Cork City Council

# Cork Docklands North and South Quays Maritime Usage Licence Application

## Attachment 4.5 Consistency of Proposed Maritime Usage with Objectives of the Water Framework Directive

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**AQUAFACT REF: P20039**

**2026**



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|---|---|
| **Client:** | Cork City Council |
| **Address:** | City Hall, 1-2 Angleasea Street, Cork T21T997 |
| **Reference no:** | P20039 |
| **Date of issue:** | 30/07/2026 |
| **Version Number:** | Final |


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|---|---|
| **Registered in Ireland:** | No. 493496 |
| **Tax Reference Number:** | 9773384O |
| **Tax Clearance Number:** | 559674 |

# Report Approval Sheet

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|---|---|
| **Client** | Cork City Council |
| **Report Title** | Cork Docklands North and South Quays Maritime Usage Licence Application |
| **Job Number** | P20039 |
| **Report Status** | Final |
| **Issue Date** | 30/07/2026 |
| **Report Type** | Attachment 4.5 Water Framework Directive Report |

| Rev | Status | Issue Date | File Name | Author(s) | Approved By |
|---|---|---|---|---|---|
| 1 | Draft | 27/07/2026 | Attachment 4.5 Compliance with Objectives of the WFD_CDSNQ_v1 | AM, BD | AL |
| 2 | Final | 30/07/2026 | Attachment 4.5 Compliance with Objectives of the WFD_CDSNQ_final | AM, BD | AL |

# Contents

# List of Tables

# List of Acronyms/ Glossary

| Abbreviation | Meaning |
|---|---|
| EPA | Environmental Protection Agency |
| EQSD | Environmental Quality Standards Directive |
| EU | European Union |
| GIS | Geographic Information System |
| MARA | Maritime Area Regulatory Authority |
| MARPOL | International Convention for the Prevention of Pollution from Ships |
| MUL | Maritime Usage Licence |
| pNHA | Proposed Natural Heritage Area |
| RBD | River Basin District |
| RIB | Rigid Inflatable Boat |
| SAC | Special Area of Conservation |
| SPA | Special Protection Area |
| WFD | Water Framework Directive |

# 1. Introduction

MARA is required to have regard to the Directive 2000/60/EC, the European Union (EU) Water Framework Directive (WFD), and the associated implementing national legislation, the European Communities (Water Policy) Regulations 2003 and further implemented by the European Communities Environmental Objectives (Surface Water) Regulations, 2009. The Water Framework Directive requires all member states to protect and improve water quality in inland surface waters, transitional waters, coastal waters and groundwater so that good ecological status is achieved by 2027. Water bodies in moderate, poor, or bad ecological status require mitigation and restoration to achieve the good status objective. Additional measures apply to protected areas under the Directive. Protected areas which may be relevant to the proposed Maritime Usage, include:

- Areas designated for the protection of economically significant aquatic species under the Habitats Directive.
- Bodies of water designated as recreational waters, including areas designated as bathing waters under the revised Bathing Water Directive (2206/7/EC).
- Nutrient-sensitive areas, including areas designated as vulnerable zones under Directive 91/676/EEC and areas designated as sensitive areas under Directive 91/271/EEC.
- Areas designated for the protection of habitats or species where the maintenance or improvement of the status of water is an important factor in their protection, including relevant Natura 2000 sites designated under the Habitats Directive or Birds Directive.

# 2. Zone of Influence and Water Framework Directive Status

The proposed Maritime Usage Licence (MUL) area occurs within two waterbodies, the transitional waterbodies; Lee (Cork)_Estuary Lower (IE_SW_060_0900) and Lough Mahon (IE_SW_060_0750). As such, the zone of influence includes two WFD transitional waterbody.

## 2.1. Lee (Cork) Estuary Lower WFD Status (2016-2021)

The Lee (Cork) Estuary Lower (IE_SW_060_0900) is classified as a transitional waterbody within the South Western River Basin District and falls under the Lee, Cork Harbour and Youghal Bay catchment unit (HA 19) (see **Table 2-1** for overall WFD classification).

