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**Attachment 4.6 - Statement of Consistency with Marine Strategy
Framework Directive and Ireland's Marine Strategy under the Directive**

28/07/2026



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1 Statement of competence

The information provided in this attachment has been prepared by Dr Rhian Llewellyn and Dr Luis Gustavo Iemma.

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Luis Gustavo Iemma is an Associate Director at WSP Ireland Consulting Ltd ('WSP') with over 15 years' experience in ecology and environmental planning. He holds a BSc, MSc, and PhD in Ecology and is a Chartered Ecologist (CEcol) and Full Member of CIEEM. Luis has extensive expertise in Appropriate Assessment (AA) Screening, Natura Impact Statements (NIS), Ecological Impact Assessments (EclA), and environmental risk assessments. His experience includes protected species surveys (bats, otters, badgers, birds, amphibians), invasive species assessments, aquatic macroinvertebrate monitoring, and compliance with EU Habitats and Birds Directives and NPWS guidance. He is also skilled in environmental remediation, biodiversity risk management, and ecological input for planning applications and sustainability frameworks such as BREEAM.

2 Effect, if any, of the proposed Maritime Usage on achievement of the relevant targets for the 11 MSFD descriptors

Adopted on 17 June 2008, the Marine Strategy Framework Directive (2008/56/EC) aims to achieve Good Environment Status (GES) for all marine waters in Europe and protect the resource base for marine related economic and social activities. Under MSFD, marine waters must be assessed against an agreed set of standards across a number of important environmental areas (e.g. biodiversity, fish stocks, and contaminants). Based on the assessment, appropriate environmental targets and indicators must be set and programmes of measures put in place to reach GES.

The proposed site investigation works will not adversely affect the achievement of the eleven qualitative condition descriptors as set out in the MSFD (see Table 4.6-1 overleaf).



Table 4.6-1 Qualitative condition descriptors as set out in the MSFD

No.	Common name and MSFD Annex I Descriptor	Marine Strategy Framework Directive (2008/56/EC) – Ireland's Marine Strategy Part 1: Article 10 Environmental Targets and Indicators (2020).	Comments on effects (if any) on achievement of the relevant target(s)
D1	Biological Diversity Biological diversity is maintained. The quality and occurrence of habitats and the distribution and abundance of species are in line with prevailing physiographic, geographic and climatic conditions.	D1T1: The mortality rate per species from incidental by-catch is below levels which threaten the species, such that its long-term viability is ensured. D1T2: The population abundance of the species is not adversely affected due to anthropogenic pressures, such that its long-term viability is ensured. D1T4: The species distributional range and, where relevant, pattern is in line with prevailing physiographic, geographic and climatic conditions. D1T5: The habitat for the species has the necessary extent and condition to support the different stages in the life history of the species.	The proposed site investigation works are short-term and small-scale, involving three boreholes drilled from a jack-up barge using roto-sonic and rotary coring techniques. An assessment of potential effects on biodiversity is provided in this attachment, Attachment 4.3 and Attachment 4.4. Key findings include: • No direct habitat loss or degradation of European sites will occur. • Sediment mobilisation will be minimal due to continuous casing and roto-sonic drilling; borehole flushing water will be contained and treated before disposal. • Noise and visual disturbance will be controlled through embedded measures, including a marine mammal and otter monitoring zone covering a minimum 200 m radius upstream and downstream of the proposed works, soft-start procedures, and directional lighting. • Targeted seasonal implementation will avoid peak fish migratory periods and the



No.	Common name and MSFD Annex I Descriptor	Marine Strategy Framework Directive (2008/56/EC) – Ireland's Marine Strategy Part 1: Article 10 Environmental Targets and Indicators (2020).	Comments on effects (if any) on achievement of the relevant target(s)
			common tern breeding season (May–August) where feasible, with ornithologist monitoring if works occur during this period. These measures ensure compliance with NPWS guidance and confirm that the project will not adversely affect species mortality, population abundance, or habitat condition under D1 targets (D1T1–D1T5). Therefore, the proposed site investigation works will not adversely affect the achievement of the Irish Marine Strategy environmental targets for biological diversity.
D2	Non-indigenous species (NIS) Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystems.	D2T1: The number of non-indigenous species which are newly introduced via human activity into the wild, per assessment period is minimised and where possible reduced to zero.	The proposed site investigation works will not adversely affect the achievement of the target. The activities are short-term, confined to a small section of the River Liffey, and involve drilling from a jack-up barge without introducing materials or organisms that could lead to invasive species establishment. To minimise any residual risk, robust biosecurity protocols will be implemented by the contractor, including: • Thorough cleaning and inspection of all plant, equipment, and PPE prior to



No.	Common name and MSFD Annex I Descriptor	Marine Strategy Framework Directive (2008/56/EC) – Ireland's Marine Strategy Part 1: Article 10 Environmental Targets and Indicators (2020).	Comments on effects (if any) on achievement of the relevant target(s)
			mobilisation and demobilisation. • Use of designated wash-down areas and containment for any wastewater or drill spoil. • Compliance with best practice guidance for preventing the spread of invasive aquatic species. These measures ensure that the likelihood of introducing non-indigenous species is negligible, supporting compliance with D2T1 and confirming that the proposed works will not adversely affect the achievement of the Irish Marine Strategy environmental target for non-indigenous species.
D3	Populations of Commercial Fish and Shellfish Populations of all commercially exploited fish and shellfish are within safe biological limits, exhibiting a population age and size distribution that is indicative of a healthy stock	D3T1: The Fishing mortality rate of populations of commercially exploited species is at, or below, levels which can produce the maximum sustainable yield (MSY). D3T2: The Spawning Stock Biomass of populations of commercially exploited species are above biomass levels capable of producing the MSY.	An assessment of the effects of the proposed site investigation works on fisheries and aquaculture is presented in the attachment below this table. The assessment concludes that the proposed site investigation works will not have a detrimental impact on fisheries or aquaculture. Accordingly, it is considered that these works will not hinder the achievement of the relevant environmental targets.
D4	Elements of Marine Food Webs	D4T1: The diversity (species composition and their relative abundance) of the trophic guild is not	The proposed site investigation works will not adversely affect the achievement of the target.



