Dunlin (<i>Calidris alpina</i>) [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A162] Redshank (<i>Tringa totanus</i>) [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A192] Roseate Tern (<i>Sterna dougallii</i>) [A193] Common Tern (<i>Sterna hirundo</i>) [A194] Arctic Tern (<i>Sterna paradisaea</i>)	Maintain favourable conservation condition	Potential disturbance from site investigation activities, including marine vessels, plant, noise and vibration, and potential effects on supporting foraging habitat.
	[A999] Wetland and Waterbirds	Maintain favourable conservation condition	Potential effects on the ecological condition and availability of supporting wetland and coastal habitats, including temporary sediment mobilisation and water-quality effects.
South Dublin Bay SAC (000210) 0.2km NE	[1140] Mudflats and sandflats not covered by seawater at low tide	Maintain favourable conservation condition	Potential temporary sediment mobilisation and water-quality effects associated with borehole drilling and vibrocore sampling within the marine environment.
	[1210] Annual vegetation of drift lines		Potential indirect effects through marine sediment mobilisation/deposition and water-quality pathways
	[1310] Salicornia and other annuals colonising mud and sand		Potential indirect effects through marine sediment mobilisation/deposition and water-quality pathways
	[2110] Embryonic shifting dunes		Potential indirect effects through marine sediment mobilisation/deposition and water-quality pathways

The remaining qualifying interests and Special Conservation Interests associated with these European Sites, together with the qualifying interests and Special Conservation Interests of the other European Sites considered during the Stage 1 Appropriate Assessment Screening, were screened out at the screening stage as no plausible source–pathway–receptor relationship capable of giving rise to likely significant effects was identified. These interests are therefore not considered further within this Natura Impact Statement.

1.4 NATURA IMPACT STATEMENT

The report prepared for the second stage of AA is referred to as an NIS. The approach taken to preparing the NIS is as follows:

- Set out information on the European Sites and relevant QIs and SCIs considered further in this NIS following the request from MARA.
- Describe the elements of the proposed site investigation works, both alone and in combination with other projects or plans, that have the potential to give rise to adverse effects on European Sites.
- Set out the conservation objectives of the relevant European Sites and identify the Qualifying Interests (QIs) and Special Conservation Interests (SCIs) relevant to the assessment.
- Describe how the proposed site investigation works may affect the relevant QIs, SCIs and their relevant habitats and ecological functions supporting the QIs and SCIs, including potential effects associated with temporary sediment mobilisation, water quality, noise, vibration and disturbance. Any uncertainties and gaps in information are identified where relevant.
- Describe how the integrity of the relevant European Sites, having regard to their structure, function and conservation objectives, may be affected by the proposed site investigation works. Potential effects including habitat degradation, disturbance, changes in water quality and temporary sediment mobilisation are considered, together with any uncertainties or gaps in information.
- Identify appropriate mitigation measures and environmental controls required to avoid, prevent or reduce potential adverse effects on the integrity of the relevant European Sites.
- Assess the potential for adverse effects on site integrity following implementation of the proposed mitigation measures, both from the proposed site investigation works alone and in combination with other plans or projects.
- The Appropriate Assessment is carried out by the competent authority and is supported by the NIS.

The approach taken in preparing the NIS is based on standard methods and guidance as listed in Section 1.6 and the references section of this report.

1.5 LEGISLATIVE CONTEXT

The Habitats Directive promotes a hierarchy of avoidance, mitigation, and compensatory measures to be addressed in the AA process as follows:

- Firstly, a plan / project should aim to avoid any negative impacts on Natura 2000 sites by identifying possible impacts early in the design phase and designing the project / plan to avoid such impacts.
- Secondly, mitigation measures should be applied during the appropriate assessment (Stage 2) process to the point where no adverse impacts on the site(s) remain.
- Thirdly a plan / project may require an assessment of alternative solutions. Under this stage of the assessment, compensatory measures are required for any remaining adverse effects, but they are permitted only if (a) there are no alternative solutions and (b) the plan / project is required for imperative reasons of overriding public interest (the 'IROPI test'). European case law highlights that consideration must be given to alternatives outside the plan / project boundary area in carrying out the IROPI test.

European Nature Directives (Habitats and Birds)

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) forms the basis for the designation of Special Areas of Conservation (SACs). Similarly, Special Protection Areas (SPAs) are classified under the Birds Directive (Council Directive 2009/147/EEC on the Conservation of Wild Birds). Collectively, SACs and SPAs are referred to as the Natura 2000 network. In general terms, they are considered to be of exceptional importance for rare, endangered, or vulnerable habitats and species within the European Community.

Under Article 6(3) of the Habitats Directive an 'appropriate assessment' must be undertaken for any plan or project that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. An Appropriate Assessment is an evaluation of the potential impacts of a plan or project on the conservation objectives of a Natura 2000 site and the development, where necessary, of mitigation or avoidance measures to preclude negative effects.

Article 6, paragraph 3 of the EC Habitats Directive 92/43/EEC ("the Habitats Directive") states that:

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public".

European Communities (Birds and Natural Habitats) Regulations 2011

Part 5 of the European Communities (Birds and Natural Habitats) Regulations 2011 sets out the circumstances under which an 'Appropriate Assessment' is required. Section 42(1) requires that 'a screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific

knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects, is likely to have a significant effect on the European site.'

Section 42(2) expands on this, stipulating that a public authority must carry out a screening for Appropriate Assessment before consent for a plan or project is given or a decision to undertake or adopt a plan or project is taken. To assist a public authority to discharge its duty in this respect, Section 42(3)(a) gives them the authority to direct a third party to provide a Natura Impact Statement, and Section 42(3)(b) allows them to request any additional information that is considered necessary for the purposes of undertaking a screening. Similarly, Section 177T of Section 57 of the Planning and Development (Amendment) Act 2010 states that a competent authority may give a notice in writing to the applicant concerned, directing him or her to furnish a Natura Impact Statement, and the applicant shall furnish the statement within the period specified in the notice. A Natura Impact Statement must include such information or data as the public authority considers necessary to enable it to ascertain if the plan or project will affect the integrity of a Natura 2000 site. Where appropriate, a Natura Impact Statement also needs to include:

- I. the alternative solutions that have been considered and the reasons why they have not been adopted;
- II. the imperative reasons of overriding public interest that are being relied upon to indicate that the plan or project should proceed notwithstanding that it may adversely affect the integrity of a European site; and
- III. the compensatory measures that are being proposed.

Section 42(6) requires that 'the public authority shall determine that an Appropriate Assessment of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site'.

1.6 METHODOLOGY AND APPROACH

The NIS has been prepared taking into account the aforementioned and the following legislation and guidance:

- Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities, Department of the Environment, Heritage and Local Government, 2009; 11 February 2010 revision.
- Commission Notice: Managing Natura 2000 sites – The provisions of Article 6 of the Habitats Directive 92/43/EEC, European Commission, 2018.
- Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, March 2021.
- Relevant site-specific NPWS documentation, including the current Conservation Objectives for the South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC.
- Natura Impact Statements and Appropriate Assessment guidance.
- Article 17 conservation status reports for relevant qualifying interests.

- Water Framework Directive Monitoring Programme guidance documents and hydromorphological assessment methodologies published by the EPA.
- Environmental Good Practice on Site Guide (CIRIA).
- Relevant guidance relating to the prevention of sediment and hydrocarbon release during marine and construction activities.

1.7 MANAGING NATURA 2000 SITES: THE PROVISIONS OF ARTICLE 6 OF THE HABITATS DIRECTIVE 92/43/EEC, EUROPEAN COMMISSION, 2000.

- Appropriate Assessment Screening for Development Management. Office of the Planning Regulator, March 2021.
- Relevant site-specific NPWS documentation including:
 - Conservation Objectives for the South Dublin Bay and River Tolka Estuary SPA;
 - Conservation Objectives for the South Dublin Bay SAC;
 - Natura Impact Statements and Appropriate Assessment guidance;
 - Article 17 conservation status reports for qualifying interests
- Water Framework Directive Monitoring Programme guidance documents and hydromorphological assessment methodologies published by the EPA.
- Control of Water Pollution from Linear Construction Projects (CIRIA C648).
- Environmental Good Practice on Site Guide (CIRIA).
- Water Pollution Acts 1977–1990 (as amended) and associated guidance relating to prevention of sediment and hydrocarbon release during construction activities.
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC (European Commission, 2019).

The above legislation, guidance and site-specific documentation have informed the preparation of this NIS, which has been undertaken having regard to the best available scientific knowledge and applicable legislative and policy requirements

1.8 RIVER BASIN MANAGEMENT PLAN FOR IRELAND 2022–2027 (3RD CYCLE)

The Water Framework Directive (WFD) establishes environmental objectives for the protection, improvement and restoration of surface waters, groundwater and protected areas across Member States. River Basin Management Plans (RBMPs) provide the framework through which these objectives are implemented at national and catchment scale.

Ireland's current RBMP is the River Basin Management Plan 2022–2027, also published as the Water Action Plan 2024. The third-cycle RBMP sets out measures to protect and restore water quality and aquatic ecosystem function throughout Ireland in accordance with the requirements of the WFD. The Plan adopts a catchment-based approach to the management and protection of water resources.

The proposed site investigation works are located within the Dublin Bay coastal waterbody (IE_EA_090_0000). Dublin Bay is classified by the Environmental Protection Agency (EPA) as a coastal waterbody. The most recent available WFD information for the 2019–2024 assessment period identifies Dublin Bay as having ‘Good’ status. The EPA spatial dataset also identifies Dublin Bay as ‘Not at Risk’ of failing to meet its WFD objectives for 2027.

The proposed site investigation works will comprise temporary and localised marine and terrestrial boreholes, Cone Penetration Testing (CPT), vibrocore sampling and multibeam bathymetric surveying. The marine investigations have the potential to result in limited and temporary mobilisation of seabed sediments and associated increases in suspended sediment concentrations in the immediate vicinity of the works. No permanent alteration to the coastal waterbody, dredging, reclamation or permanent structures are proposed as part of the site investigation works.

The proposed works will therefore be undertaken using appropriate environmental controls to minimise the potential for sediment mobilisation and accidental pollution and to avoid deterioration in the water quality of Dublin Bay. Given the temporary and localised nature of the works, no significant effect on the WFD status or environmental objectives of the Dublin Bay coastal waterbody is anticipated.

1.9 LIMITATIONS

This Natura Impact Statement report has been prepared for the sole use of Dún Laoghaire-Rathdown County Council (“the Client”). No other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by OCSC.

This assessment is based on a review of available historical information, relevant guidance information, site surveys and reports from third parties. All information received has been taken in good faith as being true and representative.

This report has been prepared in line with the best industry standards. The methodology adopted and the sources of information used by OCSC in providing its services are outlined in this Report. The assessment undertaken by OCSC and described was carried out in August/September 2026 and is based on the information available during that period. The scope of this report and the services are accordingly factually limited by these circumstances.

OCSC disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report which may come or be brought to OCSC’s attention after the date of the Report.

The conclusions presented in this report represent OCSC’s best professional judgement based on a review of the relevant information available at the time of writing. The opinions and conclusions presented are valid only to the extent that the information provided was accurate and complete.

2 DESCRIPTION OF THE PROPOSED WORKS

2.1 PROJECT DESCRIPTION

Dún Laoghaire-Rathdown County Council (DLRCC) proposes to undertake a programme of marine and coastal site investigation (SI) works within Dún Laoghaire Harbour, Co. Dublin, in connection with the proposed National Watersports Campus. The proposed SI works are required to establish baseline information on seabed conditions, subsurface geology, sediment characteristics and bathymetry to inform the feasibility, design and environmental assessment of potential future infrastructure associated with the National Watersports Campus.

The proposed maritime usage is the subject of Maritime Usage Licence (MUL) application MUL250023 to the Maritime Area Regulatory Authority (MARA). MARA classifies the proposed activity as marine environmental surveys for the purposes of site investigation or in support of a future application under Part XXI of the Planning and Development Act 2000, as amended.

The proposed SI works comprise a combination of geotechnical and bathymetric investigation techniques, including marine boreholes, boreholes located beyond the 2024 High Water Mark, Cone Penetration Testing (CPT), vibrocore sampling and a multibeam bathymetric survey. The investigations are temporary in nature and will be undertaken at discrete locations within and adjacent to Dún Laoghaire Harbour. The proposed works do not comprise construction of the National Watersports Campus itself.

2.2 MUL APPLICATION AREA

The proposed SI works are located within Dún Laoghaire Harbour, Co. Dublin, on the southern side of Dublin Bay. The harbour comprises a series of inner basins, piers, breakwaters and marine facilities and supports a range of existing uses including recreational sailing, rowing and other watersports, leisure craft, commercial marine activity and emergency marine services.

The MUL application area comprises a number of discrete areas associated with the proposed SI activities. These include locations within the marine environment of the harbour and areas within which site investigation activities are proposed to support the assessment and design of potential future National Watersports Campus infrastructure. The extent and configuration of the MUL application area, together with the proposed SI locations, are presented in Figure 1.2.

The application area occurs within the Dublin Bay coastal waterbody, which forms part of the wider Irish Sea coastal environment. The location is also ecologically sensitive due to its proximity and connectivity to European sites, including the South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC. These ecological relationships and the potential pathways between the proposed activities and European sites are considered in detail within the subsequent sections of this NIS. The MUL application relates specifically to

the proposed site investigation activities and does not provide consent for the construction or operation of the future National Watersports Campus.

2.3 SITE INVESTIGATION ACTIVITIES

The proposed SI programme comprises a suite of geotechnical and bathymetric investigations designed to provide information on the physical characteristics of the seabed and underlying geological conditions within the study area. The proposed activities comprise borehole drilling, CPT, vibrocore sampling and multibeam bathymetric surveying. The individual investigation techniques are described below.

2.3.1 MARINE BOREHOLES

Marine boreholes will be undertaken at selected locations within the MUL application area to establish subsurface ground conditions and determine the nature, thickness and engineering characteristics of the underlying sediments and bedrock.

The marine boreholes will be undertaken using either sonic drilling or cable percussion boring, depending on the ground conditions encountered and the requirements of the investigation. Following penetration of superficial deposits, rotary core drilling will be undertaken where required, extending approximately 3 m into competent bedrock, where encountered. This methodology will allow the underlying stratigraphy, depth to rock and relevant geotechnical parameters to be established.

The works will result in temporary and highly localised disturbance at individual borehole locations. The boreholes are investigative features only and no permanent structures will be installed as part of these works. Material recovered during drilling will be retained for examination and, where required, laboratory testing to inform subsequent engineering design.

2.3.2 BOREHOLES BEYOND THE HIGH-WATER MARK

Additional boreholes are proposed at locations beyond the 2024 High Water Mark to supplement the information obtained from the marine investigations and provide continuity of geotechnical information between the marine and terrestrial environment. These boreholes will be undertaken using the same general methodology as the marine boreholes, comprising sonic drilling or cable percussion boring through superficial deposits, followed, where required, by rotary core drilling into bedrock.

The investigations will provide information on subsurface stratigraphy, depth to bedrock and geotechnical characteristics at locations associated with potential future landside and coastal infrastructure. The boreholes will be temporary investigation points only and will be appropriately reinstated following completion of the investigations.

2.3.3 CONE PENETRATION TESTING

Cone Penetration Testing (CPT) will be undertaken at selected locations to provide detailed in situ information on the engineering properties of unconsolidated seabed and subsurface sediments.

CPT is an in-situ investigation technique whereby an instrumented cone is advanced vertically through the underlying sediments. Measurements obtained during penetration allow the strength and deformation characteristics of the soils to be characterised and provide information on changes in subsurface stratigraphy.

The results of the CPT investigations will complement information obtained from the borehole and vibrocore investigations and will assist in characterising subsurface conditions and informing foundation and engineering design assumptions for potential future marine infrastructure.

CPT does not involve bulk excavation or dredging and disturbance of seabed material will be confined to the immediate footprint of each investigation location.

2.3.4 VIBROCORE SAMPLING

Vibrocore sampling will be undertaken at selected locations within the MUL application area to recover sediment cores from the seabed for subsequent examination and laboratory analysis.

Vibrocore sampling involves the penetration of a sampling tube into unconsolidated seabed sediments using vibration. Once the required penetration depth has been achieved, the core barrel is recovered, allowing a continuous or near-continuous sample of the shallow seabed sediments to be obtained.

The recovered material will be used to characterise sediment composition and, where relevant, undertake environmental and geotechnical laboratory testing. This information will assist in establishing the nature and properties of the shallow seabed sediments and inform the design and environmental assessment of potential future works.

Vibrocore sampling will result in a small and temporary area of seabed disturbance at each sampling location. No dredging or bulk removal of seabed material is proposed. Any disturbance of sediment associated with deployment and recovery of the vibrocore will therefore be highly localised and temporary.

Recovered sediment cores will be retained for visual logging and relevant laboratory testing. All recovered material and waste generated during sampling will be appropriately contained and managed and will not be discharged to the marine environment.

2.3.5 MULTIBEAM BATHYMETRIC SURVEY

A multibeam bathymetric survey will be undertaken within the relevant MUL application area to obtain high-resolution information on seabed levels and morphology.

The survey will be undertaken using a multibeam echosounder (MBES). The system emits acoustic signals towards the seabed and records the returning signals to determine water depth across a swath beneath the survey vessel. Successive survey lines allow a detailed three-dimensional representation of the seabed to be produced.

The resulting bathymetric information will provide detailed data on seabed morphology, water depths and existing seabed features and will support the engineering design and environmental assessment of potential future infrastructure.

The multibeam survey is non-intrusive and will not require physical penetration, excavation or removal of seabed material. The principal activity associated with the survey will therefore comprise the movement of the survey vessel through the survey area and the operation of the acoustic survey equipment. The potential for underwater sound generated by the survey equipment to interact with sensitive marine fauna is considered separately within the relevant ecological assessment sections of this NIS.

2.4 MARINE PLANT AND VESSEL REQUIREMENTS

The proposed marine site investigation works will require the use of suitable marine plant and survey vessels to facilitate access to the investigation locations within Dún Laoghaire Harbour. The type of vessel or marine platform used will be appropriate to the individual investigation technique, prevailing water depths, tidal conditions and navigational requirements within the harbour.

Marine borehole drilling, Cone Penetration Testing (CPT) and vibrocore sampling will be undertaken using suitably equipped marine plant capable of safely deploying and recovering the required investigation equipment. The multibeam bathymetric survey will be undertaken from a suitable survey vessel operating along predetermined survey lines within the relevant MUL application area.

Marine plant will be positioned only for the period necessary to complete the investigation at each location before relocating to the subsequent investigation point. Vessel movements associated with the SI works will therefore be temporary and intermittent and will occur within the existing operational environment of Dún Laoghaire Harbour, which is characterised by regular recreational, commercial and other marine vessel activity.

All vessels and marine plant used during the works will comply with relevant navigational, marine safety and pollution prevention requirements. The final selection of marine plant will be subject to the appointed contractor's detailed methodology and will remain within the scope and parameters of the activities assessed within this NIS and the associated MUL application.

2.5 MOBILISATION AND DEMOBILISATION

Marine plant, vessels and investigation equipment will be mobilised to Dún Laoghaire Harbour prior to commencement of the relevant SI activities. Mobilisation will include the transport and preparation of the equipment required for borehole drilling, CPT, vibrocore sampling and multibeam bathymetric surveying.

Following mobilisation, marine plant will proceed to the predetermined investigation locations within the MUL application area. Equipment will be deployed only within the defined investigation areas and will remain at individual locations for the period required to complete the relevant investigation. Following completion, equipment will be recovered, and the vessel or marine plant will relocate to the next investigation location as required.

Upon completion of the SI programme, all temporary investigation equipment, marine plant and associated materials will be removed from the works areas. No permanent marine infrastructure will be installed as part of the proposed SI works.

Mobilisation and demobilisation activities will be undertaken in accordance with applicable marine safety, navigation and environmental requirements and will be managed to minimise unnecessary vessel movements and disturbance within the harbour.

2.6 PROGRAMME, WORKING HOURS AND DURATION

The proposed SI works will be undertaken over a temporary investigation period of approximately less than 12 weeks subject to suitable weather, tidal conditions and operational requirements. Individual intrusive investigations will occur sequentially at discrete locations rather than simultaneously throughout the entire MUL application area.

Marine plant and survey vessels will mobilise to individual investigation locations as required and will relocate following completion of each investigation.

Works will generally be undertaken during daylight hours. Where activities are required during hours of darkness, task lighting will be restricted to the immediate working area and directed away from adjacent marine and coastal habitats insofar as practicable. The programme will remain subject to weather and tidal conditions and may therefore vary within the overall licence period.

2.7 REINSTATEMENT

The proposed SI works are investigative and temporary in nature and will not involve the construction of permanent structures within the maritime area. Following completion of each investigation, equipment will be recovered, and the investigation location will be left in a safe and stable condition.

The marine boreholes, CPT locations and vibrocore sampling points will result in only discrete and localised penetration of the seabed. No dredging or bulk excavation of marine sediments is proposed as part of the SI

programme. Disturbance associated with these activities will therefore be confined to the immediate investigation locations. The SI programme is designed to provide the information required to characterise the seabed and subsurface conditions within the survey area.

Any boreholes undertaken beyond the High-Water Mark will be appropriately closed and the investigation locations reinstated following completion of the works, in accordance with the agreed SI methodology and any applicable requirements. All temporary equipment, materials and waste generated by the investigations will be removed from the works areas following completion. No waste materials or investigation equipment will be intentionally left within the marine environment.

The multibeam bathymetric survey is non-intrusive and does not require physical penetration or excavation of the seabed: consequently, no physical reinstatement will be required following completion of this element of the survey.

2.8 SITE LOCATION

The proposed site investigation works are located within and adjacent to Dún Laoghaire Harbour, Dún Laoghaire, Co. Dublin, in the southern part of Dublin Bay. The harbour is located adjacent to the N31 and comprises a number of inner basins formed by piers and breakwaters, including the Old Harbour, Coal Harbour and Marina Harbour. The harbour entrance is broadly aligned to the north-northeast and measures over 230m across.

Dún Laoghaire Harbour is situated within an urban and marine setting and supports a range of existing marine and recreational uses. These include a large leisure marina, sailing and yacht clubs, rowing and watersports activities, commercial small-boat services, and emergency maritime services including RNLI lifeboats and Irish Coast Guard operations. The harbour historically functioned as a major passenger ferry port but has subsequently evolved into a marine and recreational hub.

The proposed site investigation works comprise temporary marine and coastal investigations within the defined Maritime Usage Licence (MUL) application area. The works will occur at discrete locations within and adjacent to the harbour, including intertidal and subtidal areas. The investigation programme includes marine and terrestrial boreholes, Cone Penetration Testing (CPT), vibrocore sampling and multibeam bathymetric surveying. The location of the proposed site investigation works are shown in Figure 1.2.

2.9 HYDROLOGY

The proposed site investigation works are located within the Dublin Bay coastal waterbody (IE_EA_090_0000). Dublin Bay is classified as a coastal waterbody by the Environmental Protection Agency (EPA) and forms part of the wider Irish Sea. See Figure 2.1 and Figure 2.2 for waterbody locations.

Based on the most recent available water quality information for the 2019–2024 assessment period, Dublin Bay has an overall Water Framework Directive (WFD) status of 'Good', as shown in Figure 2.1.

The EPA spatial dataset indicates that Dublin Bay (IE_EA_090_0000) is 'Not at Risk' of failing to meet its WFD objectives by 2027 (EPA, 2025), as shown in Figure 2.2. WFD information for these waterbodies is summarised in Table 2.1.