No.	Common name and MSFD Annex I Descriptor	Marine Strategy Framework Directive (2008/56/EC) – Ireland's Marine Strategy Part 1: Article 10 Environmental Targets and Indicators (2020).	Comments on effects (if any) on achievement of the relevant target(s)
	All elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.	adversely affected due to anthropogenic pressures. D4T2: The balance of total abundance between the trophic guilds is not adversely affected due to anthropogenic pressures.	
D5	Eutrophication Human-induced eutrophication is minimised, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algae blooms and oxygen deficiency in bottom waters.	D5T1: Nutrient concentrations are not at levels that indicate adverse eutrophication effects. D5T2: Chlorophyll concentrations are not at levels that indicate adverse effects of nutrient enrichment. D5T5: The concentration of dissolved oxygen is not reduced, due to nutrient enrichment.	The proposed site investigation works will not adversely affect the achievement of the target. The proposed site investigation works will not adversely affect the achievement of the target. No discharge of nutrients, wastewater, drilling fluids, or other contaminants to the River Liffey is proposed. Sediment mobilisation from roto-sonic drilling will be minimal, localised and temporary, and will occur within an estuarine environment that naturally experiences elevated suspended sediment levels. With embedded pollution prevention and waste management measures in place, the Proposed Project will not result in nutrient enrichment, eutrophication, or deterioration in water quality and will therefore not adversely affect the achievement of the relevant D5 targets.



No.	Common name and MSFD Annex I Descriptor	Marine Strategy Framework Directive (2008/56/EC) – Ireland's Marine Strategy Part 1: Article 10 Environmental Targets and Indicators (2020).	Comments on effects (if any) on achievement of the relevant target(s)
D6	Sea-floor integrity Sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected.	D6T1: The spatial extent and distribution of physical loss (permanent change) of the natural seabed is at a level that ensures that the structure and functions of the ecosystems, and benthic ecosystems, in particular, are not adversely affected. D6T2: The spatial extent and distribution of physical disturbance pressures on the seabed is at a level that ensures that the structure and functions of the ecosystems, and benthic ecosystems, in particular, are not adversely affected. D6T4: The extent of loss of the habitat type, resulting from anthropogenic pressures, does not exceed a specified proportion of the natural extent of the habitat type in the assessment area. D6T5: The extent of adverse effects from anthropogenic pressures on the condition of the habitat type, including alteration to its biotic and abiotic structure and its functions, does not exceed a specified proportion of the natural extent of the habitat type in the assessment area.	The proposed site investigation works will not adversely affect the achievement of the target. The footprint of the proposed project on the riverbed will be small and the works short-term in nature. There will be permanent removal of the subsurface caused by retrieving rock core for analysis but the footprint on the riverbed will be limited to 3 no. boreholes.
D7	Hydrographical conditions Permanent alteration of hydrographical conditions does not adversely affect	D7T1: The spatial extent and distribution of permanent alteration of hydrographical conditions to the seabed and water column, is at a level that ensures that the structure and functions of the	The proposed site investigation works will not adversely affect the achievement of the target. The works are temporary and small-scale and will not involve dredging, reclamation, channel



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	marine ecosystems.	ecosystems are safeguarded and that benthic ecosystems, in particular, are not adversely affected.	modification, or permanent structures. Therefore, no permanent alteration of hydrographical conditions will occur, and the achievement of D7T1 will not be affected.
D8	Contaminants Concentrations of contaminants are at levels not giving rise to pollution effects.	D8T1a: Within coastal and territorial waters, the concentrations of contaminants do not exceed the threshold values set in accordance with Directive 2000/60/EC. D8T1b: Concentration of contaminants in marine matrices assessed in accordance with OSPAR Coordinated Environmental Monitoring Programme (CEMP) do not exceed OSPAR Environmental Assessment Criteria (EAC) and concentrations are not increasing. D8T2: The degree of biological or ecological effects that can be specifically attributed to contaminants is below the agreed OSPAR criteria. At present, this is limited to evaluation of reproductive impairment in marine gastropods associated with tributyltin (TBT). D8T3: Spatial extent and duration of significant acute pollution events are minimised.	The proposed site investigation works will not adversely affect the achievement of the target. The Contractor will prepare a RAMS that includes a waste management plan. The RAMS will set out how fuels and lubricant will be stored, managed and used. The following guidance documents in relation to construction work over on or near water shall be understood by contractors to effectively control the risk of any spillage of pollutants and to further limit any pathways for pollutants between the proposed works and waterbodies; • NetRegs (2017) Guidance for Pollution Prevention (GPP) Series: • GPP 5 (Works and Maintenance in or near Water); • GPP 8 (Storage and Disposal of Waste Oils); • GPP 21 (Pollution Incident Response Planning); • CIRIA (2001) – Control of Water Pollution



No.	Common name and MSFD Annex I Descriptor	Marine Strategy Framework Directive (2008/56/EC) – Ireland's Marine Strategy Part 1: Article 10 Environmental Targets and Indicators (2020).	Comments on effects (if any) on achievement of the relevant target(s)
			from Construction Sites. Guidance for Consultants and Contractors (C532); • CIRIA (2006) Control of water pollution from linear construction projects - Technical guidance (C648); • IFI (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters; • Murphy (2004). Requirements for the Protection of Fisheries Habitat During Construction and Development Works at River Sites. Eastern Regional Fisheries Board; • O'Grady (2006). Channels and Challenges - The Enhancement of Salmonid Rivers. Central Fisheries Board; • TII (2006). Guidelines for the crossing of watercourses during the construction of national road schemes. In line with the operational controls set out in the Appropriate Assessment Screening Report and Natura Impact Statement (Attachment 4.3), no discharges to the River Liffey are proposed. All borehole arisings, including sediments, drilling residues and wastewater, will be contained,



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			collected and removed for appropriate off-site management. Refuelling may take place offshore, if required, using jerry cans and plant nappies, fuels and lubricants will be stored in bunded containers, spill kits will be available at all times, and standard pollution prevention measures will be implemented through the Contractor's RAMS. Consequently, the Proposed Project will not result in contaminant inputs to the water environment and will not adversely affect the achievement of the relevant D8 environmental targets.
D9	Contaminants in seafood Contaminants in fish and other seafood for human consumption do not exceed levels established by Community legislation or other relevant standards.	D9T1: Levels of contaminants in fish and shellfish caught or harvested in Irish seas for human consumption complies with maximum limits listed in EU Regulation 1881/2006 (as amended).	The proposed site investigation works will not adversely affect the achievement of the target. No discharges to the River Liffey are proposed, and all borehole arisings and waste materials will be contained and removed from site for appropriate management. As no contaminant inputs to the aquatic environment are anticipated, the Proposed Project will not affect contaminant concentrations in fish or shellfish and will not adversely affect the achievement of D9T1.
D10	Marine Litter Properties and quantities of marine litter do not cause harm to the coastal and	D10T1a: The composition, amount and spatial distribution of litter in the coastline, and on the seabed, are at levels that do not cause harm to the coastal or marine environment.	The proposed site investigation works will not adversely affect the achievement of the target. The Contractor will prepare a RAMS that includes a waste management plan. See response to D8



No.	Common name and MSFD Annex I Descriptor	Marine Strategy Framework Directive (2008/56/EC) – Ireland's Marine Strategy Part 1: Article 10 Environmental Targets and Indicators (2020).	Comments on effects (if any) on achievement of the relevant target(s)
	marine environment.	D10T1b: In accordance with the provisions of Article 5 of Directive (EU) 2019/904 by year-end 2023 eliminate beach litter caused by the items prohibited from the market under that Directive. These items are: plastic cotton bud sticks, disposable plastic cutlery and plates, plastic straws, plastic beverage stirrers, plastic balloon sticks, expandable polystyrene fast food containers and expandable polystyrene beverage containers and cups.	above.
D11	Energy, including underwater noise Introduction of energy, including underwater noise, is at levels that do not adversely affect the marine environment.	D11T1: The spatial distribution, temporal extent, and levels of anthropogenic impulsive sound sources do not exceed levels that adversely affect populations of marine animals.	The proposed site investigation works will not adversely affect the achievement of the target. The potential effects on biodiversity arising from the proposed use of roto-sonic drilling in the site investigation is considered in this attachment (below this table) and Attachment 4.3.

3 Biodiversity

3.1 Introduction

This section provides an assessment of the biodiversity receptors that may occur within, or have ecological connectivity to, the Proposed Project area, including designated sites, protected species, and other notable ecological features. The assessment considers the potential effects of the proposed site investigation works on biodiversity in the context of the Marine Strategy Framework Directive (MSFD) biodiversity descriptors and associated environmental targets. It draws upon the findings of the Appropriate Assessment Screening Report and Natura Impact Statement (Attachment 4.3), the Annex IV Species Risk Assessment (Attachment 4.4), published ecological data, and relevant guidance. The assessment concludes whether the Proposed Project could adversely affect biodiversity receptors or the achievement of Good Environmental Status objectives relating to biodiversity.

3.2 Baseline Description

3.2.1 Designated and Notable Sites

European Sites

Figure 4.6-1 shows the European sites (Special Protection Areas (SPAs) and Special Areas of Conservation (SACs)) surrounding the Proposed Project location.