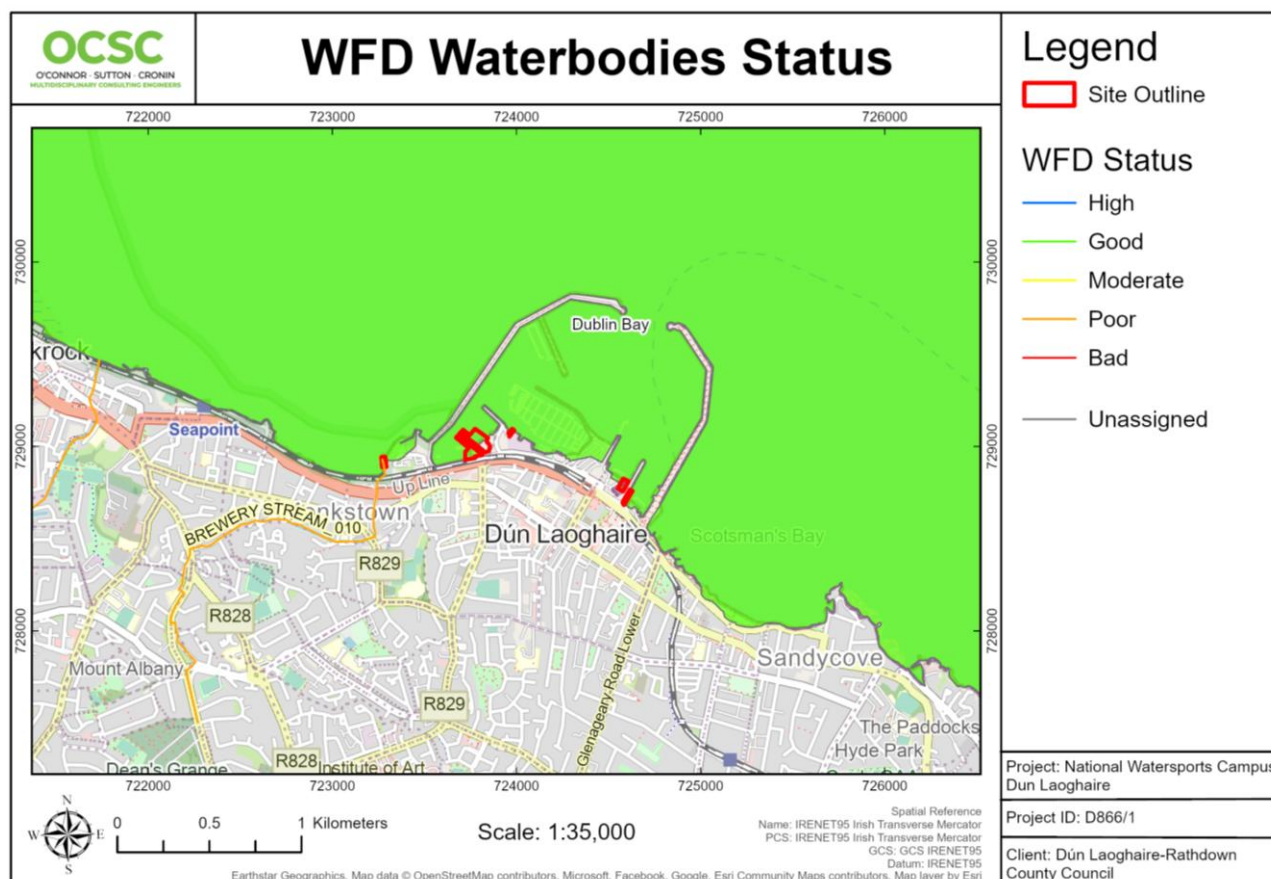


Figure 2.1: River Waterbodies Status (Source: OCSC, 2026)

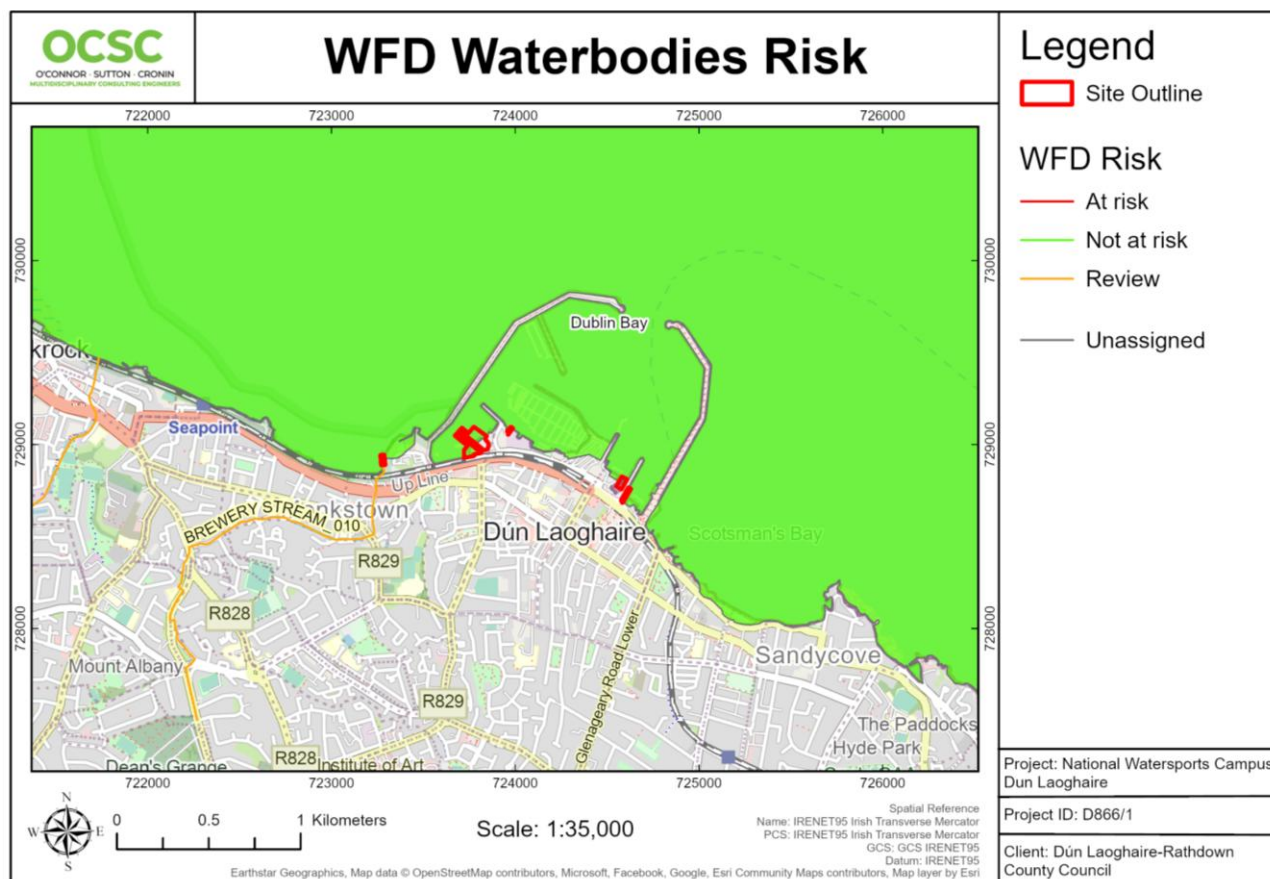


Figure 2.2: River Waterbodies Risk (Source: OCSC, 2026)

Table 2.1. WFD Summary Information

WFD Summary Information	
Name	Dublin Bay
Waterbody Code	IE_EA_090_0000
Waterbody Type	Coastal
Iteration	SW 2019-2024
Status	Good
Risk	Not at Risk

3 RELATIONSHIP TO DESIGNATED SITES

3.1 ZONE OF INFLUENCE

In accordance with the Department of the Environment, Heritage and Local Government guidance (DEHLG, 2009), the Zone of Influence (ZoI) for a project must be determined on a case-by-case basis, having regard to the nature, scale and location of the proposed site investigation works and the potential impact pathways associated with them. While a precautionary distance of 15km is often applied as an initial study area, the extent of the ZoI is ultimately determined by the presence of credible ecological, hydrological or other environmental pathways between the proposed works and European Sites. The Office of the Planning Regulator (OPR, 2021) similarly notes that the appropriate ZoI should be informed by the characteristics of the project and the sensitivities of the receiving environment.

For the purposes of identifying European Sites potentially relevant to the proposed SI works, an initial 15km study area surrounding the proposed works was applied. The potential ZoI was subsequently refined using the source-pathway-receptor model and having regard to:

- the footprint, scale and nature of the proposed site investigation works;
- the marine and coastal setting of the proposed works within Dún Laoghaire Harbour;
- the proximity of the proposed works to European Sites, including the South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC;
- the potential for temporary mobilisation of seabed sediments and associated changes in suspended sediment concentrations;
- the potential for temporary and localised effects on marine and coastal water quality;
- the potential for disturbance to mobile species, including Special Conservation Interest bird species, arising from marine vessels, plant, noise, vibration and human activity;
- the distribution and sensitivity of the Qualifying Interests (QIs), Special Conservation Interests (SCIs) and supporting habitats of European Sites within the study area; and
- the nature, scale and duration of the proposed site investigation activities.

The proposed SI works are temporary and localised and will be undertaken at discrete locations within and adjacent to Dún Laoghaire Harbour. The investigations comprise borehole drilling, Cone Penetration Testing (CPT), vibrocore sampling and multibeam bathymetric surveying. These activities have the potential to result in temporary and localised disturbance of seabed sediments, disturbance to mobile species and short-term changes in water quality.

The Stage 1 Appropriate Assessment Screening Report prepared in support of the MUL application considered European Sites within the 15km study area with reference to the presence or absence of credible source-pathway-receptor relationships. Following submission of the application documentation, MARA subsequently requested the preparation of a Natura Impact Statement (NIS) under Section 117(6)(a) of the Maritime Area

Planning Act 2021. Accordingly, this NIS has been prepared in response to that request and provides further assessment of the European Sites and potential impact pathways relevant to the proposed maritime usage.

Accordingly, this NIS has been prepared in response to MARA's request and provides the information necessary to inform Stage 2 Appropriate Assessment. For the purposes of this NIS, detailed assessment is focused on the South Dublin Bay and River Tolka Estuary SPA [004024] and South Dublin Bay SAC [000210], having regard to their spatial relationship with the proposed SI works and the potential impact pathways relevant to their respective SCIs and QIs.

The proposed SI works overlap with the South Dublin Bay and River Tolka Estuary SPA [004024]. The NIS therefore considers the potential for temporary disturbance to SCI species associated with noise, vibration, visual disturbance, vessel movements and personnel activity, together with potential effects on supporting habitat arising from temporary sediment mobilisation and associated changes in water quality. The spatial relationship between the proposed SI works and the SPA is shown in Figure 3.1.

The South Dublin Bay SAC [000210] is located approximately 0.2km northeast of the proposed SI works. Although the proposed activities are located outside the SAC boundary, the NIS considers the potential for indirect interaction with the qualifying interest habitats of the SAC through the marine environment, principally in relation to temporary sediment mobilisation and associated changes in water quality.

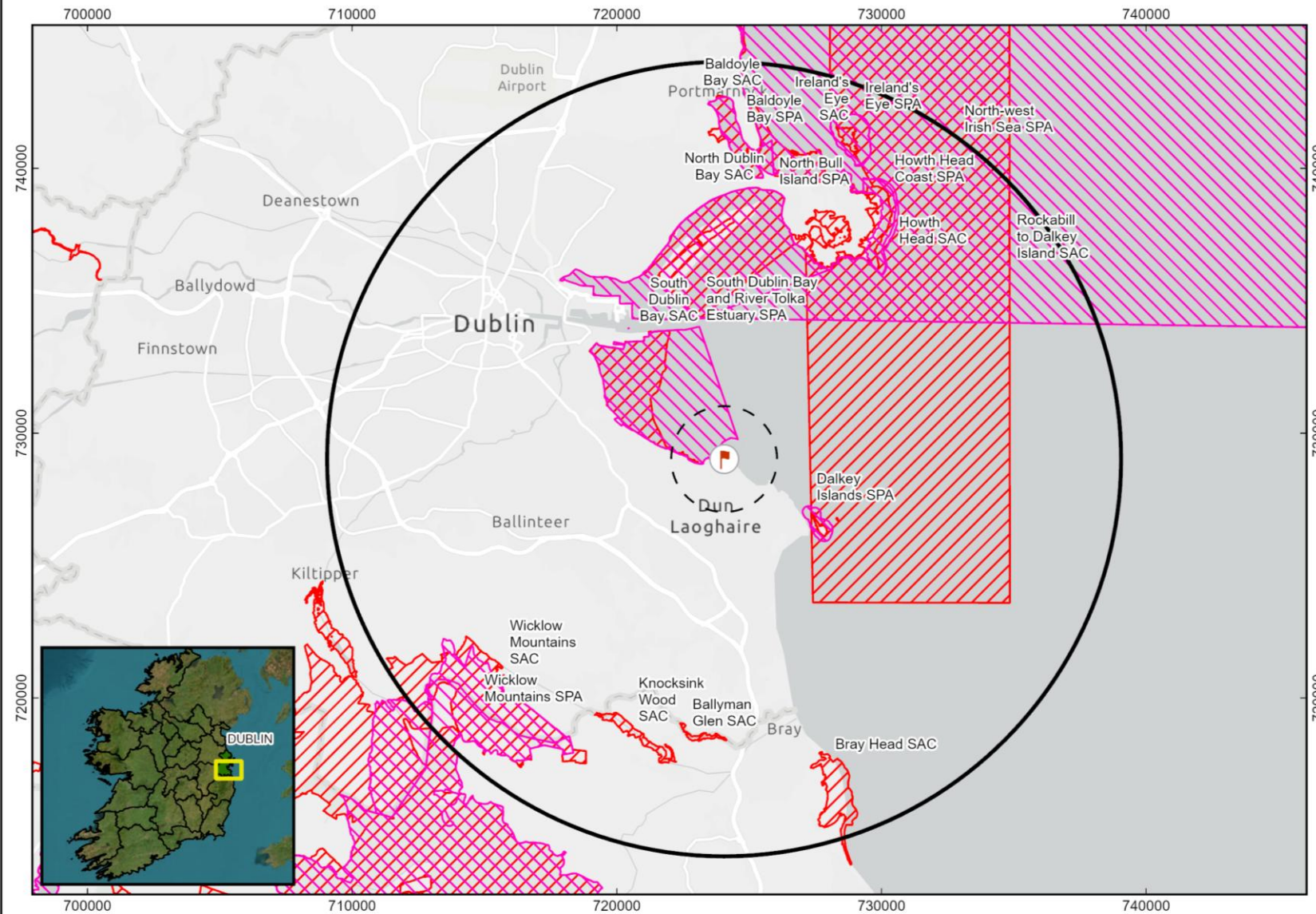
The remaining European Sites identified within the 15km study area are not carried forward for further detailed assessment within this NIS. The Stage 1 AA Screening Report identified no credible source-pathway-receptor relationships capable of giving rise to likely significant effects on the QIs, SCIs or conservation objectives of those sites. The subsequent requirement to prepare this NIS does not alter the applicant's Stage 1 screening conclusions in respect of those other European Sites, and no additional pathways have been identified within the scope of the present assessment that would warrant their inclusion in the detailed Stage 2 assessment.

The European Sites within the initial 15km study area and the relevant hydrological, marine and ecological relationships are shown in Figure 3.1. Information on the South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC, including their relevant QIs/SCIs, conservation objectives and the potential pathways considered within this NIS, is provided in Table 3.1.

NPWS Designated Sites

Legend

-  Site Location
-  2km Buffer
-  15km Buffer
-  Special Protection Areas
-  Special Area of Conservation



0 7.5 15 Kilometers

Scale: 1:220,000

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
PCS: IRENET95 Irish Transverse Mercator
GCS: GCS IRENET95
Datum: IRENET95
Projection: Transverse Mercator

Earthstar Geographics, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Project: National Watersports Campus Dún Laoghaire

Project ID: D866/1

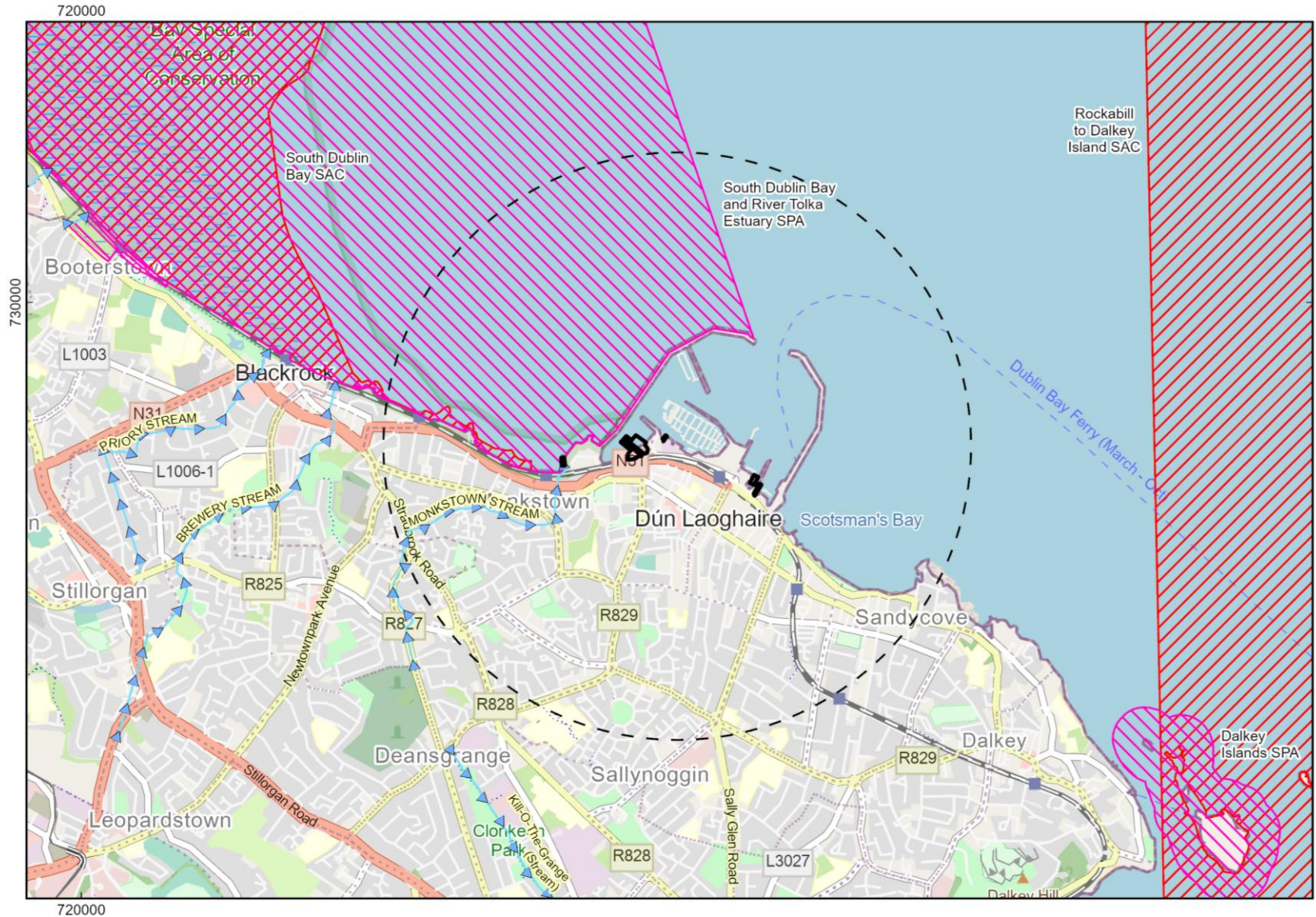
Client: Dún Laoghaire - Rathdown County Council

Figure 3.1: Natura 2000 Sites (Source: OCSC, 2026)

Flow Network and NPWS Designated Sites

Legend

-  Site Outline
-  2km Buffer
-  Special Protection Areas
-  Special Area of Conservation
-  River Network
-  Flow Direction



0 1.5 3 Kilometers

Scale: 1:40,000

Spatial Reference
Name: IREN95 Irish Transverse Mercator
PCS: IREN95 Irish Transverse Mercator
GCS: GCS IREN95
Datum: IREN95
Projection: Transverse Mercator

Earthstar Geographics, Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri Community Maps contributors, Map layer by Esri

Project: National Watersports Campus Dún Laoghaire

Project ID: D866/1

Client: Dún Laoghaire - Rathdown County Council

Figure 3.2: Flow Network and Natura 2000 Network (Source: OCSC, 2026)

Natura 2000 Designated Sites and Site Investigation

Legend

-  Site Outline
-  Boreholes
-  CPT
-  Special Protection Areas



0 25 50 Meters

Scale: 1:1,000

Spatial Reference
Name: IRENET95 Irish Transverse Mercator
PCS: IRENET95 Irish Transverse Mercator
GCS: GCS IRENET95
Datum: IRENET95

Microsoft, Vantor, Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community, Copyright Government of Ireland. This

Project: National Watersports
Campus Dún Laoghaire

Project ID: D866

Client: Dún Laoghaire Rathdown
County Council

Figure 3.3: Overlap of site investigation works location and protected areas.

Table 3.1. European Sites Considered Further in this NIS within the Zone of Influence.

Site Code	Site Name	Distance (km)	Sensitive Receptors	Site Details
004024	South Dublin Bay and River Tolka Estuary SPA	The proposed works overlap the European Site.	[A046] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A130] Oystercatcher (<i>Haematopus ostralegus</i>) [A137] Ringed Plover (<i>Charadrius hiaticula</i>) [A141] Grey Plover (<i>Pluvialis squatarola</i>) [A143] Knot (<i>Calidris canutus</i>) [A144] Sanderling (<i>Calidris alba</i>) [A149] Dunlin (<i>Calidris alpina</i>) [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>) [A162] Redshank (<i>Tringa totanus</i>) [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>) [A192] Roseate Tern (<i>Sterna dougallii</i>) [A193] Common Tern (<i>Sterna hirundo</i>) [A194] Arctic Tern (<i>Sterna paradisaea</i>) [A999] Wetland and Waterbirds	The conservation objectives of the site are (NPWS: 09/03/15): "To maintain the favourable conservation condition of Light-bellied Brent Goose" "To maintain the favourable conservation condition of Oystercatcher" "To maintain the favourable conservation condition of Ringed Plover" "Grey Plover is proposed for removal from the list of Special Conservation Interests. As a result, a site-specific conservation objective has not been set for this species." "To maintain the favourable conservation condition of Knot" "To maintain the favourable conservation condition of Sanderling" "To maintain the favourable conservation condition of Dunlin" "To maintain the favourable conservation condition of Bar-tailed Godwit" "To maintain the favourable conservation condition of Redshank" "To maintain the favourable conservation condition of Black-headed Gull" "To maintain the favourable conservation condition of Roseate Tern" "To maintain the favourable conservation condition of Common Tern" "To maintain the favourable conservation condition of Arctic Tern" "To maintain the favourable conservation condition of Wetland and Waterbirds" Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004024.pdf
000210	South Dublin Bay SAC	0.2 NE	[1140] Mudflats and sandflats not covered by seawater at low tide [1210] Annual vegetation of drift lines [1310] Salicornia and other annuals colonising mud and sand. [2110] Embryonic shifting dunes	The conservation objectives of the site are (NPWS: 24/04/26): "To maintain the Favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide". "To maintain the Favourable conservation condition of Annual vegetation of drift lines". "To maintain the Favourable conservation condition of Salicornia and other annuals colonising mud and sand." "To maintain the Favourable conservation condition of Embryonic shifting dunes". Available at: https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO000210.pdf

3.2 DESCRIPTION OF THE NATURA 2000 SITES

The Habitats Directive states, “Any plan or project not directly connected or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate conservation objectives...the competent national authorities shall agree to the plan or project only having ascertained that it will not adversely affect the integrity of the site...”

The conservation objectives form the basis of the Appropriate Assessment as it is against these objectives that the assessment is made. The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives, and SACs and SPAs are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network. European and national legislation places a collective obligation in Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation conditions will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Favourable conservation status of a habitat is achieved when:

- Its natural range and the area it covers within that range are stable or increasing;
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future; and
- the conservation status of its typical species is favourable. The favourable conservation status of a species is achieved when:
 - population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats;
 - the range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
 - there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Table 3.1 lists the species and habitats that the SAC and SPA are designated to protect. It is in relation to the conservation objectives to maintain or restore these habitats or species that this assessment is made.

3.3 SUMMARY OF AA SCREENING

A Stage 1 Appropriate Assessment (AA) Screening Report was prepared by O'Connor Sutton Cronin & Associates Ltd. (OCSC) in support of the Maritime Usage Licence (MUL) application for the proposed site investigation (SI) works within Dún Laoghaire Harbour.

The AA Screening considered the potential for the proposed SI works, either alone or in combination with other plans or projects, to result in likely significant effects on European Sites, having regard to the nature, scale, location and duration of the proposed activities and the conservation objectives of the relevant European Sites.

The screening assessment identified the South Dublin Bay and River Tolka Estuary SPA (004024), within which elements of the proposed SI works are located, and the South Dublin Bay SAC (000210), located approximately 0.2 km from the proposed SI works, as the European Sites of greatest relevance to the proposed maritime usage. Potential ecological pathways considered included disturbance to Special Conservation Interest (SCI) bird species, temporary mobilisation of suspended sediments, potential deterioration in water quality and other effects associated with the temporary operation of marine plant and vessels.

The AA Screening concluded that, having regard to the temporary, localised and intermittent nature of the SI activities, the existing environmental conditions within Dún Laoghaire Harbour and the nature and extent of the identified pathways, the proposed works would not be likely to result in significant effects on European Sites, either alone or in combination with other plans or projects. Accordingly, the Stage 1 AA Screening concluded that progression to Stage 2 Appropriate Assessment and preparation of a Natura Impact Statement (NIS) were not required on the basis of the assessment undertaken.

3.3.1 MARA APPROPRIATE ASSESSMENT SCREENING DETERMINATION

Following submission of the MUL application and supporting environmental documentation, the Maritime Area Regulatory Authority (MARA), acting as the competent authority, undertook its own Screening for Appropriate Assessment of the proposed maritime usage. Subsequent to the conclusion reached in OCSC's AA Screening Report, MARA determined that the possibility of likely significant effects on relevant European sites could not be excluded on the basis of objective scientific information at the screening stage. MARA therefore determined that the proposed maritime usage should progress to Stage 2 Appropriate Assessment.