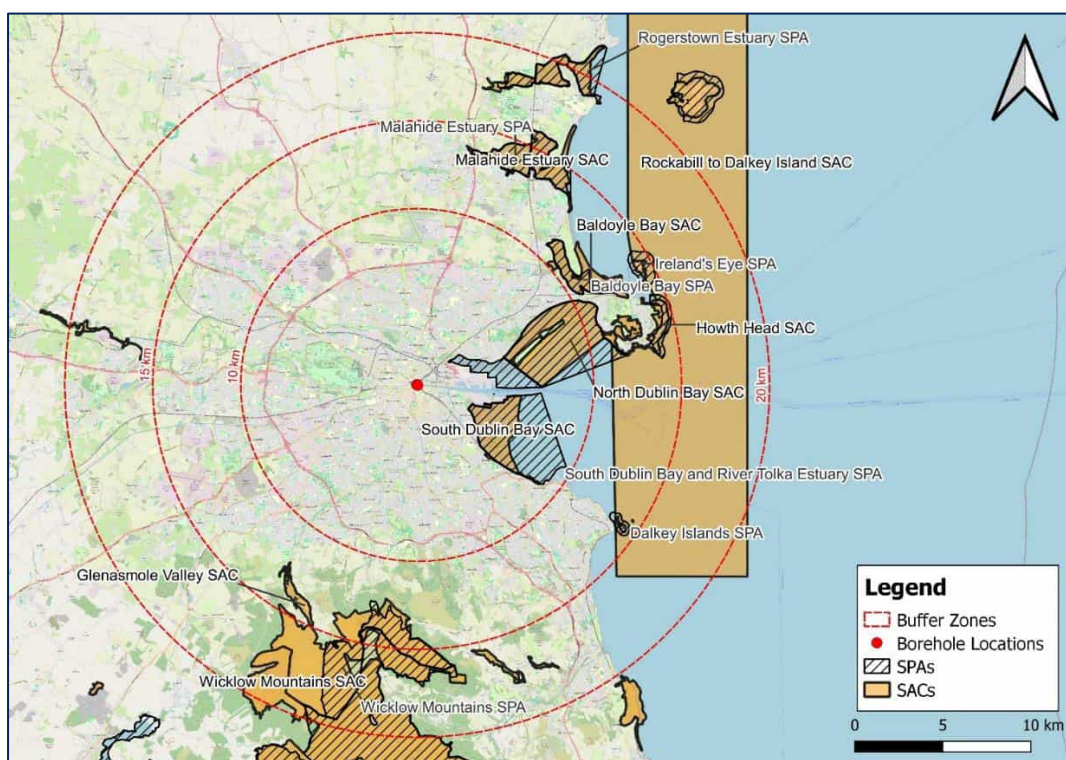




Figure 4.6-1 - European sites

National Sites

Figure 4.6-2 shows the Proposed Natural Heritage Areas (pNHAs) within 2 km of the Proposed Project location. The Royal Canal pNHA connects to the River Liffey slightly east of the Samuel Beckett Bridge, approximately 1 km east of the Proposed Project. The Grand Canal connects to the River Liffey approximately 1.7 km east of the Proposed Project. There are no NHAs within 2 km – the nearest NHA is approximately 26 km north near Skerries.

It should be noted that 2 km was chosen as an appropriate search area for NHAs and pNHAs, considering the scale of the proposed works, and any sites further downstream are also designated as European sites. Impacts to these sites are therefore assessed through the AA process (see Attachment 4.3).

Grand Canal pNHA

The Site Synopsis¹ for this pNHA (NPWS, 2009)¹ highlights a range of species and habitats found at various locations across the entirety of its coverage, which comprises several branches and extends as far west as Banagher, Co. Offaly. The Site Synopsis states “*The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural land and therefore provides a refuge for species threatened by modern farming methods*”. It makes specific mention of otter, smooth newt and opposite-leaved pondweed, all of which are afforded legal protection. In terms of habitats, it focuses on terrestrial habitats such as hedgerows, scrub, woodland and grassland. Canals are not inherently considered valuable in an ecological context, but act as commuting corridors for species such as otter, and provide suitable habitat for opposite-leaved pondweed.

Royal Canal pNHA

The Site Synopsis for this pNHA highlights a range of species and habitats found at various locations across the entirety of its coverage, which like the Grand Canal, is extensive – the Royal Canal pNHA extends to the River Shannon near Tarmonbarry, Co. Roscommon, and has other branches extending to Longford Town and to Lough Owel outside Mullingar, Co. Westmeath. The Site Synopsis states “*The ecological value of the canal lies more in the diversity of species it supports along its linear habitats than in the presence of rare species. It crosses through agricultural land and therefore provides a refuge for species threatened by*

¹ pNHA Site Synopses are available for download at <https://www.npws.ie/protected-sites/nha>

modern farming methods". It makes specific mention of otter and opposite-leaved pondweed, both of which are afforded legal protection. It also mentions the presence of the stonewort *Tolypella intricata*, whose conservation status is listed as 'Vulnerable' in the relevant Irish Red List. In terms of habitats, it focuses on terrestrial habitats such as hedgerows, scrub, woodland and grassland. Canals are not inherently considered valuable in an ecological context, but act as commuting corridors for species such as otter, and provide suitable habitat for opposite-leaved pondweed and *T. intricata*.

North Dublin Bay pNHA

North Dublin Bay pNHA shares its area with South Dublin Bay and Tolka Estuary SPA, and potential effects to habitats and species in this area are addressed through the AA process (see Attachment 4.3).

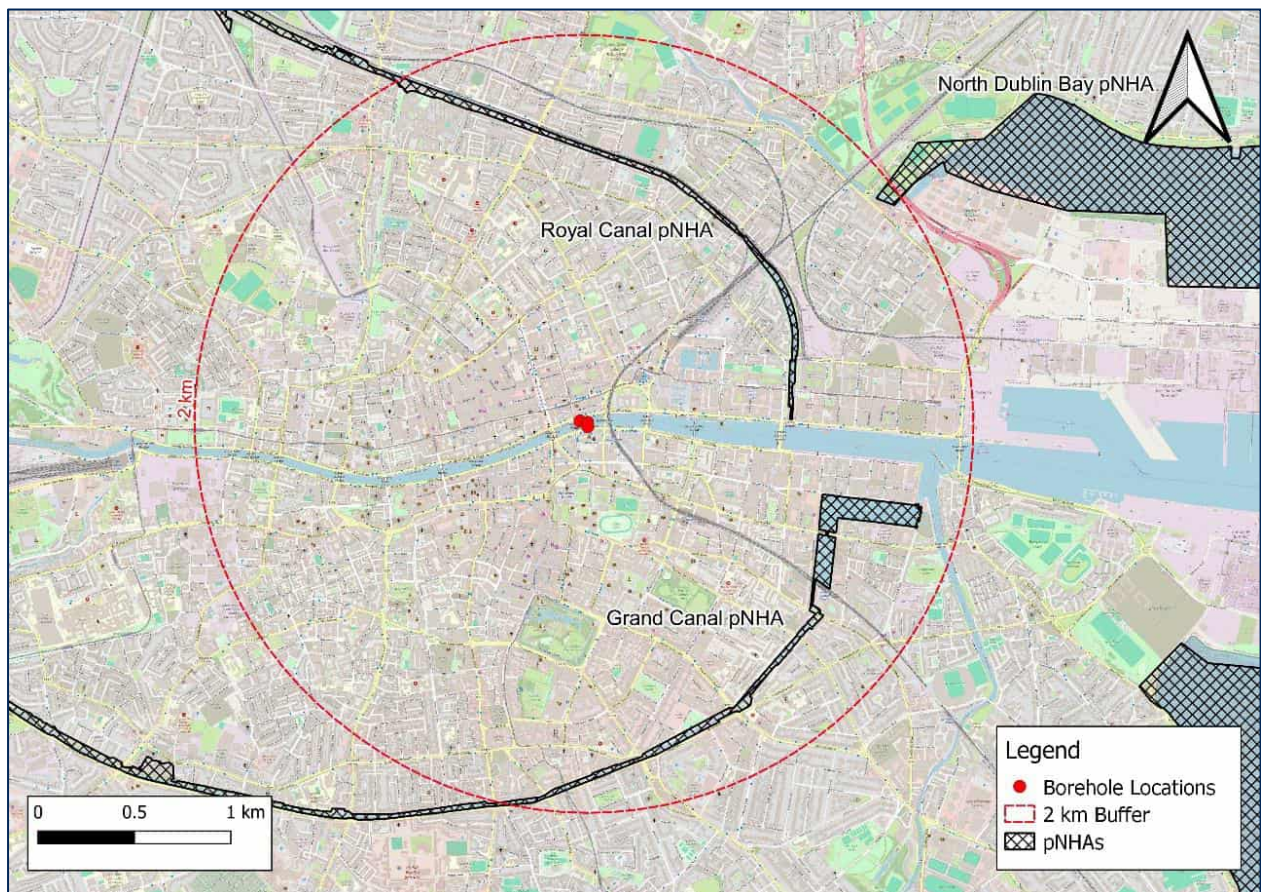


Figure 4.6-2 - Proposed NHAs

Historical Records

Historical records submitted to the National Biodiversity Data Centre (NBDC, 2025)² were searched for within the National Grid 1-km squares illustrated in Figure 4.6-3. Considering the location and scale of the Proposed Project, it was deemed appropriate to focus on the River Liffey, extending 2 km upstream and downstream in accordance with the search area for designated/notable sites. Records from >10 years ago were not considered. Protected and notable³ species records are presented in Table 4.6-2. Since all wild birds are protected under the Wildlife Act 1976 (as amended), only those with additional designations or elevated conservation status are included. Bird species that are Special Conservation Interests (SCIs) of SPAs in the surrounding 15 km, are not included – these are addressed separately through the AA process. Species that are Qualifying Interests of Special Areas of Conservation (SACs) are assessed separately through the Appropriate Assessment Screening Report and Natura Impact Statement (Attachment 4.3) and are therefore not included in Table 4.6-2, in order to avoid duplication of assessment.

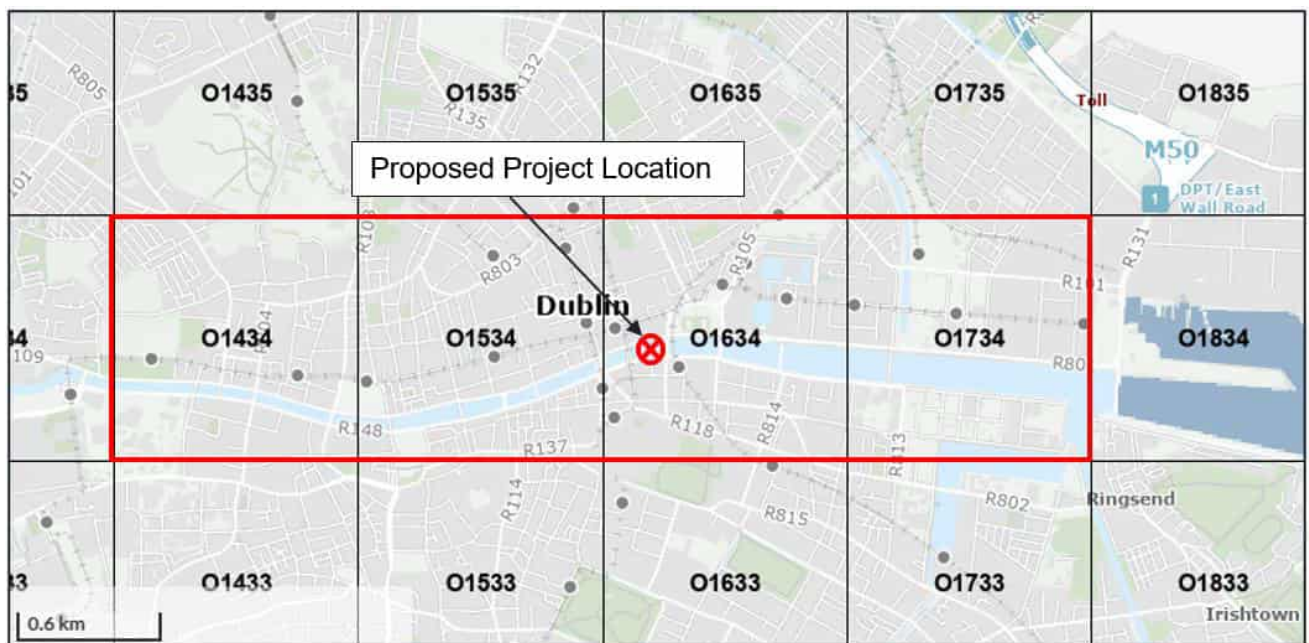


Figure 4.6-3 - Historical Records - Search Area

² Available at: <https://maps.biodiversityireland.ie/Map> (accessed 02.07.2025)

³ 'Notable' refers to species not afforded legal protection, but listed as 'Threatened' or above on the relevant Irish Red List.