Consequently, MARA issued a notice pursuant to Section 117(6)(a) of the Maritime Area Planning Act 2021, requesting the applicant to submit a Natura Impact Statement (NIS) containing the information necessary to enable MARA to undertake an Appropriate Assessment of the proposed maritime usage.

This NIS has therefore been prepared in response to MARA's determination and subsequent request. The purpose of the NIS is to provide the scientific information required to enable MARA to assess the implications of the proposed SI works for the relevant European sites, in view of their conservation objectives, and to determine whether the proposed maritime usage, either alone or in combination with other plans or projects, would adversely affect the integrity of any European site.

3.4 EUROPEAN SITES REQUIRING STAGE 2 APPROPRIATE ASSESSMENT

Having regard to the outcome of the screening process and the ecological connectivity between the proposed SI works and the surrounding Natura 2000 network, the Stage 2 assessment presented within this NIS focuses on the European sites for which potential effects require further examination.

The European sites considered within the NIS are:

- South Dublin Bay and River Tolka Estuary SPA [004024]
- South Dublin Bay SAC [000210].

Elements of the proposed SI works are located within the South Dublin Bay and River Tolka Estuary SPA, resulting in direct spatial connectivity between the proposed maritime usage and the designated site. The SPA supports a range of wintering waterbirds, waders, gulls and tern species designated as Special Conservation Interests, together with the Wetland and Waterbirds feature [A999]. The Stage 2 assessment therefore considers the potential for the proposed activities to affect SCI species and their supporting habitat, particularly through temporary noise, visual and vessel-related disturbance and displacement.

The South Dublin Bay SAC is located approximately 0.2km from the proposed SI works and is ecologically connected to the proposed maritime usage through the marine waters of Dublin Bay. The SAC is designated for a number of coastal and intertidal habitats, including Mudflats and sandflats not covered by seawater at low tide [1140], Annual vegetation of drift lines [1210], Salicornia and other annuals colonising mud and sand [1310] and Embryonic shifting dunes [2110]. The Stage 2 assessment therefore considers whether temporary seabed disturbance, mobilisation and dispersion of suspended sediment or accidental deterioration in water quality associated with the proposed SI activities could affect the conservation objectives of these qualifying habitats.

The Conservation Objectives, Qualifying Interests and Special Conservation Interests of these European sites are described further in Section 4 of this NIS.

3.5 POTENTIAL IMPACT PATHWAYS IDENTIFIED FOR FURTHER ASSESSMENT

The applicant's Stage 1 AA Screening considered a range of potential impact pathways associated with the proposed SI activities. Although the applicant's assessment concluded that these pathways would not result in likely significant effects, MARA's subsequent screening determination concluded that likely significant effects could not be excluded and requested that a Stage 2 Appropriate Assessment be undertaken.

Accordingly, and adopting a precautionary approach, the following potential pathways are considered further within this NIS:

3.5.1 HABITAT LOSS AND PHYSICAL DISTURBANCE

The proposed activities have the potential to result in temporary and highly localised physical disturbance of seabed and supporting habitat at individual investigation locations. The potential for this disturbance to affect areas used by SCI species for feeding, resting, roosting or other ecological functions is considered further in relation to the SPA. The proposed SI works do not overlap the South Dublin Bay SAC and therefore will not result in direct loss or physical disturbance of SAC QI habitat. The potential for indirect effects on SAC QI habitats arising from disturbance to supporting habitats or prey resources is considered separately in Section 5.5.

3.5.2 SUSPENDED SEDIMENT AND SEDIMENTATION

The proposed activities have the potential to result in temporary and highly localised physical disturbance of the seabed and supporting habitat at individual investigation locations. The potential for this disturbance to affect areas used by SCI species for feeding, resting, roosting or other ecological functions is considered further in relation to the SPA. The proposed SI works do not overlap the South Dublin Bay SAC and will therefore not result in direct loss or physical disturbance of SAC QI habitat. The potential for indirect effects on SAC QI habitats arising from sediment mobilisation and deposition is considered separately in Section 5.6.

3.5.3 WATER QUALITY AND ACCIDENTAL POLLUTION

The operation of marine vessels, plant and equipment gives rise to a potential pathway for accidental releases of fuel, oils or other pollutants to the marine environment. Given the hydrological connectivity between the proposed SI works, the SPA and the adjacent South Dublin Bay SAC, the potential implications of deterioration in water quality for the QIs of the SAC and supporting habitats and prey resources associated with the SPA are considered further in Section 5.7.

3.5.4 NOISE AND VISUAL DISTURBANCE

The operation of vessels, drilling and other SI equipment will result in temporary increases in activity, above-water noise and visual activity within the immediate vicinity of individual investigation locations. The potential for above-water noise and visual disturbance to interact with SCI birds associated with the SPA is therefore considered further in Section 5.8.

3.5.1 UNDERWATER NOISE

The proposed marine SI activities have the potential to generate temporary and localised underwater noise associated with marine borehole drilling, Cone Penetration Testing, vibrocore sampling, vessel operations and multibeam bathymetric surveying. The potential for underwater noise to interact with diving SCI bird species, particularly Roseate Tern [A192], Common Tern [A193] and Arctic Tern [A194], associated with the South Dublin Bay and River Tolka Estuary SPA is therefore considered further in Section 5.9.

3.5.2 VESSEL AND PERSONNEL ACTIVITY

The proposed site investigation works will involve the temporary presence and movement of vessels, marine plant and personnel within Dún Laoghaire Harbour. The potential for this activity to result in temporary disturbance or displacement of SCI birds using areas within or adjacent to the proposed works is therefore considered further in Section 5.11.

Other pathways considered during the screening process for which no ecological mechanism exists to affect the qualifying interests or Special Conservation Interests of the European sites are not considered to require detailed Stage 2 assessment. Where relevant, the absence of such pathways is identified within the subsequent assessment to demonstrate how the scope of the NIS has been established.

The Stage 2 assessment presented in Sections 5.5 to 5.11 examines the above pathways as relevant to the conservation objectives and relevant attributes and targets of the South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC. Mitigation measures necessary to avoid or reduce potential adverse effects are subsequently identified, followed by assessment of residual and in-combination effects and consideration of whether the proposed maritime usage could adversely affect the integrity of either European site.

4 EUROPEAN SITES REQUIRING APPROPRIATE ASSESSMENT

4.1 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA

4.1.1 OVERVIEW

South Dublin Bay and River Tolka Estuary SPA (Site Code 004024) comprises a substantial part of Dublin Bay and includes the intertidal area between the River Liffey and Dún Laoghaire, the Tolka Estuary north of the River Liffey, Booterstown Marsh and a portion of the shallow marine waters of Dublin Bay. The site contains extensive intertidal sand and mudflats, shallow marine waters, saltmarsh and other coastal habitats that provide important feeding, roosting and resting resources for a range of waterbird species.

Within South Dublin Bay, intertidal flats extend for almost 3km at their widest point and are predominantly composed of well-aerated sands. The area supports a well-developed macroinvertebrate community, including annelids, bivalves and crustaceans, which provide an important prey resource for many of the waterbird species associated with the SPA. A significant bed of Dwarf Eelgrass (*Zostera noltii*) also occurs below Merrion Gates and provides an important feeding resource, particularly for Light-bellied Brent Goose.

The SPA forms an integral component of the wider Dublin Bay wetland complex and is of particular importance for wintering waterbirds and passage and breeding tern species. Birds regularly move between different areas of Dublin Bay, although NPWS supporting information indicates that some populations occurring within South Dublin Bay spend a substantial proportion of their time within the southern bay.

The proposed SI works are located within the South Dublin Bay and River Tolka Estuary SPA at Dún Laoghaire Harbour. There is therefore direct spatial connectivity between elements of the proposed maritime usage and the designated site. The proposed works are temporary and comprise discrete geotechnical investigations and bathymetric surveying within an existing operational harbour environment.

Given the location of the works within the SPA, the principal potential pathways relevant to its Special Conservation Interests relate to temporary noise and visual disturbance, vessel-related disturbance and displacement, localised disturbance of supporting marine habitat, and potential temporary changes in water quality or suspended sediment concentrations. These pathways and their potential implications for the conservation objectives of the SPA are assessed further within this NIS.

A full site synopsis for the SPA is included in Appendix A of this report.

4.1.2 CONSERVATION OBJECTIVES

The EU Habitats Directive contains a list of habitats under Annex I and species under Annex II for which SACs must be established by Member States. Habitats and species for which a European Site is designated are

referred to as qualifying interests and are listed in the Standard Data Forms submitted by Member States to the European Commission.

The detailed conservation objectives for the South Dublin Bay and River Tolka Estuary SPA are set out in the NPWS site-specific conservation objectives for the site. The overall aim is to maintain the favourable conservation condition of its Special Conservation Interests. The South Dublin Bay and River Tolka Estuary SPA is designated for the conservation of a range of bird species and wetland habitats of European importance, including species listed under Annex I of the Birds Directive and regularly occurring migratory species, as identified in Table 4.1.

Table 4.1: South Dublin Bay and River Tolka Estuary SPA Special Conservation Interest - Conservation Objectives Status

Code	Special Conservation Interest	Conservation Objective
A046	Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A130	Oystercatcher (<i>Haematopus ostralegus</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A137	Ringed Plover (<i>Charadrius hiaticula</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A141	Grey Plover (<i>Pluvialis squatarola</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A143	Knot (<i>Calidris canutus</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A144	Sanderling (<i>Calidris alba</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A149	Dunlin (<i>Calidris alpina alpina</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A157	Bar-tailed Godwit (<i>Limosa lapponica</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A162	Redshank (<i>Tringa totanus</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A179	Black-headed Gull (<i>Chroicocephalus ridibundus</i>)	Maintain favourable conservation condition. Long-term population trend to be stable or increasing, with no significant decrease in the range, timing or intensity of use of areas other than natural variation.
A192	Roseate Tern (<i>Sterna dougallii</i>)	Maintain favourable conservation condition, including no significant decline in passage population and no significant decline in the number or distribution of roosting sites.
A193	Common Tern (<i>Sterna hirundo</i>)	Maintain favourable conservation condition, including targets relating to breeding population abundance, productivity, passage population, distribution of roosting sites, prey biomass availability and barriers to connectivity.
A194	Arctic Tern (<i>Sterna paradisaea</i>)	Maintain favourable conservation condition, including no significant decline in passage population and no significant decline in the number or distribution of roosting sites.

A999	Wetland and Waterbirds	Maintain favourable conservation condition of the wetland habitat as a resource for the regularly occurring migratory waterbirds that utilise it.
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The site-specific conservation objectives for the South Dublin Bay and River Tolka Estuary SPA [004024] were published by the National Parks and Wildlife Service (NPWS) in March 2015. The overall objective is to maintain the favourable conservation condition of the Special Conservation Interests and wetland habitat for which the SPA has been designated.

For the wintering waterbird SCIs, favourable conservation condition is principally defined through two attributes: population trend and distribution. The long-term population trend for each species should remain stable or increase, while there should be no significant decrease in the range, timing or intensity of use of areas by the respective SCI species other than changes arising from natural patterns of variation.

These attributes are particularly relevant to the proposed SI works because temporary noise, visual disturbance, human activity and vessel movements have the potential to cause behavioural responses or temporary displacement of birds from areas used for feeding, resting or roosting. Accordingly, the Stage 2 assessment considers whether the proposed works could result in changes to the range, timing or intensity of use of areas within the SPA or otherwise contribute to effects capable of influencing the population trends of the relevant SCI species.

The conservation objectives for the tern SCIs reflect their different ecological requirements. Roseate Tern, Common Tern and Arctic Tern are subject to objectives relating to the maintenance of their favourable conservation condition, including attributes concerning passage populations and the distribution of roosting sites. The Common Tern conservation objective additionally includes attributes relating to breeding population abundance, productivity, prey biomass availability and barriers to connectivity.

For Wetland and Waterbirds [A999], the objective is to maintain the favourable conservation condition of the wetland habitat as a resource for the regularly occurring migratory waterbirds that utilise the SPA. The proposed SI works are therefore also assessed in terms of their potential to result in temporary or permanent loss, degradation or alteration of wetland and supporting habitat.

These conservation objectives and their associated attributes and targets provide the basis for the assessment undertaken within this NIS. Particular consideration is given to potential disturbance and displacement, supporting habitat availability, prey resources, water quality and the maintenance of ecological connectivity within the SPA.

4.1.3 SCI SPECIES RELEVANT TO DÚN LAOGHAIRE HARBOUR

The proposed SI works are located partly within the South Dublin Bay and River Tolka Estuary SPA and include investigation locations within the existing Dún Laoghaire Harbour environment. Accordingly, consideration has been given to the extent to which the Special Conservation Interest (SCI) species of the SPA utilise Dún Laoghaire Harbour and its associated piers, breakwaters, sheltered waters and adjacent coastal habitats.

Information regarding the occurrence, distribution and ecological requirements of SCI species within South Dublin Bay has been obtained primarily from the NPWS Conservation Objectives, Conservation Objectives Supporting Document and Site Synopsis for the South Dublin Bay and River Tolka Estuary SPA (NPWS, 2014; 2015). The NPWS Supporting Document includes waterbird population and trend data, results of the 2011/12 Waterbird Survey Programme and information regarding waterbird distribution and disturbance within Dublin Bay. This information has been supplemented by site-specific ornithological surveys previously undertaken within Dún Laoghaire Harbour for the proposed Dún Laoghaire Cruise Berth Facility (MARA application Number MUL250003), thereby providing additional information regarding the use of the harbour and its associated structures by waterbirds.

A substantial ornithological baseline is available for Dún Laoghaire Harbour and the wider Dublin Bay area. In particular, ecological surveys undertaken in connection with the proposed Dún Laoghaire Cruise Berth Facility included dedicated wintering and breeding bird surveys. The Cruise Berth assessment recorded 58 bird species within the study area, including eight Annex I species and 18 SCI species associated with nearby SPAs. The surveys found that the majority of birds recorded within the harbour occurred on or in close proximity to the East and West Piers, generally in relatively small numbers, while larger aggregations were recorded roosting at high tide on the outer sides of the harbour walls.

The Cruise Berth survey programme included repeated winter bird surveys and peak-count assessments, demonstrating that Dún Laoghaire Harbour and its coastal structures form part of the wider network of feeding, resting and roosting habitat used by waterbirds within Dublin Bay. The original application documentation included dedicated Winter Bird Survey and Winter Bird Survey Peak Count Data reports as part of the ecological evidence base supporting the EIS and NIS.

More recent information is available through the Dublin Bay Birds Project, a long-term monitoring programme supported by Dublin Port Company and undertaken by BirdWatch Ireland. The programme includes year-round waterbird monitoring throughout Dublin Bay, extending from the West Pier at Dún Laoghaire to Howth, and includes species such as Light-bellied Brent Goose, Oystercatcher, Dunlin, Redshank, Knot, Bar-tailed Godwit and Black-headed Gull. The programme has generated approximately a decade of monitoring information on the distribution, roosting, feeding and seasonal movements of waterbirds within Dublin Bay.

Available evidence therefore demonstrates ecological connectivity between Dún Laoghaire Harbour and the wider SPA. However, the importance of the harbour varies between species, depending on feeding ecology, tidal state, season and the availability of alternative supporting habitat elsewhere within South Dublin Bay.

4.1.3.1 WINTERING WATERBIRDS

The wintering waterbird SCIs of the South Dublin Bay and River Tolka Estuary SPA comprise Light-bellied Brent Goose (*Branta bernicla hrota*), Oystercatcher (*Haematopus ostralegus*), Ringed Plover (*Charadrius hiaticula*), Grey Plover (*Pluvialis squatarola*), Knot (*Calidris canutus*), Sanderling (*Calidris alba*), Dunlin (*Calidris alpina*), Bar-tailed Godwit (*Limosa lapponica*), Redshank (*Tringa totanus*) and Black-headed Gull

(*Chroicocephalus ridibundus*). These comprise the wintering waterbird SCIs currently listed for the South Dublin Bay and River Tolka Estuary SPA (004024). Grey Plover [A141] is identified in the current NPWS conservation objectives as proposed for removal from the list of Special Conservation Interests; however, as this removal has not yet taken effect, Grey Plover is retained as an SCI for the purposes of this assessment.

The extensive intertidal habitats of South Dublin Bay provide important feeding habitat for these species, with their distribution influenced by factors including prey availability, tidal conditions, roosting opportunities and disturbance. The NPWS Conservation Objectives Supporting Document provides information on the abundance, population trends, distribution and ecological requirements of the SCI species within the wider Dublin Bay system (NPWS, 2014).

Available historical information also demonstrates the use of Dún Laoghaire Harbour and its associated coastal structures by wintering waterbirds. The Dún Laoghaire Harbour Masterplan Environmental Report identifies the West Pier as an important winter roosting location, with mixed flocks of up to approximately 500 waders reported at high spring tides, including Ringed Plover, Sanderling, Dunlin and Redshank. The report also identifies Scotsman's Bay and the East Pier as particularly important for gulls during winter.

More detailed site-specific ornithological surveys undertaken for the proposed Dún Laoghaire Cruise Berth Facility provide further information regarding waterbird use of the harbour. A total of 18 SCI species associated with nearby SPAs were recorded within the survey area, of which nine occurred regularly. Overall numbers were generally low; however, larger flocks of Dunlin, Sanderling and Ringed Plover were recorded roosting at high tide on the outer sides of the harbour walls. The harbour walls were considered to provide a degree of separation between these roosting birds and activity occurring within the harbour (Dún Laoghaire Harbour Company, 2015).

The available information therefore demonstrates that Dún Laoghaire Harbour forms part of the wider network of supporting habitat available to wintering waterbirds within South Dublin Bay, particularly through the provision of resting and high-tide roosting opportunities associated with the West Pier and outer harbour structures. However, historical surveys indicate that bird use of the harbour is spatially variable and that the larger high-tide roosting flocks were principally associated with the outer sides of the harbour walls.

This relationship is relevant to the conservation objectives for the wintering waterbird SCIs, particularly the requirement to maintain their distribution within the SPA. Accordingly, the potential for temporary disturbance or displacement from feeding, resting or roosting areas arising from the proposed SI works are considered further within this NIS against the applicable conservation-objective attributes and targets. The applicable site-specific conservation objectives for SPA 004024 remain those published by NPWS in March 2015.

4.1.3.2 TERN SPECIES

Roseate Tern (*Sterna dougallii*) [A192], Common Tern (*Sterna hirundo*) [A193] and Arctic Tern (*Sterna paradisaea*) [A194] are Special Conservation Interests of the South Dublin Bay and River Tolka Estuary SPA.

South Dublin Bay is of particular importance to tern species during the post-breeding/pre-migration period, when birds utilise the coastal and marine environment for foraging, movement and roosting.

NPWS monitoring provides evidence of the importance of South Dublin Bay to post-breeding terns. Evening surveys of roosting terns undertaken since 2006 within the South Dublin Bay and River Tolka Estuary SPA and Dalkey Islands SPA have recorded aggregations exceeding 10,000 terns. The majority of birds were considered to comprise Common Tern, with smaller numbers of Arctic Tern and Roseate Tern, together with other tern species (NPWS, n.d.).

The site-specific conservation objectives provide further information regarding Common Tern. Evening roost surveys recorded up to 11,700, 9,025 and 8,020 terns in 2006, 2007 and 2010, respectively. Although identification to species level was not always possible due to survey conditions, the majority were considered to be Common Tern, with smaller numbers of Arctic and Roseate Tern. At least 4,887 Common Tern were recorded during these survey years, with NPWS noting that this estimate does not account for turnover and that the total number using the SPA may therefore be higher (NPWS, 2015).

Site-specific information is also available from ornithological surveys undertaken for the proposed Dún Laoghaire Cruise Berth Facility. These surveys reported that terns were not breeding within Dún Laoghaire Harbour, although Common Tern had reportedly made opportunistic nesting attempts on boats in previous years. Small numbers of terns, predominantly Common Tern, were observed feeding within the harbour along the East Pier during the breeding season. In addition, 125 Common Tern were recorded feeding off the end of the East Pier on 29 September 2014. The source notes that the origin and breeding status of these birds could not be confirmed (Dún Laoghaire Harbour Company, 2015).

The available evidence therefore demonstrates that, while Dún Laoghaire Harbour is not identified as a breeding colony for the tern SCIs, the harbour and immediately adjacent coastal waters may be utilised by foraging and passage terns, particularly Common Tern. This is consistent with the wider importance of South Dublin Bay during the post-breeding/pre-migration period.

Accordingly, the potential for the proposed temporary SI works to result in disturbance or short-term displacement of foraging, commuting, roosting or passage terns is considered within the assessment. Particular regard is given to the location, timing and duration of the works and their relationship with the conservation-objective attributes and targets for the relevant tern SCIs.

4.1.3.3 OTHER BIRD SPECIES WITHIN DÚN LAOGHAIRE HARBOUR

Breeding birds that are not SCIs of the South Dublin Bay and River Tolka Estuary SPA should be distinguished from the features being assessed under Appropriate Assessment.

For example, Black Guillemot (*Cephus grylle*) is associated with artificial coastal structures and is relevant to ecological assessment of harbour infrastructure. Recent Dublin Port NIS treats Black Guillemot as a breeding species requiring dedicated monitoring, including surveys during the breeding season. However, Black

Guillemot is not an SCI of South Dublin Bay and River Tolka Estuary SPA and therefore should not be assessed as though it were a designated feature of SPA 004024. Where Black Guillemot or other non-SCI breeding birds are identified within Dún Laoghaire Harbour, they can be addressed separately under relevant ecological/Wildlife Acts considerations and used as contextual information regarding the ecological function of harbour structures, rather than as receptors in the Stage 2 AA itself.

4.1.3.4 RELEVANCE TO THE PROPOSED SI WORKS

Based on the information presented above, available historical ornithological survey data demonstrate that Dún Laoghaire Harbour is utilised by a number of SCI species of the South Dublin Bay and River Tolka Estuary SPA, although the nature, distribution and intensity of use varies between species and according to factors such as season and tidal state.

Previous site-specific surveys indicate that particular areas and structures within the harbour provide opportunities for feeding, resting and roosting, including high-tide roosting by wintering waterbirds associated with the outer harbour structures. The harbour and adjacent marine waters may also be utilised by foraging and passage terns, particularly during the post-breeding/pre-migration period.

The proposed SI works are temporary and spatially discrete and comprise marine boreholes, Cone Penetration Testing (CPT), vibrocore sampling and multibeam bathymetric surveying. The principal potential interactions with SCI species therefore relate to temporary increases in vessel and personnel activity, noise and visual disturbance, with the potential for short-term disturbance or displacement of birds from feeding, resting, roosting or foraging areas.

Potential interactions are considered further within this NIS having regard to the location, timing and duration of the proposed SI activities, documented use of Dún Laoghaire Harbour by SCI species, the existing baseline level of marine and recreational activity within the harbour, and the applicable conservation objectives for the South Dublin Bay and River Tolka Estuary SPA.

4.1.4 GUIDANCE AND SUPPORTING INFORMATION

- NPWS (2015), Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1;
- NPWS (2014), North Bull Island SPA (004006) & South Dublin Bay and River Tolka Estuary SPA (004024): Conservation Objectives Supporting Document;
- NPWS Site Synopsis for South Dublin Bay and River Tolka Estuary SPA [004024];
- Natura 2000 Standard Data Form for South Dublin Bay and River Tolka Estuary SPA;
- Relevant Irish Wetland Bird Survey (I-WeBS) data and available waterbird records for Dublin Bay;
- Available ecological and ornithological studies undertaken within Dún Laoghaire Harbour and the wider Dublin Bay area;
- Relevant European Commission guidance concerning Article 6(3) of the Habitats Directive; and

- Relevant NPWS and MARA guidance concerning Appropriate Assessment and marine activities.

4.2 SOUTH DUBLIN BAY SAC

4.2.1 OVERVIEW

South Dublin Bay SAC [000210] comprises an extensive coastal and intertidal site within Dublin Bay. The site encompasses approximately 720ha of intertidal habitat and is characterised principally by extensive sand and mudflats, together with locally occurring coastal vegetation communities. The SAC overlaps spatially with the South Dublin Bay and River Tolka Estuary SPA [004024], and NPWS specifies that the conservation objectives for both sites should be considered in conjunction where appropriate (NPWS, 2026).

South Dublin Bay SAC is designated for four Annex I habitats: Mudflats and sandflats not covered by seawater at low tide [1140], Annual vegetation of drift lines [1210], Salicornia and other annuals colonising mud and sand [1310], and Embryonic shifting dunes [2110]. The current site-specific conservation objectives were published by NPWS in April 2026 (Version 2), which added the three coastal habitat QIs [1210], [1310] and [2110] to the conservation objectives for the site.

The proposed SI works within Dún Laoghaire Harbour are located outside the SAC boundary, with the closest works approximately 0.2km from the SAC. However, both the proposed marine SI works, and the SAC occur within the wider Dublin Bay marine environment and a marine pathway exists between the proposed works and the SAC. Accordingly, potential indirect interactions associated principally with suspended sediment, sediment deposition and accidental pollution are considered within this NIS. A full site synopsis for the SPA is included in Appendix B of this report.