Table 4.6-2 - Historical Records (2015-2025) (source: NBDC)

Species	Date of Last Record	Designation and/or Conservation Status
Birds		
Little Egret (<i>Egretta garzetta</i>)	03/06/2016	EU Birds Directive - Annex I
Terrestrial Plants		
Japanese Knotweed (<i>Reynoutria japonica</i>)	14/04/2022	Invasive Species: S.I. 477/2011
Round-leaved Crane's-bill (<i>Geranium rotundifolium</i>)	14/04/2022	Red List: Endangered
Terrestrial Invertebrates		
Harlequin Ladybird (<i>Harmonia axyridis</i>)	19/09/2024	Invasive Species: S.I. 477/2011
Marine Mammals		
Common Dolphin (<i>Delphinus delphis</i>)	28/11/2018	EU Habitats Directive: Annex IV Wildlife Act
Grey Seal (<i>Halichoerus grypus</i>)	18/10/2018 A (likely) grey seal was also reported upstream of the proposed works by members of the public during the week beginning 17 November 2025.	EU Habitats Directive: Annex V Wildlife Act
Terrestrial Mammals		
Hedgehog (<i>Erinaceus europaeus</i>)	01/05/2021	Wildlife Act
Grey Squirrel (<i>Sciurus carolinensis</i>)	23/10/2022	Invasive Species: S.I. 477/2011
Semi-Aquatic Mammals		
Otter (<i>Lutra lutra</i>)	08/10/2015	EU Habitats Directive: Annex IV Wildlife Act

Fishes

Upstream migrants for the River Liffey include Atlantic salmon, brown trout, shad, cyprinids, pike, river lamprey, sea lamprey, and juvenile eels. Downstream migrants include salmon

smolts, juvenile lamprey, and adult eels (Donovan et al., 2022)⁴. Many migratory fish using the River Liffey are impacted by the over 300 fish passage barriers in the River Liffey catchment, meaning many individuals cannot, or have reduced, access to many parts of the River Liffey catchment (Donovan et al., 2022). Nonetheless, the main channel of the River Liffey is an important migratory route for anadromous and catadromous fish species like salmon, sea trout, and European eel.

Whilst records of fish are not available for this section of the River Liffey specifically, Inland Fisheries Ireland (IFI) have published a Fish Stock Survey of the River Liffey (Delanty et al., 2022)⁵, which focuses on the middle reaches of the river, broadly between Ballymore Eustace and Clane, Co. Kildare. Species recorded are listed in Table 4.6-3.

While the IFI Fish Stock Survey (Delanty *et al.*, 2022) was undertaken upstream of the Proposed Project and includes several freshwater resident species that are unlikely to occur within the tidal section of the River Liffey, the survey provides useful context on the wider fish community of the catchment. In the context of the Proposed Project, the key species of ecological relevance are migratory species that may move through the lower River Liffey and estuary, including Atlantic salmon (*Salmo salar*), sea trout (*Salmo trutta trutta*), European eel (*Anguilla anguilla*), and river and sea lamprey. These species are considered further in the assessment below.

Table 4.6-3 - Species Recorded - Fish Stock Survey of the River Liffey 2021

Species	Designation and/or Conservation Status	Notes
Brown trout (<i>Salmo trutta</i>)	None	Main channel is used for spawning (IFI, 2021) Sea trout (<i>Salmo trutta trutta</i>) are a subspecies of brown trout that migrate to sea and return to breed. Sea trout and brown trout breed together and co-exist together as juveniles ⁶ . The IFI report does not distinguish between brown trout and sea trout.
Salmon (<i>Salmo salar</i>)	EU Habitats Directive – Annex II, Annex V Red List – ‘Vulnerable’	Main channel is used for spawning (IFI, 2021) Salmon migrate to sea and return to rivers to breed.

⁴ Donovan, R., Coghlan, B., O'Briain, R., & O'Leary, C., (2022). River Liffey WFD 111 Barrier Assessment – Obstacles to Fish Passage and Mitigation Options. National Barriers Programme. Inland Fisheries Ireland. Citywest, Dublin.

⁵ Delanty, K., Feeney, R. Shephard, S. (2022). Fish Stock Survey of the River Liffey 2021. Inland Fisheries Ireland, 3044 Lake Drive, Citywest Business Campus, Dublin 24, Ireland.

⁶ IFI (2025). Species Profile – Brown Trout. Available at: <https://www.fisheriesireland.ie/fish-species/brown-trout-salmo-trutta> (accessed 03.07.2025)

European Eel (<i>Anguilla anguilla</i>)	Red List – 'Critically Endangered', European Eel Regulation (EC 1100/2007)	European eels are listed on the IUCN Red List and the related <i>Ireland Red List No. 5 - Amphibians, Reptiles & Freshwater Fish</i> as Critically Endangered. The IFI report did find European eels in the main channel of the River Liffey, but the area close to proposed works was not surveyed. Juvenile (glass) eels migrate upstream to mature, while Mature (silver) eels migrate downstream and out to sea to spawn in the West Atlantic.
Minnow (<i>Phoxinus phoxinus</i>)	None	-
Pike (<i>Esox lucius</i>)	None	-
Perch (<i>Perca fluviatilis</i>)	None	-
Roach (<i>Rutilus rutilus</i>)	None	-
Three-spined stickleback (<i>Gasterosteus aculeatus</i>)	None	-
Gudgeon (<i>Gobio gobio</i>)	None	-
White-clawed crayfish (<i>Austropotamobius pallipes</i>)	EU Habitats Directive – Annex II, Annex V Wildlife Act	Not a migratory species. White-clawed crayfish are a Qualifying Interest of a number of SACs in Ireland. Potential effects on Qualifying Interests of European sites are considered separately through the Appropriate Assessment Screening Report and Natura Impact Statement (Attachment 4.3) and are therefore not considered further in this assessment.
Lamprey (species not specified)	EU Habitats Directive – Annex II (all), Annex V (river lamprey only)	Sea lamprey and river lamprey are migratory species that may utilise the lower River Liffey as a migration corridor between freshwater habitats and Dublin Bay. These species are Qualifying Interests of SACs and are considered, where relevant, through the Appropriate Assessment Screening Report and Natura Impact Statement (Attachment 4.3). Potential effects on Qualifying Interests of European sites are therefore not considered further in this assessment in order to avoid duplication.



For the purposes of this assessment, particular consideration is given to migratory fish species that may utilise the lower River Liffey as a migration corridor between freshwater habitats and Dublin Bay, as these represent the fish receptors most likely to interact with the Proposed Project

3.2.2 Species Potentially Present on Quay Wall and in Riverside Trees

This section addresses vegetation and potential nesting bird habitat that is or may be located on the quay walls above the high watermark (i.e. adjacent to, but outside of, the MUL application area).

Birds

Given the central urban location and the sparse and relatively young trees present on the quays adjacent to the River Liffey at the proposed works, birds are unlikely to nest in these trees but may perch there while engaging in foraging activities.

Quay Wall Vegetation

Certain plant species, such as common orange lichen (*Xanthoria parietina*), wall screw-moss (*Tortula muralis*), and some vascular plants like wall pennywort (*Umbilicus rupestris*) may occur on the stone faces of the quay walls containing the River Liffey around the proposed works. The aforementioned species are not protected on the Flora (Protection) Order 2022. The proposed works will not impact the quay walls or associated species. The survey rig will be positioned using a crane, ensuring it is placed away from the walls and in central locations within the River Liffey. This approach is an embedded mitigation measure within the project design. Contact with the quay walls is neither required nor permitted, as it would present health and safety risks and could lead to unnecessary structural damage and repair costs.

3.3 Assessment of Effects

3.3.1 Designated and Notable Sites

European Sites

Potential effects to these sites are addressed separately through the AA process.

National Sites

Grand Canal pNHA

The Proposed Project will not have adverse effects on the distribution or quality of any habitats mentioned in the Site Synopsis. Neither the Proposed Project location, nor any



downstream section of the River Liffey, is suitable for smooth newt or opposite-leaved pondweed, which favour static freshwater.

Given the distance between the Proposed Project location and the pNHA, it is possible that pNHA populations of otter (i.e. those that holt within the pNHA) forage in close proximity to the Proposed Project location. However, the Proposed Project is of short duration, does not involve habitat loss or disturbance to breeding or resting sites, and is located within a heavily modified urban environment where otters may already be exposed to ongoing human activity. The Proposed Project will not result in physical harm to otters, nor result in the destruction of holts. Standard operating procedures will ensure the safeguarding of water quality, such that indirect impacts to otter resulting from reduced prey availability, will not occur.

Royal Canal pNHA

The Proposed Project will not have adverse effects on the distribution or quality of any habitats mentioned in the Site Synopsis. Neither the Proposed Project location, nor any downstream section of the River Liffey, is suitable for opposite-leaved pondweed or *T. intricata*, which favour static freshwater. Neither opposite-leaved pondweed nor *Tolypella intricata* are expected to occur within the tidal section of the River Liffey at the Proposed Project location, as these species are associated with the freshwater conditions present within the Royal Canal.

Given the distance between the Proposed Project location and the pNHA, it's possible that pNHA populations of otter (i.e. those that holt within the pNHA) forage in close proximity to the Proposed Project location. However, otters in this part of Dublin will be acclimatised and resilient to high levels of noise and visual disturbance. The Proposed Project will not result in physical harm to otters, nor result in the destruction of holts. Standard operating procedures will ensure the safeguarding of water quality, such that indirect impacts to otter resulting from reduced prey availability, will not occur.

North Dublin Bay pNHA

North Dublin Bay pNHA shares its area with South Dublin Bay and Tolka Estuary SPA, and potential effects to habitats and species in this area are addressed through the AA process.

Historical Records

Of the species listed in Table 4.6-2, potential impacts to all terrestrial species of plant and animal can reasonably be scoped out considering the location and nature of the Proposed Project. Remaining species include little egret and common dolphin.



Little Egret

Little egrets are waders – meaning they favour tidal mudflat-type habitats, such as those in the Tolka Estuary >2 km from the Proposed Project location. This distance is such that the potential for visual and aural disturbance is negligible. Impacts to this area from water quality perturbations have been addressed through the AA process and were screened out from further consideration in this document.

Common Dolphin

Common dolphins have been known, on occasion, to swim upstream in the River Liffey. The record referenced in Table 4.6-2 was made in 2018, and refers to a sighting approximately 740 m east of the Proposed Project location. One other record of common dolphin exists in the outer estuary, approximately 4.3 km east of the Proposed Project location (recorded in 2022). All other records of common dolphin in the surrounding area are in the Irish Sea.

With reference to the underwater noise ranges associated with roto-sonic drilling as presented in Attachment 3.1, the Irish Whale and Dolphin Group (IWDG, 2015)⁷ state that disturbance to marine mammals from drilling rigs is “generally thought to be low”. According to the guidance by the NPWS (2014)⁸, sound exposure levels from drilling operations are thought to be below that expected to cause injury to a marine mammal. It is acknowledged that they have the potential to cause lower-level disturbance, masking⁹ or other behavioural impacts (such as avoidance or abandonment of a certain area) the Royal Canal. However, it should be noted that such effects are only considered ecologically significant where marine mammals are present within the disturbance zone of influence **and** the disturbance interrupts behaviours critical to survival or reproduction – such as foraging, resting, or breeding. This, in turn, presupposes that the activity is occurring within habitat that is functionally important for those behaviours.

In terms of a zone of influence for these types of operations, the NPWS (2014) recommends a 500 m ‘Monitoring Zone’ as standard. The recommendation is that drilling operations shall not commence in the event that a marine mammal is detected within the Monitoring Zone.

⁷ IWDG (2015). IWDG Policy on the Effects of Noise Pollution on Cetaceans: Potential impacts on cetaceans in Irish Waters from oil and gas exploration, the development of marine renewable energy and active mid frequency sonar. Recommendations on mitigation, regulation and further research. Irish Whale and Dolphin Group, Merchants Quay, Kilrush, Co Clare, Ireland.

⁸ NPWS (2014). Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

⁹ ‘Masking’ in an auditory context refers to the interference with an animal’s ability to hear. In some animals this could result in a reduction in the ability to detect a predator, or a reduction in the ability to detect and hunt prey.



The distribution and frequency of historical records is such that it can be reasonably concluded that the ingress of common dolphin into the River Liffey is a rare occurrence, and the habitats within 500 m of the Proposed Project are not functionally important. For context, the NBDC record from 2018 is the only available record of common dolphin so far upstream in the River Liffey. A corresponding article by the IWDG¹⁰ emphasises the rarity of such occurrences.