4.2.2 CONSERVATION OBJECTIVES

The overall conservation objective for South Dublin Bay SAC is to maintain the favourable conservation condition of the Annex I habitats for which the site is designated. Favourable conservation condition is defined through a series of habitat-specific attributes and targets relating to factors including habitat area and distribution, physical structure and functioning, community extent and structure, vegetation composition and disturbance (NPWS, 2026).

The detailed conservation objectives for South Dublin Bay SAC are set out in the NPWS site-specific conservation objectives for the site. The overall aim is to maintain the favourable conservation condition of its qualifying interests. The South Dublin Bay is designated based on the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (Table 4.2).

Table 4.2: South Dublin Bay SAC Qualifying Interests – Conservation Objectives Status

Code	Qualifying Interest	Conservation Objective	Principal CO considerations relevant to SI works
1140	Mudflats and sandflats not covered by seawater at low tide	Maintain favourable conservation condition	Habitat area; extent and quality of <i>Zostera</i> -dominated community, distribution/natural condition of Fine sands with <i>Angulus tenuis</i> community complex
1210	Annual vegetation of drift lines	Maintain favourable conservation condition	Habitat area and distribution, sediment supply/functionality, disturbance, vegetation composition
1310	<i>Salicornia</i> and other annuals colonising mud and sand	Maintain favourable conservation condition	Habitat area and distribution; hydrology, absence of negative activities including pollution, vegetation composition
2110	Embryonic shifting dunes	Maintain favourable conservation condition	Habitat area and distribution; sediment supply/functionality, disturbance, vegetation composition

NPWS specifies that the permanent area of [1140] should remain stable or increase, that the extent and high quality of the *Zostera*-dominated community should be maintained, and that the Fine sands with *Angulus tenuis* community complex should be conserved in natural condition.

Previous environmental assessment undertaken for the proposed Dún Laoghaire Cruise Berth Facility also considered marine connectivity between works within Dún Laoghaire Harbour and South Dublin Bay SAC. Sediment dispersion modelling undertaken for that substantially larger dredging proposal predicted that some suspended solids could settle within the SAC at Sandymount Strand under certain tidal conditions, although the predicted deposition was assessed as insufficient to affect the depositional benthic habitat (Dún Laoghaire Harbour Company, 2015). While the nature and magnitude of those works differ substantially from the proposed SI activities, the assessment provides supporting evidence of the potential marine sediment pathway between Dún Laoghaire Harbour and South Dublin Bay SAC however there are likely to be insufficient to affect any benthic habitat.

4.2.3 QUALIFYING INTEREST HABITATS RELEVANT TO THE PROPOSED SI WORKS

The potential relevance of each QI habitat to the proposed SI works has been considered with reference to its ecological characteristics, known distribution within South Dublin Bay, applicable conservation-objective attributes and targets, and the spatial and hydrological relationship between the SAC and Dún Laoghaire Harbour. As the proposed SI works do not overlap the SAC, there will be no direct removal of QI habitat. The principal consideration is therefore whether indirect pathways arising from the proposed marine works could result in changes capable of affecting the extent, structure, function or conservation condition of QI habitats.

4.2.4 MUDFLATS AND SANDFLATS NOT COVERED BY SEAWATER AT LOW TIDE [1140]

Mudflats and sandflats not covered by seawater at low tide [1140] comprise the dominant QI habitat within South Dublin Bay SAC. NPWS estimates the permanent area of this habitat within the SAC at approximately 720ha. The conservation objective is to maintain its favourable conservation condition, including maintaining a stable or increasing permanent habitat area, maintaining the extent and high quality of the *Zostera*-dominated

community and conserving the Fine sands with *Angulus tenuis* community complex in a natural condition (NPWS, 2026).

NPWS marine habitat surveys identify the Fine sands with *Angulus tenuis* community complex as occurring extensively throughout the SAC, from the intertidal zone to approximately 6m depth. The community is predominantly associated with fine sands with very low proportions of silt-clay and supports a characteristic infaunal assemblage including *Angulus tenuis*, *Scoloplos armiger*, *Pygospio elegans*, *Nephtys cirrosa* and *Peringia ulvae*. NPWS estimated the community complex to occupy approximately 716ha of the QI habitat.

A *Zostera*-dominated community is also identified within the SAC, associated with muddy sand on the upper shore at Merrion Gates. NPWS identifies *Zostera noltii* as a key component of this community and notes the ecological importance of *Zostera*-dominated communities, including their structural complexity and nursery function. The mapped/interpolated extent was estimated at approximately 4ha, with conservation targets requiring both its extent and high quality to be maintained.

The proposed SI works do not overlap the South Dublin Bay SAC and will therefore not result in direct removal or physical disturbance of [1140]. However, given the marine connection between Dún Laoghaire Harbour and South Dublin Bay and the approximately 0.2km separation from the closest works, the potential for indirect interaction through suspended sediment, sediment deposition or accidental deterioration in water quality is considered further within this NIS.

4.2.5 COASTAL VEGETATED HABITATS [1210, 1310 AND 2110]

Annual vegetation of drift lines [1210], *Salicornia* and other annuals colonising mud and sand [1310] and Embryonic shifting dunes [2110] are coastal QI habitats of South Dublin Bay SAC. Site-specific conservation objectives for these habitats were added to the South Dublin Bay SAC conservation objectives in Version 2 published by NPWS in April 2026.

Annual vegetation of drift lines [1210] occurs on accumulations of drift material deposited along the upper shore and is dependent upon natural sediment supply and coastal processes. Its conservation objectives require, inter alia, maintenance of habitat area and distribution, natural circulation of sediment and organic matter, limits on physical disturbance, and maintenance of characteristic vegetation composition.

Salicornia and other annuals colonising mud and sand [1310] comprises pioneer saltmarsh vegetation associated with periodically inundated mud and sand. The conservation objectives require maintenance of habitat area and distribution, natural hydrology and processes of erosion and succession, and the absence of negative activities such as infilling, reclamation and pollution.

Embryonic shifting dunes [2110] represent an early stage in sand-dune development and are dependent upon continued natural sediment supply and coastal processes. Relevant conservation-objective attributes include habitat area and distribution, functionality and sediment supply, physical disturbance and vegetation composition.

The proposed SI works do not occur within these habitats and will not result in their direct removal, trampling, vehicle damage, sediment extraction or physical obstruction. Consequently, direct effects upon their habitat area, distribution or physical structure will not arise. Given the marine connectivity between the SI area and the SAC, potential indirect water-quality or sediment-related pathways are nevertheless considered in the subsequent assessment where relevant.

4.2.6 RELEVANCE TO THE PROPOSED SI WORKS

The available information demonstrates that the QI habitats of South Dublin Bay SAC are associated principally with the intertidal and coastal environment of South Dublin Bay. The proposed SI works are located outside the SAC, with the closest works approximately 0.2km from the SAC boundary. Accordingly, there will be no direct land take, removal or physical disturbance of QI habitat within the SAC.

Nevertheless, a marine pathway exists between the proposed SI works within Dún Laoghaire Harbour and the SAC through the waters of Dublin Bay. Intrusive SI activities, including marine boreholes, CPT and vibrocore sampling, have the potential to result in small and temporary quantities of seabed sediment becoming suspended within the water column. Accidental releases of hydrocarbons, fuels, drilling fluids or other pollutants associated with vessels and plant also represent a potential water-quality pathway.

Of the four QIs, Mudflats and sandflats not covered by seawater at low tide [1140] is considered to have the clearest potential ecological interaction with marine-derived sediment and water-quality pathways because of its extensive intertidal distribution and associated benthic communities. The remaining QIs [1210], [1310] and [2110] comprise coastal vegetated habitats whose conservation condition is dependent on factors including habitat area and distribution, sediment supply, hydrology, physical structure and vegetation composition.

The potential for the proposed SI works to affect these conservation-objective attributes is therefore considered further within the assessment, having regard to the temporary and localised nature of the proposed activities, the separation between the SI works and the SAC, the expected magnitude and duration of sediment disturbance, and the existing marine environment within Dún Laoghaire Harbour and South Dublin Bay.

4.2.7 GUIDANCE AND SUPPORTING INFORMATION

- NPWS (2026). Conservation Objectives: South Dublin Bay SAC 000210. Version 2. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.
- NPWS (2026). South Dublin Bay SAC (000210) Conservation Objectives Supporting Document – Coastal Habitats. Version 1. National Parks and Wildlife Service.
- NPWS (2013). South Dublin Bay SAC (000210) Conservation Objectives Supporting Document – Marine Habitats. Version 1. National Parks and Wildlife Service.
- MERC (2012). Intertidal Survey of South Dublin Bay SAC and South Dublin Bay and River Tolka Estuary SPA. Unpublished report to the Marine Institute and NPWS.
- Aquafact (2006). A Survey of Intertidal Mudflats and Sandflats in Ireland. Unpublished report to NPWS.

- Dún Laoghaire Harbour Company (2015). Proposed Cruise Berth Facility, Dún Laoghaire Harbour – Environmental Impact Statement, Chapter 5.2: Flora and Fauna.

5 ASSESSMENT OF IMPACTS AND MITIGATION

Having outlined the proposed site investigation (SI) works and the European sites relevant to the assessment, the potential for effects on the conservation objectives of these sites is considered below. The assessment has regard to the nature, scale, location and duration of the proposed works and considers potential direct and indirect pathways through which the proposed activities could interact with the Qualifying Interests (QIs) and Special Conservation Interests (SCIs) of the relevant European sites.

The Stage 1 Appropriate Assessment Screening prepared for the proposed SI works concluded that the project, either alone or in combination with other plans or projects, would not give rise to likely significant effects on European sites in view of their conservation objectives. Notwithstanding the conclusions of the Screening for Appropriate Assessment, MARA subsequently issued a request for the preparation of a Natura Impact Statement (NIS). Accordingly, this NIS provides a more detailed and precautionary examination of the potential interactions between the proposed SI works and the South Dublin Bay and River Tolka Estuary SPA [004024] and South Dublin Bay SAC [000210], having regard to their respective conservation objectives.

Direct impacts: Direct effects may arise where works physically overlap with a European site or result in the direct loss, alteration or disturbance of habitat supporting its QIs or SCIs. Portions of the proposed SI works are located within the South Dublin Bay and River Tolka Estuary SPA. The proposed works are located outside the South Dublin Bay SAC, with the closest SI activities approximately 0.2 km from the SAC boundary. The potential for direct and localised effects associated with intrusive SI activities within the SPA is therefore considered, while direct loss of QI habitat within the South Dublin Bay SAC will not occur.

Indirect impacts: Indirect effects may arise where a source-pathway-receptor relationship exists between the proposed SI activities and the QIs or SCIs of a European site. Potential pathways associated with the proposed works include the mobilisation of suspended sediment and subsequent deposition, accidental releases of pollutants to the marine environment, and temporary noise, visual, vessel and personnel disturbance. Given the marine connectivity between Dún Laoghaire Harbour and the wider Dublin Bay environment, these pathways are considered further within this NIS.

5.1 IDENTIFICATION AND APPRAISAL OF POTENTIAL IMPACTS ON EUROPEAN SITES

The Stage 1 Appropriate Assessment Screening undertaken by OCSC (2026) considered the potential for the proposed SI works to affect European sites within the Zone of Influence of the project. The Screening concluded that the proposed works would not result in likely significant effects on any European site, either alone or in combination with other plans or projects.

Notwithstanding this conclusion, and in response to MARA's request for an NIS, the South Dublin Bay and River Tolka Estuary SPA [004024] and South Dublin Bay SAC [000210] are subject to further detailed

assessment within this report. The SPA supports a range of wintering waterbird and tern SCIs together with Wetland and Waterbirds [A999], while the SAC is designated for four coastal and intertidal habitat QIs.

The potential impact pathways considered relevant to the proposed SI works comprise:

- temporary and localised physical disturbance of seabed and supporting habitat associated with intrusive SI activities;
- mobilisation of suspended sediment and subsequent localised sediment deposition;
- accidental release of hydrocarbons, fuels, drilling fluids or other pollutants to the marine environment;
- temporary increases in underwater and airborne noise;
- visual disturbance and increased vessel and personnel activity, with the potential for temporary displacement of SCI bird species; and
- potential interactions with the ecological functioning and availability of supporting habitat utilised by SCI species.

These pathways are considered in the following sections and subsequently assessed against the relevant conservation objectives, attributes and targets of the South Dublin Bay and River Tolka Estuary SPA and South Dublin Bay SAC.

5.2 SIGNIFICANCE OF EFFECTS

The potential pathways are assessed in detail in relation to each relevant qualifying interest and the applicable Site-Specific Conservation Objectives in Section 5.13 and Section 5.14. The significance of these effects is defined in Table 5.1 below. The following definitions of impact significance, probability, and duration are those given in the Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022).

Table 5.1. Significance of Effects

Type of Effect	Description
Imperceptible Effects	An effect capable of measurement but without significant consequences.
Not significant Effects	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight Effects	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate Effects	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant Effects	An effect which, by its character, magnitude, duration, or intensity, alters a sensitive aspect of the environment.
Very Significant Effects	An effect which, by its character, magnitude, duration, or intensity, significantly alters most of a sensitive aspect of the environment.
Profound Effects	An effect which obliterates sensitive characteristics.

5.3 PROBABILITY OF EFFECTS

The probability of effects is broken into the following types:

- Likely effects are those that can reasonably be expected to occur because of the proposed SI works if all mitigation measures are implemented.
- Unlikely effects are those that can reasonably be expected not to occur because of the proposed SI works if all mitigation measures are implemented.

5.4 DURATION OF EFFECTS

The duration of effects is defined as follows:

- Momentary Effects: effects lasting seconds to minutes
- Brief Effects: effects lasting less than a day.
- Temporary Effects: effects lasting less than a year.
- Short-term Effects: effects lasting 1 to 7 years.
- Medium-term Effects: effects lasting 7 to 15 years.
- Long-term Effects: effects lasting 15 to 60 years.
- Permanent Effects: effects lasting over 60 years.

5.5 HABITAT LOSS AND ECOLOGICAL CONNECTIVITY

The proposed site investigation works are partly located within the boundary of the South Dublin Bay and River Tolka Estuary SPA (004024), with the South Dublin Bay SAC (000210) located approximately 0.2km to the northeast. However, the proposed works are temporary and localised in nature and will not result in any permanent land take, dredging, reclamation or construction of permanent structures. The investigation works will be undertaken at discrete locations and will have a small physical footprint. Consequently, no qualifying habitat within the South Dublin Bay SAC or SPA will be permanently removed, modified or lost as a result of the proposed works, and the extent, integrity and ecological function of qualifying habitats will be maintained.

Given the spatial relationship between the proposed works and the South Dublin Bay and River Tolka Estuary SPA, temporary disturbance of habitats supporting the SCI species of the SPA is considered possible during the site investigation works. In particular, the presence and movement of vessels, drilling equipment and personnel may result in short-term disturbance within the immediate vicinity of the investigation locations.

However, the works will be temporary, with a duration of less than 12 weeks, and will occur within the existing highly active Dún Laoghaire Harbour environment, where regular vessel movements and recreational and commercial activities already occur. The temporary nature and limited spatial extent of the works mean that no fragmentation or long-term reduction in ecological connectivity associated with the SPA or SAC is anticipated.

Potential temporary effects associated with disturbance, localised sediment mobilisation and changes in water quality are considered further in the relevant sections of this NIS. Overall, the proposed site investigation works will not result in permanent habitat loss or a lasting alteration to ecological connectivity for the qualifying interests of the European sites brought forward to Stage 2 Appropriate Assessment.

5.5.1 MITIGATION MEASURES

The following measures will be implemented to minimise the potential for temporary disturbance to habitats supporting the Special Conservation Interest species of the South Dublin Bay and River Tolka Estuary SPA and the Qualifying Interest Habitats of the South Dublin Bay SAC to avoid any unnecessary effects on ecological connectivity:

- The footprint of the site investigation works will be kept to the smallest practicable area, with investigation activities restricted to the discrete locations required for the site investigation programme.
- The duration of individual investigation activities will be minimised where practicable, with the overall site investigation programme expected to be completed within 12 weeks.
- Vessel movements, drilling equipment, plant and personnel will be restricted to the areas required to undertake the site investigation works, avoiding unnecessary activity within surrounding areas.
- No dredging, reclamation or construction of permanent structures will be undertaken as part of the proposed site investigation works.
- Temporary equipment and materials associated with the investigation works will be removed on completion of the works, and investigation locations will not be retained as permanent infrastructure.
- Standard best practice environmental controls will be implemented throughout the works to minimise unnecessary disturbance, sediment mobilisation and the potential for accidental pollution.

5.5.2 RESIDUAL EFFECTS

Following implementation of the above mitigation measures, temporary disturbance to habitats supporting the Special Conservation Interest species of the South Dublin Bay and River Tolka Estuary SPA and the Qualifying Interest Habitats of the South Dublin Bay SAC may occur within the immediate vicinity of the investigation locations. Such disturbance will be temporary, spatially limited and associated only with the duration of the site investigation works.

The proposed works will not result in permanent habitat loss, fragmentation or the creation of a barrier to ecological connectivity within or between the European Sites. The works will also not result in any permanent alteration to the physical characteristics or ecological functioning of habitats supporting the qualifying features of South Dublin Bay SAC or the South Dublin Bay and River Tolka Estuary SPA.

Given the small footprint, discrete nature and short duration of the proposed works, together with the existing highly active nature of Dún Laoghaire Harbour, any temporary disturbance is not expected to result in a significant or lasting reduction in the use or availability of supporting habitat for SCI species.

Therefore, the proposed site investigation works will result in no significant residual effect on habitat extent or ecological connectivity associated with South Dublin Bay SAC (000210) or the South Dublin Bay and River Tolka Estuary SPA (004024), either alone or in combination with other plans and projects.

5.6 SILTATION AND SEDIMENTATION

The proposed site investigation works have the potential to result in localised sediment mobilisation during borehole drilling, vibrocore sampling and other activities involving disturbance of the seabed. However, the works are temporary and highly localised, with no bulk excavation or dredging proposed. Any increase in suspended sediment concentrations is expected to be small in magnitude, spatially limited to the immediate vicinity of the investigation locations and short-lived, with suspended material expected to settle rapidly following completion of the relevant activity.

The proposed works will not involve the discharge of drilling fluids, chemicals or other hazardous substances to the marine environment, and drill arisings will be contained and removed to appropriately licensed facilities. Consequently, the potential for sediment mobilisation to result in a deterioration in water quality within Dublin Bay or to adversely affect the qualifying habitats of South Dublin Bay SAC (000210), including Mudflats and sandflats not covered by seawater at low tide [1140], is considered limited. No significant or sustained sedimentation or smothering of qualifying habitat is anticipated.

Temporary increases in suspended sediment and associated changes in water clarity could theoretically affect aquatic organisms and prey resources used by SCI species of the South Dublin Bay and River Tolka Estuary SPA (004024). However, given the small scale, discrete nature and short duration of the proposed investigation works, any such effects would be localised and temporary, with no anticipated lasting deterioration in water quality or reduction in prey availability. The potential for indirect effects on the conservation objectives of the SPA and SAC is therefore considered further in the assessment of water quality and disturbance effects.

5.6.1 MITIGATION MEASURES

The following measures will be implemented to minimise the potential for sediment mobilisation, siltation and sediment deposition during the proposed site investigation works:

- Marine investigation works will be undertaken using appropriate and controlled site investigation methods to minimise disturbance of the seabed.
- The footprint and duration of seabed-disturbing activities, including borehole drilling and vibrocore sampling, will be kept to the minimum practicable extent.
- No bulk excavation or dredging will be undertaken as part of the proposed site investigation works.
- Drilling and sampling activities will be appropriately managed to minimise the uncontrolled mobilisation and dispersal of seabed sediments.
- Drill arisings generated during the investigation works will be contained and removed from the marine environment and transferred to appropriately licensed facilities.

- No drilling fluids, chemicals or other hazardous substances will be discharged to the marine environment.
- Where practicable, investigation activities will be undertaken in a manner that minimises unnecessary disturbance to the seabed and surrounding marine environment.
- Standard best practice environmental controls will be maintained throughout the works to minimise the potential for sediment mobilisation and associated effects on water quality.

5.6.2 RESIDUAL EFFECTS

Following implementation of the above mitigation measures, some temporary and localised mobilisation of seabed sediments may remain unavoidable during borehole drilling and vibrocore sampling. Any resulting increase in suspended sediment concentrations is expected to be confined to the immediate vicinity of the investigation locations and to be short-lived, with suspended material settling following completion of the relevant activity.

The proposed works will not involve dredging, bulk excavation or permanent alteration of the seabed or coastal environment. Consequently, no significant or sustained sediment deposition, smothering or alteration of qualifying habitat within South Dublin Bay SAC (000210) is anticipated, including [1140] Mudflats and sandflats not covered by seawater at low tide.

Temporary increases in suspended sediment and associated changes in water clarity may result in short-term effects on aquatic organisms and prey resources supporting the Special Conservation Interest species of the South Dublin Bay and River Tolka Estuary SPA (004024). However, given the small-scale, discrete and temporary nature of the proposed works, these effects are not expected to result in a significant or sustained reduction in prey availability or supporting habitat.

Therefore, the proposed site investigation works will result in no significant residual effect arising from siltation or sedimentation on the qualifying interests of South Dublin Bay SAC (000210) or the Special Conservation Interests of the South Dublin Bay and River Tolka Estuary SPA (004024), either alone or in combination with other plans and projects.

5.7 HYDROCARBONS, CONCRETE AND OTHER POLLUTANTS

The proposed site investigation works will involve the use and operation of vessels, drilling equipment, plant and other machinery, which may involve fuels, lubricants and hydraulic oils. However, the works will be temporary and localised in nature, and no drilling fluids, chemicals or other hazardous substances will be discharged to the marine environment as part of the proposed works. Drill arisings will be contained and removed to appropriately licensed facilities.

In the absence of appropriate controls, accidental spillages or leaks of hydrocarbons and other pollutants from vessels, plant or equipment could potentially result in a localised deterioration in marine water quality. Such

an event could affect aquatic organisms and supporting habitats within Dublin Bay and could potentially affect the qualifying interests of South Dublin Bay SAC (000210), particularly [1140] Mudflats and sandflats not covered by seawater at low tide, as well as prey resources supporting the Special Conservation Interest species of the South Dublin Bay and River Tolka Estuary SPA (004024).

The potential for such effects is considered low due to the temporary and small-scale nature of the proposed works and the absence of any planned discharge of pollutants to the receiving environment. The proposed works will not involve concrete works, permanent structures, bulk excavation or dredging, thereby limiting the potential sources of pollution. Any accidental pollution event would also be expected to be localised and temporary. Accordingly, no significant deterioration in water quality or associated adverse effects on the qualifying interests or conservation objectives of the South Dublin Bay SAC or South Dublin Bay and River Tolka Estuary SPA are anticipated.

5.7.1 MITIGATION MEASURES

The following measures will be implemented to minimise the potential for accidental release of hydrocarbons, concrete and other pollutants during the proposed site investigation works:

- All vessels, plant, drilling equipment and machinery will be appropriately maintained and inspected to minimise the potential for leaks or accidental releases of fuels, lubricants and hydraulic oils.
- Fuels, lubricants and other potentially polluting substances will be appropriately stored, handled and managed to prevent accidental release to the marine environment.
- Refuelling and maintenance activities will be undertaken in accordance with appropriate environmental management procedures and, where practicable, away from sensitive receiving waters.
- Spill response materials will be readily available at relevant investigation locations and on vessels and plant, and personnel will be appropriately briefed on the procedures to be followed in the event of a spill.
- Any accidental spill or leakage will be contained and cleaned up promptly, with contaminated materials appropriately removed and disposed of at licensed facilities.
- No drilling fluids, chemicals or other hazardous substances will be intentionally discharged to the marine environment.
- Drill arisings will be contained and removed to appropriately licensed facilities.
- No concrete works associated with permanent structures are proposed as part of the site investigation programme.
- Waste and other potentially polluting materials generated during the works will be appropriately contained and removed from the site for disposal or recovery at suitably licensed facilities.
- No permanent drainage, wastewater discharge or other operational discharge to the marine environment will be established as part of the proposed site investigation works.

5.7.2 RESIDUAL EFFECTS

Following implementation of the above mitigation measures, the risk of accidental pollution will remain low and limited to the duration of the site investigation works. No planned discharge of hydrocarbons, concrete, drilling fluids, chemicals or other hazardous substances to the marine environment will occur.

In the unlikely event of an accidental spill or leak, the implementation of appropriate spill prevention and response measures will minimise the potential for pollutants to enter the receiving environment and facilitate their prompt containment and removal. Any such event would be expected to be localised and temporary.

The proposed works will not introduce a permanent source of pollution or result in a long-term deterioration in water quality within Dublin Bay. Consequently, no significant residual effect on the qualifying interests of South Dublin Bay SAC (000210), including [1140] Mudflats and sandflats not covered by seawater at low tide, or on the prey resources and supporting habitats of the Special Conservation Interest species of the South Dublin Bay and River Tolka Estuary SPA (004024), is anticipated.

Therefore, the proposed site investigation works will result in no significant residual effect arising from hydrocarbons, concrete or other pollutants on the integrity of South Dublin Bay SAC (000210) or the South Dublin Bay and River Tolka Estuary SPA (004024), either alone or in combination with other plans and projects.

5.8 NOISE, VIBRATIONS AND VISUAL DISTURBANCE

The proposed SI works will result in temporary and localised increases in noise, vibration and visual activity within Dún Laoghaire Harbour. Potential sources include marine borehole drilling, Cone Penetration Testing (CPT), vibrocore sampling, operation of survey and support vessels, associated plant and equipment, and the presence and movement of personnel at individual investigation locations. Multibeam bathymetric surveying will also generate underwater sound through the operation of acoustic survey equipment and vessel machinery but will not involve intrusive interaction with the seabed.

Noise, vibration and visual disturbance have the potential to create behavioural responses in birds using areas in proximity to the works. Depending on the nature, intensity and duration of the disturbance, such responses may include increased vigilance, interruption of feeding or resting behaviour, avoidance of the immediate works area and temporary displacement to alternative feeding, resting or roosting locations. The ecological significance of such responses is dependent on a range of factors, including species sensitivity, distance from the disturbance source, duration and frequency of activity, season, tidal state, existing levels of disturbance and the availability of suitable alternative habitat.

This pathway is particularly relevant to the South Dublin Bay and River Tolka Estuary SPA (004024), within which portions of the proposed SI works are located. As detailed in Section 4.1.3, available historical ornithological information demonstrates that a number of SCI species utilise Dún Laoghaire Harbour. This includes wintering waterbirds using harbour structures for resting and high-tide roosting and Common Tern using waters within and immediately adjacent to the harbour for foraging.

The existing receiving environment is characterised by a relatively high level of anthropogenic activity. Dún Laoghaire Harbour is an established working and recreational harbour supporting vessel movements, marina activity, watersports and substantial public use. A separate recent SI assessment for Dún Laoghaire Harbour similarly characterises the receiving environment as a busy port and sheltered marine leisure and recreational area and confirms regular use of the harbour by birds for foraging and roosting (Venterra, 2025). Existing activity therefore forms part of the baseline against which additional disturbance from the proposed SI works are considered. However, the presence of existing disturbance does not in itself preclude temporary behavioural responses where activities occur close to feeding or roosting birds.

5.8.1 AIRBORNE NOISE AND ORNITHOLOGICAL DISTURBANCE

The proposed SI works will generate temporary airborne noise associated with the operation of drilling equipment, CPT and vibrocore equipment, vessel engines, generators and associated plant. The proposed investigation locations are predominantly associated with existing developed and actively used harbour infrastructure, including slipways, pontoons, quayside areas and the Coal Harbour. These locations are subject to existing vessel movements, recreational activity, pedestrian activity and other anthropogenic disturbance. The disturbance environment therefore differs from the relatively open intertidal habitats elsewhere within South Dublin Bay that support important feeding and roosting concentrations of wintering waterbirds.

Of the proposed SI activities, borehole drilling is considered to have the greatest potential to result in localised above-water noise and visual disturbance due to the comparatively greater duration of activity at a fixed investigation location. CPT and vibrocore sampling will also involve temporary activity at discrete locations but will generally be of shorter duration, while multibeam bathymetric surveying will comprise a mobile survey activity.

Noise disturbance may result in behavioural responses including increased vigilance, interruption of feeding or resting, movement away from the disturbance source or, where disturbance is sufficiently pronounced, temporary displacement from an area. Such responses are influenced by the characteristics of the noise source and its duration, the distance between the activity and birds, species sensitivity, existing disturbance conditions and the availability of alternative suitable habitat.

This pathway is relevant to the South Dublin Bay and River Tolka Estuary SPA because portions of the proposed SI works occur within the SPA and historical survey information demonstrates use of Dún Laoghaire Harbour by SCI species. In particular, Dunlin, Sanderling and Ringed Plover have previously been recorded roosting on the outer sides of harbour structures at high tide. The historical Dún Laoghaire Harbour surveys also noted that the harbour walls provided a degree of separation between some roosting birds and activities occurring within the harbour.

The proposed SI works will occur within an existing active harbour environment. However, some SI activities, particularly drilling and other investigations requiring equipment to remain stationary at a discrete location,

differ from routine transient vessel activity. Consequently, the proximity of individual SI locations to actively used feeding, resting or roosting areas is relevant to determining the potential magnitude of disturbance.

Comparable SI works within Dublin Bay have similarly been assessed with regard to above-water noise and visual disturbance to SCI birds. MARA's assessment of MUL240010 identified the potential for temporary disturbance and displacement of wintering waterbirds associated with geotechnical investigation activities and considered the location of identified roost sites, the duration and intensity of the proposed activities and the existing baseline disturbance environment. In that assessment, geotechnical borehole activity was identified as the activity with the greatest potential for disturbance to overwintering birds, with seasonal restriction of that activity used to avoid significant disturbance.

Accordingly, the potential for airborne-noise disturbance associated with the proposed Dún Laoghaire SI works are assessed with particular regard to the nature and duration of individual activities, proximity to known or actively used SCI feeding and roosting areas, the existing harbour disturbance environment and the availability of alternative habitat.

5.8.2 VIBRATIONS AND VISUAL DISTURBANCE

Intrusive geotechnical activities, particularly borehole drilling and other drilling-related operations, have the potential to generate temporary and localised vibration. The potential for vibration to result in disturbance to SCI birds will depend on the proximity of individual investigation locations to areas being used by birds for feeding, resting or roosting, as well as the duration and intensity of the activity.

Visual disturbance may arise from the presence and movement of drilling equipment, marine plant, vessels and personnel at individual investigation locations. Historical ornithological information demonstrates that Dún Laoghaire Harbour supports SCI bird species for feeding, resting and roosting. In particular, Dunlin, Sanderling and Ringed Plover have previously been recorded roosting on outer harbour structures at high tide. The potential for temporary visual disturbance therefore requires consideration where SI activities occur in proximity to actively used roosting, resting or feeding areas.

Existing harbour structures may provide a degree of visual separation between some SI activities and bird-use areas. Previous ornithological assessment undertaken within Dún Laoghaire Harbour identified the harbour walls as providing separation between roosting birds using their outer sides and activity occurring within the harbour. The effectiveness of such screening will, however, depend on the location of the individual SI activity and the location of birds at the time of the works.

Of the proposed activities, borehole drilling is considered to have the greatest potential for sustained localised visual disturbance because equipment may remain at a fixed investigation location for a comparatively longer period. CPT and vibrocore sampling will similarly involve temporary activity at discrete locations but for shorter periods, while multibeam bathymetric surveying will comprise a mobile survey activity.

5.8.3 MITIGATION MEASURES

The following measures shall be implemented to minimise the potential for disturbance of SCI bird species arising from airborne noise associated with the proposed SI works:

- Prior to commencement of noise-generating SI activities at locations on or immediately adjacent to the East Pier, West Pier or other harbour structures with potential to support roosting SCI waterbirds, the works area and surrounding potentially affected habitat shall be inspected by a suitably qualified ornithologist/Ecological Clerk of Works (ECoW).
- Particular attention shall be given to high-tide roosting locations and to the presence of aggregations of SCI species, including Dunlin, Sanderling and Ringed Plover, which have previously been recorded roosting on the outer harbour structures.
- Where sensitive SCI bird species are observed within or immediately adjacent to an active investigation location, the ECoW / designated environmental representative will assess whether the activity is causing sustained or repeated disturbance. Where practicable, non-essential activity will be paused or adjusted until the birds have moved away from the immediate working area. The contractor will maintain records of any such intervention. Plant and equipment shall be maintained in good working order and unnecessary idling of engines and plant shall be avoided.
- Where practicable, equipment shall be positioned to maximise the screening provided by existing harbour structures between noise-generating activities and identified roosting areas.
- Activities shall be undertaken using the minimum plant and equipment necessary to safely complete the SI works and shall be limited to the duration necessary to complete each investigation.
- Where sensitive SCI bird species are identified during the pre-works ornithological inspection within the potential disturbance area of a proposed borehole or other intrusive SI activity, the activity shall not commence until the Project Ecologist has determined that significant disturbance can be avoided. This may include establishment of an appropriate stand-off distance, modification of the activity or temporary postponement until the birds have naturally dispersed.

5.8.4 RESIDUAL EFFECTS

Following implementation of the above measures, airborne-noise disturbance will be temporary and localised and will cease following completion of individual SI activities. Pre-works ornithological inspections will allow actively used roosting areas and potentially sensitive situations to be identified prior to commencement of potentially disturbing activities.

No permanent source of airborne noise will be introduced and no permanent loss, obstruction or modification of SCI feeding, resting or roosting habitat will occur. Any residual behavioural response is therefore expected to be temporary and spatially restricted.

On this basis, residual effects associated with airborne noise are not predicted to result in a significant decrease in the range, timing or intensity of use of areas by SCI species.

5.8.5 SUMMARY OF IMPACTS FOR NOISE, VIBRATIONS AND VISUAL DISTURBANCE*Table 5.2: Summary of Noise, Vibration and Visual Disturbance Effects*

Impact Pathway	Relevant SCI Receptors	Potential Effect	Key Mitigation	Residual Effect Following Mitigation
Airborne noise	Wintering waterbirds, tern species and Wetland and Waterbirds [A999]	Temporary disturbance, increased vigilance, interruption of feeding/resting and localised displacement from areas close to active SI works.	Avoid any sensitive SCI bird species, modifications and/or temporary postponement of works where required. Maintain good working order, works limited to a minimum necessary duration.	No permanent loss or modification of feeding, resting or roosting habitats. No adverse effect on the Conservation Objectives are anticipated
Underwater noise	Roseate Tern [A192], Common Tern [A193] and Arctic Tern [A194]	Temporary underwater-noise exposure during plunge-diving and potential localised behavioural disturbance or displacement from the immediate vicinity of active SI works.	Minimum necessary operating duration, avoidance of unnecessary simultaneous operation of noise-generating equipment, pre-works check for terns, temporary postponement where required.	Temporary and spatially restricted. No permanent underwater-noise source or loss of marine foraging habitat. No adverse effects on the Conservation Objectives are anticipated.
Vibration	SCI bird species using habitat within or adjacent to the works	Temporary and highly localised disturbance associated principally with intrusive geotechnical activities.	Works confined to discrete SI locations and minimum duration, prework ornithological inspection, responsive measures where sensitive SCI bird species are identified.	Temporary, localised and reversible. No permanent change in habitat conditions or availability. No adverse effects on the Conservation Objectives are anticipated.
Visual disturbance	Wintering waterbirds, tern species and Wetland and Waterbirds [A999]	Temporary increased vigilance, interruption of resting/feeding or displacement where equipment or activity occurs close to birds.	Minimum working footprint, avoidance of unnecessary movement, stand-off or temporary postponement where required	Temporary and localised behaviour response only. No permanent obstruction or loss of feeding, resting or roosting habitats. No adverse effects on the Conservation Objectives are anticipated.

5.9 UNDERWATER NOISE

The proposed marine SI activities have the potential to generate underwater noise within Dún Laoghaire Harbour. Potential sources include marine borehole drilling, Cone Penetration Testing (CPT), vibrocore sampling, vessel engines and positioning activities, and the operation of multibeam bathymetric survey equipment.

The underwater-noise characteristics of the proposed SI activities have previously been considered within the Risk Assessment for Annex IV Species prepared (OCSC 2026) and submitted in support of the MUL application. That assessment considered the proposed geotechnical and bathymetric survey methodologies and the potential for underwater sound generated by these activities to result in injury and/or disturbance to

Annex IV marine mammal species. The assessment also distinguishes between impulsive and non-impulsive sound sources and considers the frequency characteristics of the proposed survey techniques.

The Annex IV Species Risk Assessment was prepared specifically in relation to the strict protection requirements applicable to Annex IV species and is not duplicated within this NIS. However, the project-specific information presented within that assessment regarding the acoustic characteristics of the proposed SI activities is relevant to consideration of underwater-noise effects on diving bird SCIs of the South Dublin Bay and River Tolka Estuary SPA.

The proposed multibeam bathymetric survey will utilise a high-frequency acoustic source. Multibeam systems operate by transmitting acoustic signals towards the seabed and recording the returning signal to determine water depth and seabed morphology. The acoustic source will move progressively with the survey vessel and will therefore not represent a stationary or permanent source of underwater noise.

Marine borehole drilling will generate underwater noise associated with operation of the drilling equipment and associated vessel or platform. Unlike multibeam surveying, borehole drilling will occur at fixed investigation locations and may operate for comparatively longer periods. The resulting noise will nevertheless be temporary and will cease following completion of drilling at each location.

CPT and vibrocore sampling will similarly generate underwater sound and, in the case of vibrocore sampling, vibration associated with interaction of the equipment with the seabed. These activities will be undertaken at discrete investigation locations and will be of limited duration. Consequently, the associated underwater-noise source will be temporary and spatially localised.

Underwater noise is relevant to the South Dublin Bay and River Tolka Estuary SPA because Roseate Tern [A192], Common Tern [A193] and Arctic Tern [A194] are Special Conservation Interests of the SPA. Terns forage predominantly by plunge-diving and may therefore enter the water column for short periods while feeding, creating a potential pathway for exposure to underwater sound.

Available evidence concerning the underwater hearing capabilities of birds remains considerably more limited than that available for marine mammals. Comparable marine SI assessments prepared for MARA have nevertheless considered underwater noise as a potential pathway to diving birds. The MaresConnect NIS (MUL240008), for example, specifically assessed underwater-noise impacts on bird species associated with geophysical and geotechnical SI activities. That assessment recognised that the potential effect is dependent on the acoustic characteristics of individual survey techniques, including source level, frequency, duration and the mobility of the source.

The MaresConnect assessment also distinguished between individual SI techniques. Acoustic geophysical equipment was assessed according to its operating frequency, source level and directional characteristics, while vibrocore sampling was recognised as a continuous noise source operating for relatively short periods

at individual locations. This demonstrates the importance of considering the individual characteristics of each SI technique rather than treating the overall SI programme as a single continuous underwater-noise source.

Similarly, the Bremore Port SI assessment considered the potential for underwater noise to affect diving seabirds and identified behavioural disturbance as a potential effect of underwater sound. The assessment noted that underwater hearing in birds is generally associated with relatively low frequencies and that sufficiently intense underwater noise may result in behavioural responses. However, the noise levels associated with routine geotechnical SI activities are substantially different from high-energy impulsive sources such as explosions or impact piling.

No impact piling, seismic airgun survey, blasting or other comparable high-energy impulsive underwater-noise source forms part of the proposed Dún Laoghaire SI programme. The proposed activities comprise temporary geotechnical investigation and bathymetric surveying within an existing active harbour environment.

Historical ornithological information for Dún Laoghaire Harbour demonstrates use of the harbour and adjacent waters by tern species, including foraging by Common Tern. The possibility of temporary interaction between underwater-noise-generating SI activities and foraging terns is therefore recognised.

However, individual terns would only be exposed to underwater sound while submerged during plunge-diving and where this coincides spatially and temporally with operation of the relevant SI equipment. Exposure would therefore be intermittent and of short duration. The mobility of tern species also allows individuals to move away from the immediate vicinity of an active investigation location should disturbance occur.

The proposed SI programme will furthermore be temporary and undertaken sequentially at discrete investigation locations. Borehole drilling, CPT and vibrocore sampling will not represent continuous noise sources throughout the MUL area, while the multibeam survey will comprise a moving source associated with the survey vessel. No permanent underwater-noise source will remain following completion of the SI works.

On this basis, the principal potential effect on Roseate Tern, Common Tern and Arctic Tern is considered to comprise temporary behavioural disturbance or localised displacement from the immediate vicinity of an active SI location rather than auditory injury or permanent exclusion from foraging habitat.

5.9.1 MITIGATION MEASURES

The following measures shall be implemented to minimise potential disturbance to SCI tern species associated with underwater noise:

- Marine SI activities shall be restricted to the minimum duration and spatial extent necessary to safely complete each individual investigation.
- Equipment shall not be operated unnecessarily when an investigation activity is not being undertaken.
- Unnecessary simultaneous operation of multiple underwater-noise-generating items of equipment shall be avoided where practicable.

- Prior to commencement of marine SI activities at a fixed investigation location, the immediate works area shall be checked for actively foraging tern species as part of the pre-works ornithological inspection.
- Where actively foraging terns are identified within the immediate vicinity of a proposed fixed noise-generating activity, the Project Ecologist shall determine whether commencement of the activity should be temporarily postponed until the birds have naturally dispersed.
- Vessel movements associated with the SI programme shall avoid unnecessary close approach to aggregations of feeding or resting birds, where practicable and consistent with safe navigation.
- SI equipment shall cease operating following completion of each individual investigation activity.
- Any relevant environmental controls already established for underwater-noise-generating activities through the submitted Annex IV Species Risk Assessment shall also be implemented as part of the overall SI methodology. These measures are referenced here for consistency of the overall environmental management of the works and are not relied upon as a substitute for the specific assessment undertaken within this NIS.

The Risk Assessment for Annex IV Species submitted in support of the MUL application contains separate measures relating to the protection of Annex IV marine mammal species from underwater-noise-generating activities. Those measures shall be implemented as applicable as part of the overall SI methodology but are not relied upon as mitigation for the SPA-specific assessment presented within this NIS.

The assessment is based on the project-specific acoustic information already available for the proposed SI activities, the temporary and localised nature of the works, the characteristics of the relevant SCI receptors and available scientific evidence concerning underwater-noise effects on diving birds.

5.9.2 RESIDUAL EFFECTS

Following implementation of the measures outlined above, underwater-noise generation associated with the proposed SI programme will remain temporary, localised and restricted to individual investigation activities. No permanent underwater-noise source will be introduced within Dún Laoghaire Harbour.

Roseate Tern, Common Tern and Arctic Tern are highly mobile species and potential exposure to underwater sound will be limited to occasions when individual birds are submerged while plunge-diving within the vicinity of an active SI activity. The temporary and sequential nature of the SI programme limits the potential duration of such exposure.

Where behavioural responses occur, these are expected to comprise temporary avoidance or short-distance displacement from the immediate vicinity of an active investigation location. Extensive alternative marine foraging habitat will remain available within Dún Laoghaire Harbour and the wider Dublin Bay environment throughout the SI programme.

No permanent loss, degradation or modification of tern foraging habitat will occur as a result of underwater noise, and the proposed activities will not create a permanent barrier to movement between feeding, roosting or breeding areas. Accordingly, following implementation of the identified mitigation measures, residual effects associated with underwater noise are expected to be temporary, localised and reversible. They are not predicted to result in a significant reduction in the availability or use of foraging habitat by Roseate Tern, Common Tern or Arctic Tern or otherwise undermine the applicable conservation objectives of the South Dublin Bay and River Tolka Estuary SPA.

5.10 VIBRATION AND VISUAL DISTURBANCE

The proposed SI works have the potential to result in temporary and localised vibration and visual disturbance within Dún Laoghaire Harbour. Sources of vibration will principally be associated with intrusive geotechnical investigation activities, including borehole drilling, Cone Penetration Testing (CPT) and vibrocore sampling. Visual disturbance may arise from the temporary presence and operation of drilling and survey equipment and associated activity at individual investigation locations.

Vibration generated by the proposed SI activities will be localised to the immediate vicinity of the investigation location and will occur only for the duration of the relevant activity. In relation to SCI bird species, the principal potential effect is considered to arise from the combined visual presence, movement and operation of equipment associated with the works, rather than vibration acting as an isolated long-range disturbance mechanism.

Visual disturbance has the potential to result in behavioural responses including increased vigilance, interruption of feeding or resting, movement away from the disturbance source and temporary displacement from otherwise suitable habitat. The magnitude of such responses is dependent on factors including the species concerned, distance from the disturbance source, nature and predictability of the activity, duration and frequency of exposure, availability of visual screening, existing levels of anthropogenic activity and availability of alternative habitat.

The proposed SI locations are predominantly associated with existing developed harbour infrastructure, including slipways, pontoons, quayside areas and Coal Harbour. Dún Laoghaire Harbour is an established working and recreational harbour subject to regular maritime, recreational and public activity. The proposed SI works will therefore occur within an environment already characterised by a relatively high baseline level of human activity.

Nevertheless, as detailed in Section 4, historical ornithological information demonstrates that Dún Laoghaire Harbour supports SCI bird species for feeding, resting and roosting. In particular, Dunlin, Sanderling and Ringed Plover have previously been recorded roosting on outer harbour structures at high tide. The potential for temporary visual disturbance therefore requires consideration where SI activities occur in proximity to actively used roosting, resting or feeding areas.

The existing harbour structures may provide a degree of visual separation between some SI activities and bird-use areas. Previous ornithological assessment undertaken within Dún Laoghaire Harbour identified the harbour walls as providing separation between roosting birds using their outer sides and activity occurring within the harbour. The effectiveness of such screening will, however, depend on the location of the individual SI activity and the location of birds at the time of the works.

Of the proposed activities, borehole drilling is considered to have the greatest potential for sustained localised visual disturbance because equipment may remain at a fixed investigation location for a comparatively longer period. CPT and vibrocore sampling will similarly involve temporary activity at discrete locations but for shorter periods, while multibeam bathymetric surveying will comprise a mobile survey activity.

Comparable MARA assessments recognise that temporary survey activities may cause behavioural disturbance or displacement of seabirds, with the magnitude of the effect influenced by the nature and intensity of the activity, receptor sensitivity and existing disturbance environment.

5.10.1 MITIGATION MEASURES

The following measures shall be implemented to minimise potential vibration and visual disturbance to SCI bird species:

- Prior to commencement of potentially disturbing SI activities on or immediately adjacent to harbour structures, a pre-works inspection shall be undertaken by a suitably qualified ornithologist or Ecological Clerk of Works (ECoW) to identify sensitive SCI bird species feeding, resting or roosting within the potential disturbance area.
- Particular attention shall be given to high-tide roosting areas and harbour structures known or considered suitable to support roosting waterbirds.
- Where sensitive SCI bird species are identified sufficiently close to a proposed activity that disturbance could reasonably occur, the Project Ecologist shall determine appropriate measures to avoid or minimise disturbance. Such measures may include modification of the activity or access arrangements, establishment of an appropriate stand-off distance and/or temporary postponement of the relevant activity until the birds have naturally dispersed.
- Existing harbour structures shall, where practicable, be utilised to provide visual screening between SI activities and identified roosting or resting areas.
- Plant and equipment shall remain within the minimum working area necessary to safely undertake the relevant investigation.
- Unnecessary movement of plant and equipment outside the defined working area shall be avoided.
- SI activities shall be restricted to the minimum duration necessary to safely complete each investigation and equipment shall be removed from the investigation location when no longer required.

5.10.2 RESIDUAL EFFECTS

Following implementation of the above mitigation measures, vibration and visual disturbance will be temporary and spatially restricted to the vicinity of individual SI locations. No permanent plant or equipment associated with the SI programme will remain following completion of the investigations and no permanent obstruction, loss or modification of SCI feeding, resting or roosting habitat will occur.

Pre-works ornithological inspections will allow SCI birds to be identified prior to potentially disturbing activities and will provide for modification or temporary postponement of activities where required. Any residual behavioural response is therefore expected to comprise temporary and localised avoidance or displacement from the immediate vicinity of active SI works.

Such temporary effects are not predicted to result in a significant decrease in the range, timing or intensity of use of areas by SCI species or otherwise undermine the applicable conservation objectives of the South Dublin Bay and River Tolka Estuary SPA.

5.11 VESSEL AND PERSONNEL ACTIVITY

The proposed site investigation works will involve the temporary presence and movement of vessels, marine plant and personnel within Dún Laoghaire Harbour. Vessel activity will be associated with mobilisation to individual investigation locations, positioning of marine plant and survey vessels, movement between investigation locations and demobilisation following completion of the works. Personnel activity will be associated with the operation of drilling, sampling and survey equipment and the undertaking of associated site investigation activities.

Dún Laoghaire Harbour is an established and highly active harbour environment, supporting regular recreational, commercial and other marine vessel activity, together with marina use, watersports and public access. The proposed site investigation works will therefore occur within an environment that is already subject to regular vessel and human activity. Notwithstanding this existing baseline, the temporary presence and movement of additional vessels, marine plant and personnel may result in localised disturbance to birds using areas in the vicinity of individual investigation locations.

This pathway is particularly relevant to the South Dublin Bay and River Tolka Estuary SPA (004024), within which elements of the proposed site investigation works are located. Available historical ornithological information indicates that a number of SCI species utilise Dún Laoghaire Harbour and its associated structures for feeding, resting and roosting. The presence and movement of vessels, marine plant and personnel may therefore result in temporary behavioural responses, including increased vigilance, interruption of feeding or resting behaviour and temporary movement away from the immediate vicinity of active investigation locations.

The potential magnitude of disturbance will depend on the location, duration and frequency of vessel and personnel activity, the proximity of activities to areas being used by SCI birds, and the existing level of activity

within the harbour. The proposed SI works will, however, be undertaken at discrete investigation locations and the overall programme is temporary, with a duration of less than 12 weeks. Vessel and personnel activity associated with the works will therefore be spatially and temporally limited.