Ongoing industrial activity at Dublin Port contributes continuous sources of background noise to the marine environment, particularly shipping, but also a range of land-based activities. Considering the distance between the Proposed Project and Dublin Port, it is highly unlikely that the Proposed Project will give rise to elevated background levels of underwater noise in the vicinity of Dublin Port or the outer estuary, where common dolphins are more likely to be present.

On the basis that:

- A standard zone of influence exists for these types of operations;
- Historical records of common dolphin are absent from within the zone of influence;
- Important functional habitat for common dolphin does not exist within the zone of influence; and
- Background noise levels from ongoing industrial activity in Dublin Port will not be elevated by the Proposed Project,

It can be concluded with confidence that the Proposed Project will not result in significant ecological effects to common dolphin. Nonetheless, precautionary mitigation / monitoring measures are outlined in the '[Operational Controls](#) / Monitoring' section below.

It should be noted that the AA process assesses the potential for significant effects on harbour porpoise designated under Rockabill to Dalkey Island SAC. For similar reasons, it is concluded that significant effects will not occur.

Birds

Trees present on the quays adjacent to the River Liffey at the proposed works, that are potentially used perch while engaging in limited foraging activities, will not be removed or damaged by the proposed works as there is ample space to operate around them. However, given that damage to these trees is technically possible in the context of unplanned operational errors, precautionary mitigation / monitoring measures are outlined in the '[Operational Controls](#) / Monitoring' section below.

¹⁰ IWDG (2018). Common Dolphin in the River Liffey – Live Updates. Available at: <https://iwdg.ie/breaking-news-common-dolphin-in-dublins-river-liffey-updates/> (accessed 03.07.2025).



Grey Seal

Grey seals do occasionally occur in the River Liffey in the vicinity of the proposed works, as shown by National Biodiversity Data Centre records as recent as October 2018, and public sightings near Palmerstown during the week beginning 17 November 2025.

Their rare occurrence in the area, combined with the short duration of the proposed works, means that significant ecological effects on this species are unlikely. However, disturbance, injury, and death for this species from the proposed works are technically possible and, as such, precautionary mitigation / monitoring measures are outlined in the 'Operational Controls / Monitoring' section below.

Otter

The relatively infrequent occurrence of otter within the vicinity of the Proposed Project, combined with the short duration and limited scale of the works, means that significant ecological effects on this species are not anticipated. The Proposed Project does not involve habitat loss, disturbance to breeding or resting sites, or activities that could result in physical harm to otters. Standard operational procedures and embedded environmental controls will ensure the safeguarding of water quality, such that indirect effects on otter prey resources will not occur. Accordingly, significant ecological effects on otter can be excluded. Precautionary operational controls relating to protected species observations during the works are outlined in the 'Operational Controls / Monitoring' section below.

Fishes

Potential disturbance, leading to barriers to migration for salmon or any other protected migratory fish species, is unlikely, owing to the ongoing activity at Dublin Port and associated baseline noise levels. Species migrating between the freshwater reaches of the River Liffey and the Irish Sea need to navigate past Dublin Port. These species are clearly resilient to high levels of disturbance, such that underwater noise emissions from the Proposed Project are highly unlikely to result in disruption to migratory patterns.

The Proposed Project is not located on or near suitable spawning grounds for salmonids or lamprey, which are characterised by well-oxygenated gravel-like substrate, typically in fast-flowing upper reaches of rivers.

Nonetheless, precautionary mitigation / monitoring measures are outlined in the 'Operational Controls' section below.



3.3.2 Operational Controls / Monitoring

Birds

While no significant ecological effects from the proposed works are predicted for birds, pre-commencement bird and nest surveys of the trees on the quays adjacent to the proposed works will be carried out.

Marine Mammals and Otters

While no significant ecological effects from the proposed works are predicted for common dolphins, grey seals, or otters, precautionary safeguards will be put in place to protect these species from harm.

Two Marine Mammal Observers (MMOs) shall monitor for these species and alert drill operators to cease drilling upon sighting any of these species approaching the rig. The use of two MMOs reflects the constrained urban setting of the Proposed Project between Rosie Hackett Bridge and Butt Bridge, allowing simultaneous upstream and downstream visual coverage where sightlines are restricted by bridge infrastructure and adjacent quayside features.

Fishes

While no significant ecological effects from the proposed works are predicted for fish species, the works will be undertaken in accordance with Inland Fisheries Ireland (IFI) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016). Standard operational procedures and embedded environmental controls, including pollution prevention measures and the use of low-impact drilling techniques, will minimise the potential for disturbance to migratory fish species and deterioration in water quality. This approach is consistent with the National Marine Planning Framework objective to protect biodiversity, maintain ecosystem function and avoid significant adverse effects on marine ecological receptors.

3.3.3 Residual Effects

None.

3.4 Fisheries and Aquaculture

3.4.1 Baseline

The Proposed Project is not located within any commercial fishing zones, as per Ireland's Marine Atlas¹¹ (see Figure 4.6-4). The nearest aquaculture operation is off Clogga Bay in Co. Wicklow (Irish Mussel Seed Company Ltd.), which is approximately 67 km from the Proposed Project location.



Figure 4.6-4 - Commercial Fishing Zones

3.4.2 Assessment of Effects

Considering the nature, scale and location of the Proposed Project in relation to commercial fisheries and aquaculture operations, the potential for significant impacts is considered negligible. Moreover, the safeguarding of water quality will be managed at source via the implementation of in-built standard operational procedures, such that water quality perturbations will not occur.

¹¹ Marine Institute (2025). Ireland's Marine Atlas. Available at: <https://atlas.marine.ie/> (accessed 03.07.2025).

3.4.3 Operational Controls /Monitoring

None proposed.

3.4.4 Residual Effects

None.