Vessel and personnel activity will be limited to that necessary to undertake the site investigation works. Unnecessary movements will be avoided and the duration of activity at each investigation location will be minimised, thereby reducing the potential for temporary disturbance or displacement of birds using the surrounding area.

The potential for vessel and personnel activity to affect the distribution, range, timing or intensity of use of areas by wintering waterbird SCIs, or the foraging, passage and roosting activity of tern species, is considered further in the assessment of the South Dublin Bay and River Tolka Estuary SPA. The potential interaction with the wetland habitat resource supporting regularly occurring migratory waterbirds [A999] is also considered.

5.11.1 MITIGATION MEASURES

The following measures will be implemented to minimise disturbance to SCI bird species arising from vessel and personnel activity:

- Vessel movements associated with the proposed site investigation works will be restricted to those required to safely undertake the investigation programme, with unnecessary movements avoided.
- Vessel and marine plant positioning will be restricted to the minimum area required to safely undertake the relevant investigation.
- The duration of activities at individual investigation locations will be minimised, with vessels and marine plant relocated once the relevant investigation has been completed.
- Personnel will be restricted to the defined working areas and unnecessary movement within the harbour environment will be avoided.
- The requirements for minimising unnecessary disturbance to SCI birds will be communicated to relevant site personnel as part of the environmental management arrangements for the works.
- Where sensitive SCI bird species are observed within or immediately adjacent to an active investigation location, the ECoW / designated environmental representative will assess whether the activity is causing sustained or repeated disturbance. Where practicable, non-essential activity will be paused or adjusted until the birds have moved away from the immediate working area. The contractor will maintain records of any such intervention.

5.11.2 RESIDUAL EFFECTS

Following implementation of the above measures, vessel and personnel activity associated with the proposed site investigation works will remain temporary and spatially restricted to the individual investigation locations and the routes required to access those locations.

Temporary behavioural responses, including increased vigilance, interruption of feeding or resting and short-distance movement away from active investigation locations, may occur where vessels, marine plant or personnel operate in proximity to SCI birds. However, the proposed activities will be limited in duration and spatial extent and will occur within an existing active harbour environment.

The proposed vessel and personnel activity will not result in permanent displacement, habitat fragmentation or a lasting barrier to movement between areas used for feeding, resting, roosting or passage. Any disturbance associated with the works will cease following completion of the relevant investigation activities.

Therefore, residual effects associated with vessel and personnel activity are expected to be temporary, localised and reversible and are not predicted to result in a significant decrease in the range, timing or intensity of use of areas by SCI species of the South Dublin Bay and River Tolka Estuary SPA (004024). The proposed works will therefore not adversely affect the integrity of the SPA, either alone or in combination with other plans or projects.

5.12 IN-COMBINATION EFFECTS WITH OTHER PLANS AND PROJECTS

The potential for in-combination effects has been considered in relation to other plans and projects that could reasonably interact with the proposed site investigation works through common pathways, including disturbance, underwater noise, sediment mobilisation, water quality and vessel activity. Particular consideration has been given to relevant marine activities and Maritime Usage Licence applications/permissions within the wider Dún Laoghaire Harbour and Dublin Bay area. The assessment has considered the nature, location and likely timing of these activities where information is available.

The proposed works are located within the highly active Dún Laoghaire Harbour environment, where existing recreational, commercial and maritime activities occur. The potential for in-combination effects is therefore principally associated with other plans or projects that may occur within the wider Dublin Bay area and contribute to existing pressures on water quality, sedimentation or disturbance of waterbirds. However, the proposed site investigation works are temporary, localised and of limited duration, with no permanent habitat loss, dredging, reclamation, permanent structures or operational phase associated with the current proposal.

A review of planning permissions in the vicinity of the proposed works identified a number of developments of greater than single domestic scale which have the potential for construction-stage overlap. The developments considered most relevant to the in-combination assessment are presented in Table 5.3.

Table 5.3: Other projects near the area that may have in-combination effects with the works.

Application Reference	Details	Construction Stage Overlap	Ecological Effects	Location & Proximity	Rationale
MUL250003	Schedule 7 (3): Marine environmental surveys for the purposes of site investigation – to undertake a suite of marine site investigation activities to assess the feasibility of potential future dredging within the harbour.	MUL Commencement Date: 18/06/2026. License valid for 2 years, potential overlap	Temporary seabed disturbance, sediment mobilisation, vessel activity, underwater noise and potential disturbance/displacement of SCI birds.	Within Dún Laoghaire Harbour and therefore in close proximity to the proposed SI works.	The project is considered relevant due to the similar nature of the works and proximity of this project to the proposed marine SI works. There is the potential for common pathways and temporal overlap.
MUL240023	To undertake a Geotechnical Investigation, Geophysical site investigation surveys, ecology and marine archaeology surveys to inform design options for the proposed East Coast Rail Infrastructure Protection Projects (ECRIPP).	MUL Commencement Date: 22/10/2025. License valid for 6 years, potential overlap	Marine survey activity, vessel movements, underwater noise and potential temporary seabed disturbance.	Dún Laoghaire / wider Dublin Bay area.	The project is considered relevant due to the similar nature of the works and proximity of this project to the proposed marine SI works. There is the potential for common pathways and temporal overlap.
MAC20230012	Permitted Maritime Usage - ORE Operations and Maintenance facility	MAC Commencement Date: 30/1/2024. License valid for 45 years, potential overlap	Vessel activity, noise, visual disturbance and marine construction/operational activity.	St Michael's Pier, Dún Laoghaire Harbour.	The project is considered relevant due to its location within the harbour, potential for common vessel and disturbance pathways. There is the potential for common pathways and temporal overlap.
MAC240020	Permitted Maritime Usage - General Harbour Operations and Operations and Maintenance Base	MAC Commencement Date: 12/11/2024. License valid for 45 years, potential overlap	Vessel activity, marine operations, noise and visual disturbance.	Dún Laoghaire Harbour.	The project is considered relevant due to its location within the harbour, potential for common vessel and disturbance pathways. There is the potential for common pathways and temporal overlap.
PC/PEHP/01/26	Dún Laoghaire-Rathdown County Council are proposing build a new ramp and steps linking Harbour Plaza to the lower level of St Michael's Pier. The lower pier area would be upgraded to create a public plaza with a gift kiosk, planting, seating, new railings and views across the harbour.	Potential overlap. The proposed development is currently at public consultation stage, with the consultation period running from 8	Dust and noise during construction phase.	Dún Laoghaire Harbour, at St Michael's Pier, in close proximity to the proposed National Watersports	The project is considered relevant to the in-combination assessment due to its close proximity and potential construction-stage overlap with the proposed SI works. However, the proposed

Application Reference	Details	Construction Stage Overlap	Ecological Effects	Location & Proximity	Rationale
	The new ramp and steps would provide easier access between Harbour Plaza and St Michael's Pier, including wheelchair access. They would also make it easier for cruise passengers to travel between the harbour and Dún Laoghaire town centre.	September to 21 October 2026.		Campus site investigation works.	development is primarily land-side/public realm works, with ecological effects expected to be temporary and localised. Potential cumulative effects are therefore principally associated with temporary disturbance and accidental pollution, rather than a significant additional marine sediment pathway.
D24A/0140	Installation of a 1,200 sq.m (235kWp) Ground mounted solar photovoltaic (PV) array and all associated ancillary works.	Permission granted on 6/6/2024. Valid until 5/6/2029. Potential overlap of construction stages.	Dust and noise during construction phase.	Approximately 57m east of the site, West Pier Pumping Station, West Pier, Dun Laoghaire, Dublin, A96K167	Sufficient distances between the sites and the nearest Natura site. The Appropriate Assessment Screening report completed for the proposed development concluded that the Proposed Development, alone or in-combination with other plans or projects, will not result in significant adverse effects to the integrity and conservation status of European sites subject to the implementation of mitigation measures.
D22A/0758	Planning permission is sought for development comprising of alteration & extension of existing rear modern balcony terrace & staircase and associated site development works at the National Yacht Club which is a protected structure.	Permission granted on 9/3/2023. Valid until 8/3/2028. Potential overlap of construction stages.	Dust and noise during construction phase.	Adjacent to the site, The National Yacht Club, Dun Laoghaire Harbour, Dun Laoghaire, Co Dublin, A96AX98	Sufficient distances between the sites and the nearest Natura site.
D24A/0484/WEB	The development will consist of the construction of a new 5-8 storey development in 2 no. Blocks (Block 1 and Block 2) and the change of use and refurbishment of existing 3 storey (over adjacent basement level) 'Dun Leary House' (a Protected Structure) to provide for 88 no. residential units (26 no. 1 bed units; 37 no. 2 bed units; 24 no. 3 bed units; and 1 no. 4 bed detached house),	Permission granted on 16/7/2025. Valid until 15/7/2030. Potential overlap of construction stages.	Dust and noise during construction phase.	Approximately 197m southeast of the site, Site of approx 0.74 HA at the former Ted Castles Site and Dun Leary House (a protected structure),	Sufficient distances between the sites and the nearest Natura site. The Appropriate Assessment Screening report completed for the proposed development concluded that the Proposed Development, alone or in-combination with other

Application Reference	Details	Construction Stage Overlap	Ecological Effects	Location & Proximity	Rationale
	residential amenity space at ground and first floor level (approx. 132 sq m) addressing the internal courtyard and upper terrace; 1 no. retail unit (approx. 108.5 sq m) with associated outdoor seating area at ground floor level addressing Old Dun Leary Road and Cumberland Street; and a public art display area (approx. 12 sq m) at ground floor level addressing Old Dun Leary Road.			Old Dun Leary Road, Cumberland Street, Longford Place and Dun Leary Hill, Dun Laoghaire, Co. Dublin, A96N208	plans or projects, will not result in significant adverse effects to the integrity and conservation status of European sites subject to the implementation of mitigation measures.
D25A/0081/WEB	Permission for the development : (i) change of use of existing commercial unit (452sq.m) at ground floor level of Block 3 from office space to gym facility; (ii) construction of an open-air padel court (200sq.m) at first floor level to the rear of Blocks 1 and 2; and, (iii) all associated ancillary works necessary to facilitate the proposed development.	Permission granted on 11/6/2025. Valid until 10/6/2030. Potential overlap of construction stages.	Dust and noise during construction phase.	Approximately 30m south of the site, West Pier Business Campus, Old Dun Leary Road, Dún Laoghaire, Co. Dublin, A96A621	Sufficient distances between the sites and the nearest Natura site. The Appropriate Assessment Screening report completed for the proposed development concluded that the Proposed Development, alone or in-combination with other plans or projects, will not result in significant adverse effects to the integrity and conservation status of European sites subject to the implementation of mitigation measures.
D24A/0513/WEB	The application seeks permission to vary the previously approved permission Ref. D23A/0646. The proposed variation will consist of the addition of 4 No. apartments on a new set-back 5th floor, increasing the overall development from 5 to 6 storeys, and from 36 no. to 40 no. apartments (consisting of 29 no. one-beds plus 11 no. two-beds). The variation will require minor modification to elevations, associated roof gardens, communal open spaces, bike store and ancillary site works.	Permission granted on 10/10/2024. Valid until 19/10/2029. Potential overlap of construction stages.	Dust and noise during construction phase.	Approximately 83m southeast of the site, 7-9 Clarence Street and George's Place, Dun Laoghaire, Co Dublin	Sufficient distances between the sites and the nearest Natura site. The Appropriate Assessment Screening report completed for the proposed development concluded that the Proposed Development, alone or in-combination with other plans or projects, will not result in significant adverse effects to the integrity and conservation status of European sites subject to the implementation of mitigation measures.

Application Reference	Details	Construction Stage Overlap	Ecological Effects	Location & Proximity	Rationale
D21A/0248	Permission for development. The development which will comprise of the change of use, conversion, renovation and internal reordering (including a new part 3 no. storey 2,649 sq m extension) of the Former Enterprise Centre to provide a part 3 no. storey, 18 no. classroom Primary School, with a total gross area of 3,515 sq m. The development will also include the provision of all ancillary staff and student facilities; hard and soft play areas and a general purpose hall. Vehicular and cycle access to the site will be provided via George's Place and George's Lane, as existing, new, additional pedestrian access from Stable Lane to the site will be provided to via an existing gate at George's Lane. The development will also include the provision of bicycle and scooter parking; vehicle drop off/set down areas to the immediate south of the site on George's Place; piped infrastructure and ducting; plant; and soft landscaping and boundary treatments; PV panels; service connections and 1 no. ESB substation; ancillary ramps and stairs; signage; SUDs including green roof provision; changes in level and all associated site development and excavation works above and below ground	Permission granted on 9/1/2023. Valid until 8/1/2028. Potential overlap of construction stages.	Dust and noise during construction phase.	Approximately 138m southeast of the site, Site of c.020 ha located at the former Dun Laoghaire Enterprise Centre, Georges Place, Dun Laoghaire, Co Dublin. within the setting of a protected structure, (RPS No. 528 Fire Station- Facade Only)	Sufficient distances between the sites and the nearest Natura site. The Appropriate Assessment Screening report completed for the proposed development concluded that the Proposed Development, alone or in-combination with other plans or projects, will not result in significant adverse effects to the integrity and conservation status of European sites subject to the implementation of mitigation measures.
D21A/1041	Full permission. The development will consist of the demolition of existing dwelling on site (c.79 sqm) and the construction mixed use development of 88 no. Build to Rent residential apartments, commercial unit and café across 2 buildings. Building 01 (part 5, 6 and 8 storeys) fronting Crofton Road provides 43 apartments with associated internal residential amenity at ground floor, first floor level and seventh floor level with associated internal residential amenity at ground floor, first floor level and seventh floor level with external roof terraces at fifth on seventh	Permission granted on 8/5/2024. Valid until 7/5/2029. Potential overlap of construction stages.	Dust and noise during construction phase.	Approximately 318m southeast of the site, lands at St. Michael's Hospital Car Park, Crofton Road, Dun Laoghaire, County Dublin, A96 TN26.	Sufficient distances between the sites and the nearest Natura site. The Appropriate Assessment Screening report completed for the proposed development concluded that the Proposed Development, alone or in-combination with other plans or projects, will not result in significant adverse effects to the integrity and conservation status of European sites subject

Application Reference	Details	Construction Stage Overlap	Ecological Effects	Location & Proximity	Rationale
	floor levels (with flagpole at seventh floor level) and commercial unit (use falling within Class 1 (shop), Class 2 (financial/professional services), Class 8 (medical services)) and café located at the eastern part of the building at ground floor level. Building 02 (part 8, part 9 storeys) to the rear provides 45 apartments with external roof terrace at eight storey level with refuse, bicycle storage and storage at ground floor level. A central courtyard provides 378 sqm of communal amenity space, with a total of 681 sqm public open space provided within a landscaped area adjacent to the northern elevation of Building 01 and pedestrian route at the eastern perimeter. Access is taken from Crofton Road with a shared vehicular and cycle entrance at the western perimeter of the site providing access to 3 no. car parking spaces within the central courtyard and to St. Michael's Hospital to the south. All associated infrastructure, access, works to footpath and road markings at Crofton Road, landscaping, cycle parking refuse storage, plant and ancillary works to enable the develop.				to the implementation of mitigation measures.
D21A/1142	Permission for development. The proposed development will consist of the demolition of the existing single storey structure (not a Protected Structure) on the site and the construction of a new part 2 storey and part 4 storey residential apartment building comprising 10 no. units (5 one bed and 5 two bed) and ancillary site works, including onsite parking for 5 cars, introduction of amenity open space, removal of existing entrance gates, bin storage, bicycle parking, PV panels on roof, ESB pillar and external landscaping works.	Permission granted on 4/8/2022. Valid until 3/8/2027. Potential overlap of construction stages.	Dust and noise during construction phase.	Approximately 323m west of the site, 0.115 Ha site located at Rear of 5 6 & 7, Eblana Avenue, (Protected Structures), Dun Laoghaire, Co. Dublin	Sufficient distances between the sites and the nearest Natura site. The Appropriate Assessment Screening report completed for the proposed development concluded that the Proposed Development, alone or in-combination with other plans or projects, will not result in significant adverse effects to the integrity and conservation status of European sites subject to the implementation of mitigation measures.

Application Reference	Details	Construction Stage Overlap	Ecological Effects	Location & Proximity	Rationale
D24A/0003	(i) Partial demolition of existing non original modern office extension to the rear of no. 95 George's street Upper (A Protected Structure) and the corner of Haigh Terrace. (ii) Minor works to the rear exterior wall of No. 95 Georges Street upper to provide for the reopening of 1 no. window, creation of opening for 1 no. door and provision of balcony to serve upper ground floor unit. (iii) Construction of a 3 storey mixed use development with 4th storey stepped back to the rear of No. 95, comprising 1 no. commercial unit (48sqm) and bicycle and bin storage (38sqm) at ground floor level and 5no. residential units (2no.studios, and 3 no. one-bedroom units) across first, second and third floors. Each apartment will be provided with private amenity space in the form of a balcony/terrace space which include provision of trellis privacy screens. A total of 11 internal bicycle parking spaces are proposed to serve the development. (iv) All associated site and infrastructural works, including foul and surface water drainage, landscaping, plant areas, lighting, foul/surface drainage and signage necessary to facilitate the development.	Permission granted on 17/4/2025. Valid until 16/4/2030. Potential overlap of construction stages.	Dust and noise during construction phase.	Approximately 293m south of the site, 95, George's Street Upper, Dun Laoghaire, Dublin, A96XY17	Sufficient distances between the sites and the nearest Natura site. The Appropriate Assessment Screening report completed for the proposed development concluded that the Proposed Development, alone or in-combination with other plans or projects, will not result in significant adverse effects to the integrity and conservation status of European sites subject to the implementation of mitigation measures.

The potential for cumulative effects arising from temporary sediment mobilisation and accidental pollution has been considered in the context of the wider marine environment. Any sediment mobilisation associated with borehole drilling and vibrocore sampling is expected to be localised and short-lived, with suspended material expected to settle rapidly. The works will not involve the discharge of drilling fluids, chemicals or other hazardous substances to the marine environment, and drill arisings will be contained and removed to appropriately licensed facilities. Consequently, the proposed works are not expected to make a significant additional contribution to cumulative deterioration in water quality within Dublin Bay.

Temporary disturbance effects have also been considered in combination with existing activity within Dún Laoghaire Harbour. The presence of vessels, drilling equipment, plant and personnel may result in a temporary increase in noise, vibration and human activity within the immediate vicinity of the investigation locations. However, the harbour is already subject to substantial recreational, commercial and maritime activity, and the proposed works will be temporary and spatially limited. Any disturbance to Special Conservation Interest species of the South Dublin Bay and River Tolka Estuary SPA is therefore expected to be short-term, with no permanent displacement, habitat fragmentation or lasting alteration to ecological connectivity anticipated.

The projects identified in Table 5.3 include both marine activities and terrestrial developments. The marine projects have been considered in relation to common pathways including vessel activity, underwater noise, sediment mobilisation and water quality, while the terrestrial developments are principally relevant to temporary construction-stage disturbance and accidental pollution.

With regard to South Dublin Bay SAC, the proposed works are located approx. 0.2 km from the SAC and will not result in direct habitat loss within the European Site. The principal potential pathways are therefore temporary and indirect, namely sediment mobilisation, sediment deposition and accidental deterioration in water quality. The identified surrounding developments do not introduce a significant additional pathway capable of combining with these effects to result in a significant or sustained effect on the QIs of the SAC.

A large number of additional planning applications in the vicinity of the proposed works relate primarily to small-scale extensions, alterations or retention of existing development. These are considered unlikely to contribute materially to cumulative effects due to their small scale and limited nature.

Having regard to the temporary and localised nature of the proposed site investigation works, the limited scale of potential impact pathways, the absence of permanent habitat loss or operational discharges, and the existing highly active nature of Dún Laoghaire Harbour, the proposed works are not expected to contribute significantly to cumulative effects on the qualifying interests of South Dublin Bay SAC (000210) or the Special Conservation Interests of the South Dublin Bay and River Tolka Estuary SPA (004024). Therefore, no adverse effects on the integrity of these European Sites are anticipated in combination with other plans or projects.

The nature, scale and location of the identified plans and projects, together with the conclusions of the associated AA Screening Reports (OCSC, 2026), have been considered in determining whether any credible

source–pathway–receptor linkage exists between the proposed SI works and other plans or projects. No significant cumulative pathway capable of resulting in an adverse effect on the integrity of the relevant European Sites has been identified.

It is therefore concluded that the proposed site investigation works will not adversely affect the integrity of South Dublin Bay SAC (000210) or the South Dublin Bay and River Tolka Estuary SPA (004024), either alone or in combination with other plans and projects.

5.13 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA

Potential effects arising from the proposed site investigation works have been identified using the source–pathway–receptor model. The assessment considers potential effects on the Special Conservation Interests (SCIs) and Wetland and Waterbirds [A999] of the South Dublin Bay and River Tolka Estuary SPA (004024), having regard to the nature, scale and location of the proposed works and the ecological sensitivities of the designated site. The SPA overlaps the proposed site investigation area and therefore a direct spatial relationship exists between the proposed works and the European site.

The proposed project comprises temporary and localised marine and coastal site investigation works, including borehole drilling, Cone Penetration Testing (CPT), vibrocore sampling and multibeam bathymetric surveying. The investigations will be undertaken at discrete locations within and just outside Dún Laoghaire Harbour, including intertidal and subtidal areas. The works will have a very small physical footprint and will not involve permanent land take, dredging, reclamation or the installation of permanent structures. No permanent loss or fragmentation of habitat supporting the SCIs of the SPA is therefore anticipated.

The principal potential pathway for effects on the SPA is temporary disturbance associated with the operation and presence of vessels, drilling equipment, plant and personnel. Noise and vibration generated during borehole drilling and vibrocore sampling, together with vessel movements and human activity, may temporarily disturb or displace waterbirds using the harbour and surrounding intertidal areas. The potential for disturbance has been considered in the context of the existing Dún Laoghaire Harbour environment, which is already subject to regular recreational, commercial and maritime activity. The proposed works are anticipated to be short term, with a duration of less than 12 weeks.

A further potential pathway is the temporary mobilisation of seabed sediments during borehole drilling and vibrocore sampling. These activities may result in small, localised increases in suspended sediment concentrations and turbidity in the immediate vicinity of the works. Any such sediment mobilisation is expected to be temporary and localised, with suspended material expected to settle rapidly following completion of the relevant activity. The proposed works will not involve bulk excavation or dredging and will not result in permanent alteration of supporting intertidal or subtidal habitats.

The potential for accidental pollution has also been considered. The use of vessels, drilling equipment and other plant presents a potential source of accidental releases of fuels, lubricants or hydraulic oils. However,

the proposed works will not involve the discharge of drilling fluids, chemicals or other hazardous substances to the marine environment, and drill arisings will be contained and removed to appropriately licensed facilities.

Potential indirect impact pathways include temporary disturbance from noise, vibration, vessels, plant and human presence; temporary increases in suspended sediment and turbidity; potential short-term changes in water quality; and accidental releases of fuels, lubricants or other pollutants. No operational impacts are associated with the current proposal, as the project comprises temporary site investigation works only and does not include the permanent development or operation of the future National Watersports Campus.

Potential indirect impact pathways include:

- Temporary increases in suspended sediment and turbidity associated with borehole drilling and vibrocore sampling.
- Temporary deterioration in marine water quality.
- Temporary disturbance to Special Conservation Interest bird species arising from noise, vibration, vessel movements, plant and human presence.
- Temporary displacement of waterbirds from areas immediately surrounding the investigation locations.
- Accidental releases of hydrocarbons, fuels or lubricants from vessels, plant and equipment.
- Accidental releases of other potentially polluting substances associated with the site investigation works.
- Temporary disturbance or alteration of supporting intertidal and subtidal habitats.

No operational impacts are anticipated, as the proposed works comprise temporary site investigation activities only and do not include the permanent development or operation of the future National Watersports Campus. The works are anticipated to be short term, with a duration of less than 12 weeks.

5.13.1 IDENTIFICATION OF EFFECTS ON QUALIFYING FEATURES

The Special Conservation Interests of the South Dublin Bay and River Tolka Estuary SPA (004024) have been assessed having regard to the nature, scale and location of the proposed site investigation works, the relevant conservation objectives published by the NPWS, the ecological sensitivities of the Special Conservation Interest species, and the potential source–pathway–receptor linkages arising from the works. The assessment considers potential impact pathways associated with the temporary site investigation activities, including temporary disturbance from noise, vibration, vessel movements, plant and human presence, temporary increases in suspended sediment and turbidity associated with borehole drilling and vibrocore sampling, potential short-term changes in marine water quality, and accidental releases of hydrocarbons, fuels, lubricants or other potentially polluting substances.

The Special Conservation Interests of the South Dublin Bay and River Tolka Estuary SPA (004024), including Light-bellied Brent Goose [A046], Oystercatcher [A130], Ringed Plover [A137], Grey Plover [A141], Knot [A143], Sanderling [A144], Dunlin [A149], Bar-tailed Godwit [A157], Redshank [A162], Black-headed Gull [A179], Roseate Tern [A192], Common Tern [A193], Arctic Tern [A194] and Wetland and Waterbirds [A999],

have been brought forward for Stage 2 Appropriate Assessment. Each relevant Special Conservation Interest has been considered having regard to its ecological requirements and the potential for the proposed works, either alone or in combination with other plans or projects, to adversely affect the conservation objectives or integrity of the South Dublin Bay and River Tolka Estuary SPA (004024).

5.13.1.1 WINTERING WATERBIRDS

The wintering waterbird Special Conservation Interests of the South Dublin Bay and River Tolka Estuary SPA comprise Light-bellied Brent Goose [A046], Oystercatcher [A130], Ringed Plover [A137], Grey Plover [A141], Knot [A143], Sanderling [A144], Dunlin [A149], Bar-tailed Godwit [A157], Redshank [A162] and Black-headed Gull [A179].

South Dublin Bay provides extensive intertidal feeding habitat for wintering waterbirds, with the distribution and use of individual areas influenced by factors including prey availability, tidal conditions, roosting opportunities and disturbance. Available information indicates that Dún Laoghaire Harbour and its associated coastal structures form part of the wider network of supporting habitat used by wintering waterbirds within Dublin Bay. In particular, previous surveys have recorded waders using harbour structures for high-tide roosting, although the distribution and intensity of use varies between species and tidal conditions.

The conservation objectives for the wintering waterbird SCIs principally relate to maintaining favourable conservation condition, including the maintenance of stable or increasing long-term population trends and no significant decrease in the range, timing or intensity of use of areas by the respective species other than changes arising from natural variation.

These objectives are relevant to the proposed SI works because temporary vessel movements, personnel activity, noise, visual disturbance and localised physical disturbance may result in temporary behavioural responses or displacement of birds from areas surrounding the investigation locations. The potential for such effects to influence the use of supporting habitat within the SPA is considered further in the impact assessment.

5.13.1.2 TERN SPECIES

The tern Special Conservation Interests of the South Dublin Bay and River Tolka Estuary SPA comprise Roseate Tern [A192], Common Tern [A193] and Arctic Tern [A194]. South Dublin Bay is of particular importance to tern species during the post-breeding tern populations, with substantial aggregations of terns recorded at roost sites within the wider Dublin Bay area. Site-specific information for Dún Laoghaire Harbour indicates that the harbour is not identified as a breeding colony for the tern SCIs, although Common Tern and other tern species may utilise the harbour and adjacent coastal waters for foraging and passage.

The conservation objectives for Roseate Tern, Common Tern and Arctic Tern require the maintenance of their favourable conservation condition, including attributes relating to passage populations and the distribution of roosting sites. The Common Tern conservation objective additionally includes attributes relating to breeding population abundance, productivity, prey biomass availability and barriers to connectivity.

These objectives are relevant to the proposed SI works because temporary vessel and personnel activity, noise, visual disturbance and localised changes in water quality or suspended sediment concentrations have the potential to interact with areas used by terns for foraging, movement or roosting. The potential for temporary disturbance or displacement of tern species are considered further in the impact assessment.

5.13.1.3 WETLAND AND WATERBIRDS

Wetland and Waterbirds [A999] is a Special Conservation Interest of the South Dublin Bay and River Tolka Estuary SPA. The conservation objective for this feature is to maintain the favourable conservation condition of the wetland habitat as a resource for regularly occurring migratory waterbirds that utilise the SPA.

The wetland habitat of the SPA includes intertidal and shallow marine areas that provide feeding, resting and roosting resources for waterbirds. Dún Laoghaire Harbour forms part of the wider coastal environment associated with South Dublin Bay and provides supporting habitat for waterbirds, including areas used for feeding, resting and high-tide roosting.

The proposed SI works are temporary and spatially discrete and will not result in permanent loss or fragmentation of wetland habitat. However, localised physical disturbance associated with borehole drilling and vibrocore sampling, together with temporary sediment mobilisation and disturbance from vessels and personnel, has the potential to temporarily affect supporting habitat in the vicinity of the works.

The potential for the proposed works to result in temporary degradation or alteration of wetland and supporting habitat, or to reduce its suitability as a resource for regularly occurring migratory waterbirds, is therefore considered further in the impact assessment.

5.13.2 ASSESSMENT AGAINST CONSERVATION OBJECTIVES

The potential effects of the proposed site investigation works on the Special Conservation Interests (SCIs) of the South Dublin Bay and River Tolka Estuary SPA have been assessed having regard to the conservation objectives of the SPA and the relevant attributes and targets associated with each conservation objective. The assessment considers the potential for the proposed works to affect the population, distribution and use of the SPA by the designated waterbird species, including the use of supporting habitat for feeding, foraging, roosting and passage.

The assessment has been undertaken in the context of the temporary and localised nature of the proposed site investigation works. The works will be undertaken at discrete locations within and adjacent to Dún Laoghaire Harbour and will involve marine and terrestrial boreholes, Cone Penetration Testing (CPT), vibrocore sampling and multibeam bathymetric surveying. Potential effects considered include temporary physical disturbance and habitat alteration, sediment mobilisation and sedimentation, accidental pollution and associated water quality effects, noise and visual disturbance, vessel and personnel activity, and underwater noise.

For the wintering waterbird SCIs, consideration has been given to the potential for temporary disturbance or displacement to affect the distribution, range, timing or intensity of use of supporting habitat. For the tern SCIs, consideration has also been given to the potential for disturbance or temporary changes in supporting marine habitat to affect foraging, passage and roosting activity. The assessment of Wetland and Waterbirds [A999] considers the potential for the works to affect the wetland habitat resource on which regularly occurring migratory waterbirds depend.

The potential effects and the measures incorporated into the proposed site investigation works to avoid or reduce these effects are presented in Table 5.5. The assessment considers the potential effects of the proposed works both alone and, where relevant, in combination with other plans and projects.

Table 5.4: Assessment of Potential Effects on the Special Conservation Interests of South Dublin Bay and River Tolka Estuary SPA.

Special Interest	Conservation Objective	Potential Impact Pathway	Assessment
Light-bellied Brent Goose [A046] Oystercatcher [A130] Ringed Plover [A137] Grey Plover [A141] Knot [A143] Sanderling [A144] Dunlin [A149] Bar-tailed Godwit [A157] Redshank [A162] Black-headed Gull [A179]	To maintain the favourable conservation condition of the species, including maintaining their long-term population trends and ensuring there is no significant decrease in the range, timing or intensity of use of areas by the species, other than that occurring from natural variation.	Habitat Loss and Physical Disturbance; Suspended Sediment and Sedimentation; Water Quality and Accidental Pollution; Noise and Visual Disturbance; Vessel and Personnel Activity; Underwater Noise	The proposed SI works are temporary, localised and spatially discrete. No permanent loss or fragmentation of supporting habitat is anticipated. Temporary disturbance associated with vessels, personnel, drilling, vibrocore sampling and other equipment may result in short-term behavioural responses or localised displacement. Sediment mobilisation and potential water quality effects will be temporary and localised. Given the limited footprint and duration of the works, no significant or sustained reduction in the distribution, range, timing or intensity of use of supporting habitat by wintering waterbirds is anticipated.
Roseate Tern [A192] Common Tern [A193] Arctic Tern [A194]	To maintain the favourable conservation condition of the species, including maintaining population trends and the distribution and use of the SPA by the species, including passage populations and roosting sites. For Common Tern, this also includes maintaining breeding abundance, productivity, prey biomass and connectivity.	Habitat Loss and Physical Disturbance; Suspended Sediment and Sedimentation; Water Quality and Accidental Pollution; Noise and Visual Disturbance; Vessel and Personnel Activity; Underwater Noise	The proposed works may temporarily affect the use of the immediate area through vessel movements, personnel activity, noise and visual disturbance. Temporary sediment mobilisation may also occur during intrusive marine investigations. However, the works will be undertaken at discrete locations and will not result in permanent loss of marine or coastal habitat. The temporary nature and limited footprint of the works are not expected to result in a significant reduction in the distribution, passage, roosting or foraging use of the SPA by tern species.
Wetland and Waterbirds [A999]	To maintain the favourable conservation condition of wetland habitat as a resource for the regularly occurring migratory waterbirds that utilise the SPA.	Habitat Loss and Physical Disturbance; Suspended Sediment and Sedimentation; Water Quality and Accidental Pollution; Noise and Visual Disturbance; Vessel and Personnel Activity; Underwater Noise	The proposed SI works will not result in permanent loss or fragmentation of wetland habitat. Temporary physical disturbance, vessel activity and localised sediment mobilisation may occur during the works. These effects will be spatially limited and temporary, with no permanent alteration to the supporting wetland resource anticipated. The works are therefore not expected to adversely affect the ability of the SPA to continue to function as a resource for regularly occurring migratory waterbirds.

Overall, the assessment has determined that the proposed site investigation works will not adversely affect the achievement of the conservation objectives of the South Dublin Bay and River Tolka Estuary SPA. The potential effects identified are temporary, localised and associated primarily with physical disturbance, sediment mobilisation, water quality, noise, visual disturbance and vessel and personnel activity. The proposed works will not result in permanent habitat loss, fragmentation or alteration of the supporting habitat resource. Following implementation of the environmental controls described above, no adverse effect on the integrity of the SPA is anticipated, either alone or in combination with other plans or projects.

5.13.3 MITIGATION MEASURES

These mitigation measures have been designed to ensure that the proposed site investigation works do not adversely affect the conservation objectives of the South Dublin Bay and River Tolka Estuary SPA (004024). In particular, the measures seek to minimise temporary disturbance to Special Conservation Interest species, prevent unnecessary disturbance of supporting intertidal and subtidal habitats, and minimise the potential for sediment mobilisation, deterioration in water quality and accidental pollution during the works.

The proposed site investigation works will be undertaken at discrete locations and the working areas will be restricted to the smallest practicable footprint. The duration of individual investigation activities will be kept to the minimum required to complete the works, with the overall duration of the site investigation programme anticipated to be less than 12 weeks.

Vessel movements and human activity will be restricted to those required to undertake the site investigation works, with unnecessary movements avoided. Drilling, vibrocore sampling and other activities generating noise or vibration will be undertaken only for the duration necessary to complete the required investigations. These measures will minimise the potential for temporary disturbance or displacement of waterbirds using the area.

Appropriate sediment and pollution control measures will be implemented throughout the site investigation works to minimise the potential for sediment, hydrocarbons, fuels, lubricants or other contaminants to enter the marine environment. Seabed disturbance associated with borehole drilling and vibrocore sampling will be restricted to the smallest practicable footprint. The proposed works will not involve bulk excavation or dredging.

The use and operation of vessels, plant and equipment will be appropriately managed to minimise the risk of accidental pollution. No drilling fluids, chemicals or other hazardous substances will be intentionally discharged to the marine environment. Drill arisings will be contained and removed to appropriately licensed facilities.

5.13.4 RESIDUAL IMPACT

Following implementation of these measures, potential effects on the Special Conservation Interests of the South Dublin Bay and River Tolka Estuary SPA (004024) will be temporary, localised and limited in magnitude. Temporary disturbance to waterbirds may occur in the immediate vicinity of the site investigation activities; however, the short duration and discrete nature of the works, together with the existing active harbour

environment and availability of suitable alternative areas within the wider Dublin Bay area, mean that significant or sustained displacement is not anticipated.

Any temporary sediment mobilisation associated with borehole drilling and vibrocore sampling will be localised and short-lived and will not result in permanent loss, degradation or fragmentation of supporting habitat. The proposed works will not result in a significant or sustained deterioration in marine water quality or a lasting reduction in the availability of prey resources supporting the SCI species.

Accordingly, the proposed site investigation works will not adversely affect the conservation objectives or integrity of the South Dublin Bay and River Tolka Estuary SPA (004024), either alone or in combination with other plans or projects. The relevant attributes and targets associated with the Special Conservation Interests and Wetland and Waterbirds [A999] will be maintained, and no adverse effect on the integrity of the SPA is anticipated.

Table 5.5: Summary Assessment of Potential Effects on the Special Conservation Interest and Integrity of the South Dublin Bay and River Tolka Estuary SPA

Special Conservation Interest	Relevant Site-Specific Conservation Objective (SSCO)	Relevant Attributes and Targets	Potential Effects on Relevant SSCO Attributes and Targets	Mitigation	Residual Effect on Integrity
Light-bellied Brent Goose [A046] Oystercatcher [A130] Ringed Plover [A137] Grey Plover [A141] Knot [A143] Sanderling [A144] Dunlin [A149] Bar-tailed Godwit [A157] Redshank [A162] Black-headed Gull [A179]	To maintain the favourable conservation condition of the wintering waterbird SCIs for which the SPA is designated, including maintaining their populations and ensuring that there is no significant decrease in the range, timing or intensity of use of areas by the species, other than that occurring from natural variation.	Population; distribution; range, timing and intensity of use; access to suitable habitat; supporting habitat and prey resources.	Temporary disturbance and displacement associated with vessels, drilling, plant and personnel may result in short-term behavioural responses or temporary avoidance of investigation locations. Localised and short-lived sediment mobilisation associated with boreholes and vibrocore sampling may temporarily affect supporting intertidal/subtidal habitat and prey resources. Potential accidental pollution could result in localised water-quality effects.	The smallest practicable working footprint will be used and the duration of works minimised. Vessel, plant and personnel movements will be appropriately managed. SI activities will be undertaken using controlled methods, with measures in place to prevent accidental releases of fuels, oils and other pollutants. Sediment and drilling arisings will be appropriately contained and managed.	No adverse effect on the conservation objectives or integrity of the SPA is anticipated. Effects will be temporary, localised and reversible, with no permanent loss or fragmentation of supporting habitat and no significant or sustained reduction in the use of the SPA by wintering waterbirds.
Roseate Tern [A192] Common Tern [A193] Arctic Tern [A194]	To maintain the favourable conservation condition of the tern SCIs, including maintaining their populations and distribution within the SPA, passage populations and roosting sites. For Common Tern, relevant objectives also include maintaining breeding abundance, productivity, prey biomass and connectivity.	Population; distribution; passage populations; roosting sites; access to suitable habitat; supporting habitat and prey resources; relevant Common Tern breeding attributes.	Temporary disturbance associated with vessel movements, drilling noise/vibration, plant and personnel may temporarily influence the use of the immediate area for foraging, passage or roosting. Localised sediment mobilisation and potential accidental pollution may temporarily affect water quality and supporting marine/intertidal habitat. No permanent habitat loss is proposed.	Working areas and duration will be minimised. Vessel and plant movements will be managed to minimise unnecessary disturbance. Drilling and sampling will be undertaken only for the necessary duration. Appropriate sediment and pollution controls will be implemented, including prevention of accidental releases of fuels, oils and other pollutants.	No adverse effect on the conservation objectives or integrity of the SPA is anticipated. The temporary and spatially limited nature of the works will not result in a significant reduction in the distribution, passage, roosting or foraging use of the SPA by tern species.

Wetland and Waterbirds [A999]	To maintain the favourable conservation condition of wetland habitat as a resource for the regularly occurring migratory waterbirds that utilise the SPA.	Habitat area; habitat quality and function; supporting wetland and waterbird resources.	Temporary physical disturbance, vessel and personnel activity and localised sediment mobilisation may result in short-term effects on the immediate wetland and supporting marine/intertidal environment. Accidental pollution could also result in a localised and temporary reduction in habitat quality. No permanent loss or fragmentation of wetland habitat is anticipated.	The SI footprint will be small and localised, with works undertaken only at defined investigation locations. Drilling and sampling methods will be controlled and temporary. Pollution prevention measures will be implemented, and no intentional discharge of fuels, oils or other pollutants will occur. No dredging, reclamation or permanent habitat alteration is proposed.	No adverse effect on the conservation objective or integrity of the SPA is anticipated. The proposed works will not result in permanent loss, fragmentation or lasting deterioration of wetland habitat as a resource for regularly occurring migratory waterbirds.
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5.14 SOUTH DUBLIN BAY SAC

Potential effects arising from the proposed site investigation works have been identified using the source–pathway–receptor model. The assessment considers potential indirect effects on the Qualifying Interests of South Dublin Bay SAC (000210), in view of the site-specific conservation objectives for the SAC.

The proposed site investigation works are located approximately 0.2 km from South Dublin Bay SAC. There will be no direct effects because the investigation footprint will not result in permanent loss of qualifying interest habitat within the SAC. The proposed works are temporary and localised and will not involve dredging, reclamation, permanent structures, or permanent alteration of coastal processes.

A potential indirect marine pathway exists between the proposed site investigation works and South Dublin Bay SAC through the waters of Dublin Bay. Marine borehole drilling, Cone Penetration Testing (CPT) and vibrocore sampling have the potential to result in temporary and localised disturbance of seabed sediments. This could result in short-term mobilisation and dispersion of suspended sediment and subsequent deposition in the surrounding marine environment. The potential for these effects to interact with the qualifying interest habitats of the SAC is therefore considered further within this assessment.

A further potential pathway exists through accidental deterioration in water quality. The operation of vessels, drilling equipment and other plant associated with the site investigation works presents a potential risk of accidental releases of fuels, oils, lubricants or other pollutants to the marine environment. Given the marine connectivity between the proposed works and South Dublin Bay SAC, any such release could potentially result in a temporary deterioration in water quality.

The proposed site investigation works will be temporary, with the works expected to be completed within a period of less than 12 weeks. No operational phase is associated with the proposed works. There will be no permanent surface-water drainage infrastructure, wastewater discharge, permanent hardstanding, or other operational activity arising from the site investigation works. The works will therefore not result in a long-term source of sediment, pollutants or other contaminants to the marine environment.

Potential indirect impact pathways include:

- Temporary increases in suspended sediment and turbidity associated with marine borehole drilling and vibrocore sampling.
- Temporary sediment deposition within the surrounding marine environment.
- Temporary deterioration in marine water quality.
- Accidental releases of hydrocarbons, fuels or lubricants from vessels, drilling equipment or other plant.
- Accidental releases of other potentially polluting substances associated with the site investigation works.
- Potential temporary effects on the ecological condition of qualifying interest habitats.

No operational impacts are anticipated, as the proposed works comprise temporary site investigation activities only and do not include the permanent development or operation of the future National Watersports Campus. The works are anticipated to be short term, with a duration of less than 12 weeks.

5.14.1 IDENTIFICATION OF EFFECTS ON QUALIFYING FEATURES

The qualifying interests of South Dublin Bay SAC (000210) were assessed having regard to the nature, scale and location of the proposed site investigation works, the Site-Specific Conservation Objectives (SSCOs) published by the NPWS, the ecological sensitivities of the qualifying interest habitats, and the potential source–pathway–receptor linkages arising from the works.

The qualifying interests of South Dublin Bay SAC comprise [1140] Mudflats and sandflats not covered by seawater at low tide, [1210] Annual vegetation of drift lines, [1310] Salicornia and other annuals colonising mud and sand, and [2110] Embryonic shifting dunes.

The [1140] Mudflats and sandflats not covered by seawater at low tide qualifying interest is considered in relation to the potential for temporary sediment mobilisation and water-quality effects associated with borehole drilling and vibrocore sampling. The potential effects are expected to be highly localised and short-lived. The proposed works will not involve bulk excavation or dredging and therefore will not result in permanent loss or alteration of mudflat or sandflat habitat.

The [1210] Annual vegetation of drift lines, [1310] Salicornia and other annuals colonising mud and sand, and [2110] Embryonic shifting dunes have the potential to be indirectly connected to the proposed works through marine sediment and water-quality pathways. However, no direct interaction with these habitats will occur. Any sediment mobilisation arising from the proposed SI works will be temporary and localised, with no mechanism identified for significant or sustained alteration of the distribution, extent or ecological condition of these qualifying interest habitats.

The proposed works will not alter coastal processes, tidal flows or sediment transport regimes on a permanent basis. There will be no permanent structures or reclamation associated with the current site investigation works. Accordingly, there is no mechanism for long-term changes to the physical processes supporting the qualifying interest habitats.

5.14.1.1 MUDFLATS AND SANDFLATS NOT COVERED BY SEAWATER AT LOW TIDE [1140]

The [1140] Mudflats and sandflats not covered by seawater at low tide qualifying interest comprises intertidal sedimentary habitat that may support a range of benthic communities and associated ecological resources. The conservation objectives for this habitat relate to maintaining its area, distribution and community characteristics, including the extent and quality of *Zostera*-dominated communities and the natural condition of the Fine sands with *Angulus tenuis* community complex.

The proposed site investigation works have the potential to result in temporary mobilisation of seabed sediments during marine borehole drilling and vibrocore sampling. This may result in short-term increases in

suspended sediment concentrations and localised sediment deposition. Such effects would be restricted to the vicinity of individual investigation locations and would cease following completion of the relevant activity.

No bulk excavation or dredging is proposed, and the works will not result in permanent loss of mudflat or sandflat habitat. The proposed works will also not introduce permanent structures or other features capable of altering the distribution, extent or physical processes supporting the habitat.

5.14.1.2 ANNUAL VEGETATION OF DRIFT LINES [1210]

The [1210] Annual vegetation of drift lines qualifying interest is a coastal habitat associated with the accumulation of organic material and sediment along the upper shore. The conservation objectives relate to maintaining habitat area and distribution, natural sediment and organic matter processes, and limiting disturbance.

No direct interaction between the proposed site investigation works and [1210] habitat is anticipated. The potential for indirect effects arises principally through the temporary mobilisation and deposition of marine sediments or deterioration in water quality associated with the intrusive marine investigations.

The proposed works are temporary and spatially discrete and will not involve reclamation, permanent structures or activities capable of causing permanent alteration of sediment supply or coastal processes. Consequently, no significant or sustained alteration to the distribution or ecological condition of [1210] habitat is anticipated.

5.14.1.3 SALICORNIA AND OTHER ANNUALS COLONISING MUD AND SAND [1310]

The [1310] Salicornia and other annuals colonising mud and sand qualifying interest is associated with intertidal mud and sand habitats and is dependent on appropriate hydrological and sedimentary processes. The conservation objectives include maintaining habitat area and distribution, natural hydrology and processes of erosion and succession, and avoiding negative activities such as infilling, reclamation and pollution.

No direct habitat loss or physical alteration of [1310] habitat is proposed. The potential for indirect effects is associated with temporary sediment mobilisation, deposition or deterioration in water quality arising from the site investigation works. The proposed works will be undertaken at discrete locations and will not involve bulk excavation, dredging, reclamation or permanent alteration of hydrological or sedimentary processes. The temporary and localised nature of the works means that no significant or sustained effect on the distribution, extent or ecological condition of [1310] habitat is anticipated.

5.14.1.4 EMBRYONIC SHIFTING DUNES [2110]

The [2110] Embryonic shifting dunes qualifying interest is dependent on natural coastal sediment processes, including the circulation and accumulation of sediment and organic matter. The conservation objectives relate to maintaining habitat area and distribution, natural sediment supply and physical processes, and limiting disturbance.

No direct interaction with [2110] habitat is anticipated. The potential for indirect effects exists through temporary sediment mobilisation or deterioration in marine water quality associated with the proposed site investigation works. However, the works will not involve reclamation, dredging or permanent structures and will not result in permanent alteration of coastal processes or sediment transport regimes. The temporary and localised nature of the proposed works means that no significant or sustained effect on the distribution, extent or ecological condition of [2110] habitat is anticipated.

5.14.2 ASSESSMENT AGAINST CONSERVATION OBJECTIVES

The potential effects of the proposed site investigation works on the Qualifying Interests of South Dublin Bay SAC have been assessed having regard to the Site-Specific Conservation Objectives for the SAC and the relevant attributes and targets associated with each qualifying habitat.

The assessment considers the potential for temporary sediment mobilisation, sediment deposition and water-quality effects to affect the extent, distribution, structure and ecological condition of qualifying interest habitats. Particular consideration has been given to the potential for marine sediment and water-quality pathways to provide connectivity between the proposed works and the qualifying habitats of South Dublin Bay SAC.

The assessment has been undertaken in the context of the temporary and localised nature of the proposed works. The investigations will be undertaken at discrete locations and will not involve dredging, reclamation, permanent structures or permanent alteration of coastal processes. The potential effects and associated environmental controls are presented in Table 5.6, which considers the relevant attributes and targets for each qualifying interest and the resulting residual effect on the integrity of the SAC.

Table 5.6: Assessment of Potential Effects on the Conservation Objectives of South Dublin Bay SAC.

Qualifying Interest	Conservation Objective	Potential Impact Pathway	Assessment
[1140] Mudflats and sandflats not covered by seawater at low tide	To maintain the favourable conservation condition of [1140] Mudflats and sandflats not covered by seawater at low tide. Relevant attributes include habitat area, community extent, community structure and community distribution.	Habitat Loss and Physical Disturbance; Suspended Sediment and Sedimentation; Water Quality and Accidental Pollution.	Marine borehole drilling, CPT and vibrocore sampling may result in temporary and localised mobilisation of seabed sediments, increased suspended sediment concentrations and localised deposition. No direct interaction with the SAC is anticipated as the works are located approximately 0.2 km from the SAC. The works will not involve dredging, reclamation or permanent habitat removal. No significant or sustained effect on habitat area, distribution or the structure of the <i>Zostera</i> -dominated and <i>Angulus tenuis</i> communities is anticipated. Appropriate environmental controls will minimise sediment mobilisation and accidental pollution. No adverse effect on site integrity.
[1210] Annual vegetation of drift lines	To maintain the favourable conservation condition of [1210] Annual vegetation of drift lines. Relevant attributes include habitat area, habitat distribution, physical structure and functionality, and disturbance.	Habitat Loss and Physical Disturbance; Suspended Sediment and Sedimentation; Water Quality and Accidental Pollution.	No direct interaction with [1210] habitat is anticipated. Potential indirect effects could arise through temporary sediment mobilisation and water quality effects associated with the marine SI works. The temporary and spatially discrete nature of the works means that no significant or sustained alteration to sediment supply, coastal processes or habitat distribution is anticipated. No reclamation, dredging or permanent structures are proposed. No adverse effect on site integrity.
[1310] Salicornia and other annuals colonising mud and sand	To maintain the favourable conservation condition of [1310] Salicornia and other annuals colonising mud and sand. Relevant attributes include habitat area, habitat distribution, physical structure, hydrology, erosion/succession and signs of negative activities.	Habitat Loss and Physical Disturbance; Suspended Sediment and Sedimentation; Water Quality and Accidental Pollution.	No direct habitat loss or physical disturbance to [1310] is anticipated. Temporary and localised sediment mobilisation and deposition could provide an indirect pathway, together with a potential water quality pathway in the event of accidental pollution. The works will not involve infilling, reclamation, dredging or permanent alteration of hydrological or sedimentary processes. No adverse effect on site integrity.
[2110] Embryonic shifting dunes	To maintain the favourable conservation condition of [2110] Embryonic shifting dunes. Relevant attributes include habitat area, habitat distribution, physical structure and functionality, sediment supply and disturbance.	Habitat Loss and Physical Disturbance; Suspended Sediment and Sedimentation; Water Quality and Accidental Pollution.	No direct interaction with [2110] habitat is anticipated. Potential indirect effects could arise through temporary sediment mobilisation or water quality deterioration. The works are temporary and spatially discrete and will not involve reclamation, dredging, permanent structures or permanent alteration of coastal or sedimentary processes. No significant or sustained effect on sediment supply, habitat distribution or physical functioning is anticipated. No adverse effect on site integrity.

5.14.3 MITIGATION MEASURES

These mitigation measures have been designed to ensure that the proposed site investigation works do not adversely affect the attributes and targets of the Site-Specific Conservation Objectives for the qualifying interests of South Dublin Bay SAC.

The site investigation works will be undertaken within the smallest practicable working footprint, and the duration of individual investigation activities will be minimised. Borehole drilling, CPT and vibrocore sampling will be undertaken using controlled methods appropriate to the marine environment to minimise unnecessary disturbance of seabed sediments.

No bulk excavation or dredging will be undertaken. Any sediment mobilisation associated with the investigation activities will therefore be limited to the immediate vicinity of individual investigation locations and will be temporary in nature.

No drilling fluids, chemicals or hazardous substances will be discharged to the marine environment. Drill arisings will be appropriately contained and removed from the marine environment for disposal at a licensed facility.

Vessels, drilling equipment and other plant will be appropriately maintained and operated to minimise the risk of accidental releases of fuels, oils, lubricants or other pollutants. Appropriate pollution prevention measures will be implemented during the works, and any accidental pollution incident will be addressed promptly to minimise the potential duration and spatial extent of any effect.

The proposed works will remain temporary and localised and will not involve permanent structures, reclamation, dredging or other activities that could result in permanent habitat loss or alteration of coastal processes.

5.14.4 RESIDUAL IMPACT

Following implementation of the proposed mitigation measures, the potential effects associated with sediment mobilisation and water-quality pathways will be temporary, localised and controlled. No permanent loss or degradation of qualifying interest habitat will occur.

Any increase in suspended sediment associated with borehole drilling and vibrocore sampling will be confined to the immediate vicinity of the investigation locations and will be short-lived. No significant or sustained sediment deposition or smothering of qualifying interest habitats is anticipated. The potential for accidental releases of hydrocarbons, fuels, lubricants or other pollutants will be minimised through appropriate management and maintenance of vessels, plant and equipment. No operational source of sediment or water-quality effects will remain following completion of the site investigation works.

The relevant attributes and targets of the Site-Specific Conservation Objectives for the qualifying interests of South Dublin Bay SAC will therefore be maintained. It is concluded that the proposed site investigation works, either alone or in combination with other plans or projects, will not adversely affect the integrity of South Dublin Bay SAC (000210), in view of the site's conservation objectives.

Table 5.7: Summary Assessment of Potential Effects on the Site-Specific Conservation Objectives and Integrity of the South Dublin Bay SAC (000210)

Qualifying Interest	Relevant Site-Specific Conservation Objective (SSCO)	Relevant Attributes and Targets	Potential Effects on Relevant SSCO Attributes and Targets	Mitigation	Residual Effect on Integrity
[1140] Mudflats and sandflats not covered by seawater at low tide	To maintain the favourable conservation condition of the qualifying habitat within South Dublin Bay SAC.	Habitat area: Permanent habitat area is stable or increasing, subject to natural processes. Community extent: Maintain extent of <i>Zostera</i> -dominated community, subject to natural processes. Community structure – <i>Zostera</i> density: Conserve high quality of <i>Zostera</i> -dominated community. Community distribution: Conserve the Fine sands with <i>Angulus tenuis</i> community complex in natural condition.	Potential temporary mobilisation of seabed sediments during marine borehole drilling and vibrocore sampling could result in short-term increases in suspended sediment and localised sediment deposition. A potential deterioration in water quality could also affect the ecological condition of the habitat and associated communities. No permanent habitat loss or alteration is proposed.	Site investigation activities will be temporary and highly localised. No bulk excavation or dredging will occur. Drilling and sampling will be undertaken in discrete locations, with sediment disturbance minimised. No drilling fluids, chemicals or hazardous substances will be discharged to the marine environment. Drill arisings will be contained and removed to appropriately licensed facilities. Vessels, plant and equipment will be appropriately maintained to minimise the risk of accidental pollution.	No adverse effect on the integrity of the SAC.
[1210] Annual vegetation of drift lines	To maintain the favourable conservation condition of the qualifying habitat within South Dublin Bay SAC.	Habitat area: Area stable or increasing, subject to natural processes including erosion and succession. Habitat distribution: No decline, subject to natural processes. Physical structure – functionality and sediment supply: Natural circulation of sediment and organic matter, with no relevant physical obstructions or sediment extraction. Disturbance: No more than 20% of habitat subject to disturbance.	No direct interaction with the habitat is anticipated. A potential indirect pathway exists through temporary sediment mobilisation or deterioration in marine water quality; however, effects would be highly localised and short-term.	Temporary and localised nature of the SI works; no permanent land take, dredging, reclamation or alteration of coastal processes. Pollution prevention measures and controlled handling/removal of drill arisings will minimise the potential for indirect effects.	No adverse effect on the integrity of the SAC.
[1310] Salicornia and other annuals colonising mud and sand	To maintain the favourable conservation condition of the qualifying habitat within South Dublin Bay SAC.	Habitat area: Area stable or increasing, subject to natural processes including erosion and succession. Habitat distribution: No decline, subject to natural processes. Physical structure – hydrology: Natural hydrology and processes of erosion and succession intact, with no disturbance to creek/pan structure	No direct habitat loss or physical alteration is proposed. Potential indirect effects could arise through temporary sediment mobilisation, deposition or deterioration in water quality associated with the SI works.	SI works will be undertaken at discrete locations and will not involve bulk excavation or dredging. Sediment disturbance will be minimised, with no discharge of drilling fluids or hazardous substances. Appropriate pollution prevention and containment measures will be implemented.	No adverse effect on the integrity of the SAC.

		compared to baseline. Signs of negative activities: None recorded, including activities such as infilling, reclamation or pollution.			
[2110] Embryonic shifting dunes	To maintain the favourable conservation condition of the qualifying habitat within South Dublin Bay SAC.	Habitat area: Area stable or increasing, subject to natural processes including erosion and succession. Habitat distribution: No decline, subject to natural processes. Physical structure – functionality and sediment supply: Natural circulation of sediment and organic matter, with no relevant physical obstructions or sediment extraction. Disturbance: No more than 20% of habitat subject to disturbance.	No direct interaction with the habitat is anticipated. A potential indirect pathway exists through temporary sediment mobilisation and water-quality effects; however, the proposed SI works will not result in permanent alteration of coastal processes or dune habitat.	Temporary and localised SI works only. No reclamation, dredging, permanent structures or permanent alteration of coastal processes. Accidental pollution risk will be minimised through appropriate vessel and plant management and pollution prevention measures.	No adverse effect on the integrity of the SAC.

6 STATEMENT OF IMPACTS AND CONCLUSION OF NIS

The potential for the proposed site investigation works associated with the National Watersports Campus at Dún Laoghaire Harbour to adversely affect the Qualifying Interests and Special Conservation Interests of European Sites has been assessed in this Natura Impact Statement. The assessment has considered the potential effects of the proposed site investigation works on the South Dublin Bay and River Tolka Estuary SPA (004024) and South Dublin Bay SAC (000210), having regard to their Site-Specific Conservation Objectives and the relevant attributes and targets. The assessment has considered the potential for temporary disturbance and displacement of Special Conservation Interest bird species, temporary disturbance of supporting habitat, sediment mobilisation and deposition, deterioration in water quality, accidental pollution, and noise, vibration and visual disturbance associated with the proposed works.

The proposed works are temporary and spatially discrete and comprise marine and terrestrial boreholes, Cone Penetration Testing (CPT), vibrocore sampling and multibeam bathymetric surveying. No dredging, reclamation or construction of permanent structures is proposed as part of the works. Therefore, the works will not result in permanent loss of or alteration to qualifying interest habitats or supporting habitats associated with the European Sites.

Potential temporary effects on the Special Conservation Interests of the South Dublin Bay and River Tolka Estuary SPA have been assessed, particularly through disturbance and temporary displacement arising from movement of vessels, plant, personnel, noise and visual activity. The proposed works will be undertaken at discrete locations within the existing active harbour environment with the working footprint and duration of individual activities minimised where practicable. The mitigation measures set out in this NIS will further minimise unnecessary disturbance and provide for appropriate management of activities where sensitive bird species are present.

Potential effects on the qualifying interest habitats of the South Dublin Bay SAC have also been assessed in relation to temporary mobilisation and deposition of seabed sediments and potential deterioration in marine water quality. The proposed works will not involve bulk excavation or dredging, and appropriate sediment and pollution control measures will be implemented throughout the works. Any sediment mobilisation associated with intrusive investigations is expected to be temporary and localised, with no significant or sustained deterioration in the ecological condition, extent or distribution of the qualifying interest habitats anticipated.

Following implementation of the mitigation and environmental control measures identified in this NIS, the potential residual effects associated with the proposed site investigation works are expected to be temporary, localised and reversible. The proposed works will not result in permanent habitat loss, fragmentation, or lasting alteration of the ecological functioning or connectivity of the European Sites.

Having regard to the findings of this Natura Impact Statement, the conservation objectives of the South Dublin Bay and River Tolka Estuary SPA (004024) and South Dublin Bay SAC (000210), and in view of best scientific knowledge and objective scientific information, it is concluded that the proposed site investigation works, either

alone or in combination with other plans or projects, will not adversely affect the integrity of the South Dublin Bay and River Tolka Estuary SPA or South Dublin Bay SAC, having regard to their conservation objectives.

7 REFERENCES

BAM Contractors. (2009). EP-13 Bulk Fuel & Oil Storage. Rev. 01.

BAM Contractors. (2013). EP-15 Containing & Cleaning Up Spills. Rev. 03

BirdWatch Ireland (2017) Dublin Bay Birds Project 2013–2016: Synthesis Report. Kilcoole, Co. Wicklow: BirdWatch Ireland

Caffrey, J. M., Hayden, B., & Walsh, T. (2007). Dace (*Leuciscus leuciscus* L.): an invasive fish species in Ireland. Central Fisheries Board.

CIRIA (2006). Control of Water Pollution from Linear Construction Projects. Technical Guidance C648. CIRIA, London.

CIRIA (2015). Environmental Good Practice on Site Guide (4th Edition). Available at: CIRIA

CIRIA (2015). The SuDS Manual (C753). CIRIA, London.

Department of the Environment, Heritage and Local Government (DEHLG) (2009). Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities. Department of the Environment, Heritage and Local Government, Dublin.

Dún Laoghaire Harbour Company (2015) Dún Laoghaire Cruise Berth Facility Environmental Impact Statement Flora and Fauna. Prepared in support of the Dún Laoghaire Cruise Berth Facility application.

Eastern Regional Fisheries Board (ERFB). Requirements for the Protection of Fisheries Habitat During Construction and Development Works at River Sites. Eastern Regional Fisheries Board.

European Commission (2019). Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC. European Commission, Brussels.

European Commission (2021). Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – Methodological Guidance on Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC. European Commission, Brussels..

Feeley, H. B., Baars, J. R., Kelly-Quinn, M., & Nelson, B. (2020). Ireland Red List No. 13: Stoneflies (*Plecoptera*). National Parks and Wildlife Service.

Fossitt, J. A. (2000). A Guide to Habitats in Ireland. The Heritage Council, Kilkenny.

Holt, E. W. L. (1911). Dace in Ireland. *The Irish Naturalist*, 20(6), 116–116.

- NPWS (2014).** South Dublin Bay and River Tolka Estuary SPA (004024) Conservation Objectives Supporting Document. National Parks and Wildlife Service.
- NPWS (2015).** Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024. Version 1. National Parks and Wildlife Service.
- NPWS (n.d.).** Bird Monitoring in Ireland. National Parks and Wildlife Service.
- Office of the Planning Regulator (OPR) (2021).** Appropriate Assessment Screening for Development Management Practice Note PN01. Office of the Planning Regulator, Dublin.
- Peay, S. (2003).** Monitoring the White-clawed Crayfish *Austropotamobius pallipes*. Conserving Natura 2000 Rivers Monitoring Series No. 1, English Nature, Peterborough.
- Purnell, J., & Curtis, T. (2015).** Webb's An Irish Flora (8th ed.). Cork University Press.
- Reynolds, J. D., Lynn, D., O'Keeffe, C., Lucey, J., Clabby, K., McGarrigle, M., & King, J. (2010).** Conservation assessment and current status of protected, white-clawed crayfish, *Austropotamobius pallipes* (Lereboullet), in Ireland. *Freshwater Crayfish*, 17, 123–127.
- Scottish Environment Protection Agency (SEPA) (2026).** Engineering in the Water Environment Good Practice Guide Series. SEPA.
- Smith, G. F., O'Donoghue, P., O'Hora, K., & Delaney, E. (2011).** Best Practice Guidance for Habitat Survey and Mapping. The Heritage Council.
- Swords, F., & Griffin, B. (2022).** The National Crayfish Plague Surveillance Programme, Ireland – 2020–2021. Report compiled by the Marine Institute for the National Parks and Wildlife Service. August 2022.
- Tierney, N., Whelan, R., Boland, H., Valentín, A. and Crowe, O. (2014)** Dublin Bay Birds Project Technical Report 2013/14. BirdWatch Ireland report to Dublin Port Company, Kilcoole, Co. Wicklow
- Tierney, N., Whelan, R., Boland, H. and Crowe, O. (2015)** Dublin Bay Birds Project Technical Report 2014/15. BirdWatch Ireland report to Dublin Port Company, Kilcoole, Co. Wicklow.
- Tierney, N., Whelan, R., Boland, H. and Crowe, O. (2016)** Dublin Bay Birds Project Technical Report 2015/16. BirdWatch Ireland report to Dublin Port Company, Kilcoole, Co. Wicklow.
- Tierney, N., Whelan, R. and Valentín, A. (2016)** 'Post-breeding aggregations of roosting terns in south Dublin Bay in late summer', *Irish Birds*, 10, pp. 339–344.
- Toner, P., Bowman, J., Clabby, K., Lucey, J., McGarrigle, M., Concannon, C., & MacGarthaigh, M. (2005).** Water Quality in Ireland. Environmental Protection Agency, Wexford, Ireland.

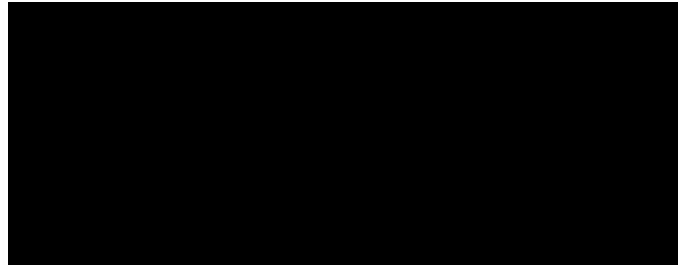
UK Pollution Prevention Guidelines (PPGs) (2026) and Guidance for Pollution Prevention (GPPs). Pollution Prevention Guidance relating to works in or near watercourses, sediment control, fuel storage, and concrete management.

Venterra (2025). Dún Laoghaire Maritime Usage Licence Application for Site Investigation Works: Supporting Information for Screening for Appropriate Assessment. Document Ref. 24157-REP-003-02.

Water Pollution Acts 1977–1990 (2026) and associated guidance documents relating to prevention of sediment and hydrocarbon release during construction activities.

8 VERIFICATION

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APPENDIX 1

SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA SITE SYNOPSIS

SITE SYNOPSIS

SITE NAME: SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA

SITE CODE: 004024

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included.

In the south bay, the intertidal flats extend for almost 3 km at their widest. The sediments are predominantly well-aerated sands. Several permanent channels exist, the largest being Cockle Lake. A small sandy beach occurs at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. The landward boundary is now almost entirely artificially embanked. There is a bed of Dwarf Eelgrass (*Zostera noltii*) below Merrion Gates which is the largest stand on the east coast. Green algae (*Ulva* spp.) are distributed throughout the area at a low density. The macro-invertebrate fauna is well-developed, and is characterised by annelids such as Lugworm (*Arenicola marina*), *Nephtys* spp. and Sand Mason (*Lanice conchilega*), and bivalves, especially Cockle (*Cerastoderma edule*) and Baltic Tellin (*Macoma balthica*). The small gastropod Spire Shell (*Hydrobia ulvae*) occurs on the muddy sands off Merrion Gates, along with the crustacean *Corophium volutator*. Sediments in the Tolka Estuary vary from soft thixotropic muds with a high organic content in the inner estuary to exposed, well-aerated sands off the Bull Wall. The site includes Booterstown Marsh, an enclosed area of saltmarsh and muds that is cut off from the sea by the Dublin/Wexford railway line, being linked only by a channel to the east, the Nutley stream. Sea water incursions into the marsh occur along this stream at high tide. An area of grassland at Poolbeg, north of Irishtown Nature Park, is also included in the site.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Black-headed Gull, Roseate Tern, Common Tern and Arctic Tern. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

The site is an important site for wintering waterfowl, being an integral part of the internationally important Dublin Bay complex – all counts for wintering waterbirds are five year mean peaks for the period 1995/96 to 1999/2000. Although birds regularly commute between the south bay and the north bay, recent studies have shown that certain populations which occur in the south bay spend most of their time there. An internationally important population of Light-bellied Brent Goose (368) occurs regularly and newly arrived birds in the autumn feed on the Eelgrass bed at

Merrion. At the time of designation the site supported nationally important numbers of a further nine species: Oystercatcher (1,145), Ringed Plover (161), Grey Plover (45), Knot (548), Sanderling (321), Dunlin (1,923), Bar-tailed Godwit (766), Redshank (260) and Black-headed Gull (3,040). Other species occurring in smaller numbers include Great Crested Grebe (21), Curlew (127) and Turnstone (52). Little Egret, a species which has recently colonised Ireland, also occurs at this site.

South Dublin Bay is a significant site for wintering gulls, with a nationally important population of Black-headed Gull, but also Common Gull (330) and Herring Gull (348). Mediterranean Gull is also recorded from here, occurring through much of the year, but especially in late winter/spring and again in late summer into winter.

Both Common Tern and Arctic Tern breed in Dublin Docks, on a man-made mooring structure known as the E.S.B. dolphin – this is included within the site. Small numbers of Common Tern and Arctic Tern were recorded nesting on this dolphin in the 1980s. A survey in 1995 recorded nationally important numbers of Common Tern nesting here (52 pairs). The breeding population of Common Tern at this site has increased, with 216 pairs recorded in 2000. This increase was largely due to the ongoing management of the site for breeding terns. More recent data highlights this site as one of the most important Common Tern sites in the country with over 400 pairs recorded here in 2007.

South Dublin Bay is an important staging/passage site for a number of tern species in the autumn (mostly late July to September). The origin of many of the birds is likely to be the Dublin breeding sites (Rockabill and the Dublin Docks) though numbers suggest that the site is also used by birds from other sites, perhaps outside the state. This site is selected for designation for its autumn tern populations: Roseate Tern (2,000 in 1999), Common Tern (5,000 in 1999) and Arctic Tern (20,000 in 1996).

The South Dublin Bay and River Tolka Estuary SPA is of ornithological importance as it supports an internationally important population of Light-bellied Brent Goose and nationally important populations of a further nine wintering species. Furthermore, the site supports a nationally important colony of breeding Common Tern and is an internationally important passage/staging site for three tern species. It is of note that four of the species that regularly occur at this site are listed on Annex I of the E.U. Birds Directive, i.e. Bar-tailed Godwit, Common Tern, Arctic Tern and Roseate Tern. Sandymount Strand/Tolka Estuary is also a Ramsar Convention site.

APPENDIX 2

SOUTH DUBLIN BAY SAC SITE SYNOPSIS

Site Name: South Dublin Bay SAC

Site Code: 000210

This site lies south of the River Liffey in Co. Dublin, and extends from the South Wall to the west pier at Dun Laoghaire. It is an intertidal site with extensive areas of sand and mudflats. The sediments are predominantly sands but grade to sandy muds near the shore at Merrion Gates. The main channel which drains the area is Cockle Lake.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):

- [1140] Tidal Mudflats and Sandflats
- [1210] Annual vegetation of drift lines
- [1310] *Salicornia* and other annuals colonising mud and sand
- [2110] Embryonic shifting dunes

The bed of Dwarf Eelgrass (*Zostera noltii*) found below Merrion Gates is the largest stand on the east coast. Green algae (*Enteromorpha* spp. and *Ulva lactuca*) are distributed throughout the area at a low density. Furoid algae occur on the rocky shore in the Maretimo to Dún Laoghaire area. Species include *Fucus spiralis*, *F. vesiculosus*, *F. serratus*, *Ascophyllum nodosum* and *Pelvetia canaliculata*.

Several small, sandy beaches with incipient dune formation occur in the northern and western sectors of the site, notably at Poolbeg, Irishtown and Merrion/ Booterstown. The formation at Booterstown is very recent. Drift line vegetation occurs in association with the embryonic and incipient fore dunes. Typically drift lines occur in a band approximately 5 m wide, though at Booterstown this zone is wider in places. The habitat occurs just above the High Water Mark and below the area of embryonic dune. Species present are Sea Rocket (*Cakile maritima*), Frosted Orache (*Atriplex laciniata*), Spear-leaved Orache (*A. prostrata*), Prickly Saltwort (*Salsola kali*) and Fat Hen (*Chenopodium album*). Also occurring is Sea Sandwort (*Honkenya peploides*), Sea Beet (*Beta vulgaris* subsp. *maritima*) and Annual Sea-blite (*Suaeda maritima*). A small area of pioneer saltmarsh now occurs in the lee of an embryonic sand dune just north of Booterstown Station. This early stage of saltmarsh development is here characterised by the presence of pioneer stands of glassworts (*Salicornia* spp.) occurring below an area of drift line vegetation. As this is of very recent origin, it covers a small area but ample areas of substrate and shelter are available for the further development of this habitat.

Lugworm (*Arenicola marina*), Cockles (*Cerastoderma edule*) and annelids and other bivalves are frequent throughout the site. The small gastropod *Hydrobia ulvae* occurs on the muddy sands off Merlion Gates.

South Dublin Bay is an important site for waterfowl. Although birds regularly commute between the south bay and the north bay, recent studies have shown that certain populations which occur in the south bay spend most of their time there. The principal species are Oystercatcher (1215), Ringed Plover (120), Sanderling (344), Dunlin (2628) and Redshank (356) (average winter peaks 1996/97 and 1997/98). Up to 100 Turnstones are usual in the south bay during winter. Brent Goose regularly occur in numbers of international importance (average peak 299). Bar-tailed Godwit (565), a species listed on Annex I of the E.U. Birds Directive, also occur.

Large numbers of gulls roost in South Dublin Bay, e.g. 4,500 Black-headed Gulls in February 1990; 500 Common Gulls in February 1991. It is also an important tern roost in the autumn, regularly holding 2000-3000 terns including Roseate Terns, a species listed on Annex I of the E.U. Birds Directive. South Dublin Bay is largely protected as a Special Protection Area.

At low tide the inner parts of the south bay are used for amenity purposes. Bait-digging is a regular activity on the sandy flats. At high tide some areas have wind-surfing and jet-skiing.

This site is a fine example of a coastal system, with extensive sand and mudflats, and incipient dune formations. South Dublin Bay is also an internationally important bird site.

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