For the 2016–2021 assessment period (Cycle 2), the waterbody was assigned an overall ecological status of Moderate, determined using probability-based environmental monitoring and the national monitoring assessment approach, with high confidence in the classification. The waterbody is currently identified as 'At Risk' of not achieving its WFD environmental objective. During Cycle 2 (2016-2021), nutrients and organic enrichment were cited as a significant issue, primarily associated with urban wastewater discharges and urban runoff. The environmental objective for the Lee (Cork) Estuary Lower waterbody is to achieve Good Ecological Status by 2027.

In October 2025, the EPA published its latest three-yearly Water Quality in Ireland assessment (2019–2024), which presents updated status classifications based on national monitoring data. In this assessment, the Lee (Cork) Estuary Lower waterbody was classified as Poor, with high confidence in the classification, representing a deterioration in overall ecological status compared to the previous Cycle 2 classification. The biological quality element driving the reduction in status was phytoplankton, which determined the overall classification in accordance with the WFD "one-out, all-out" principle.

Notably, several supporting physico-chemical elements improved between monitoring periods. Despite nutrient and organic enrichment noted as significant issues in the 2016-2021 monitoring period, nutrient condition improved from Moderate (2016–2021) to Good (2019–2024), while phosphorus condition improved from Good to High over the same period.

**Table 2-1: Overall Water Framework Directive (WFD) classification for Lee (Cork) Estuary Lower, Cycle 2 (2016-2021).**

| Attribute | Details |
|---|---|
| **Name** | Lee (Cork) Estuary Lower |
| **Code** | IE_SW_060_0900 |
| **WFD Status (2016-2021)** | Moderate |
| **WFD Status (2019-2024)** | Poor |
| **Catchments** | 19 Lee, Cork Harbour and Youghal Bay |
| **Latitude** | 51.90047 |
| **Longitude** | -8.40632 |
| **Cycle 1 RBD** | South Western |
| **Local Authority** | Cork City Council |
| **Waterbody Category** | Transitional |
| **WFD Risk** | At risk |
| **Protected Area** | Yes |
| **High Status Objective** | No |
| **Heavily Modified** | Yes |
| **Artificial** | No |
| **Area (Km²)** | 0.88 |
| **Length (Km)** | N/A |
| **Transboundary** | No |

The 2019–2024 ecological quality elements contributing to the current interim classification (Poor ecological status) reflect reduced biological condition across multiple trophic and community components (**Table 2-2**). The overall biological quality element and phytoplankton status/potential are both classified as Poor, indicating impaired primary producer performance and ecological functioning at the base of the estuarine food web. In accordance with the WFD "one-out, all-out" principle, the element with the lowest status in each step of the process determines the overall classification.

Hydromorphological conditions and general supporting chemistry conditions are classified as Moderate reflecting pressures on estuarine structure and physicochemical stability. Oxygenation conditions are also classified as Moderate, including dissolved oxygen metrics, indicating periodic stress on respiration-supporting processes and sensitivity to eutrophication. However, the sub-element "other determinants of oxygenation conditions" is classified as High, suggesting that certain supporting chemical parameters are performing well within acceptable thresholds.

Importantly, overall nutrient condition is classified as Good, with phosphorus condition rated as High, representing an improvement relative to the previous monitoring period (2016-2021). While nutrients were previously identified as a pressure within the waterbody, current monitoring data indicate compliance with relevant threshold standards. The deterioration in overall ecological status from Moderate (2016–2021) to Poor (2019–2024) is attributable to the phytoplankton biological element.

**Table 2-2: Detailed Water Framework Directive (WFD) ecological status classification for Lee (Cork) Estuary Lower (2019-2024).**

| Element | Assessment Technique | Status Confidence | Value |
|---|---|---|---|
| Ecological Status or Potential | Monitoring | High confidence | Poor |
| Biological Status or Potential | | | Poor |
| Biological Status or Potential: Phytoplankton Status or Potential | | | Poor |
| Hydromorphological Conditions | | | Moderate |
| Supporting Chemistry Conditions | | | Moderate |
| Supporting Chemistry Conditions: General Conditions | | | Moderate |
| Supporting Chemistry Conditions: Oxygenation Conditions | | | Moderate |
| Oxygenation Conditions: Dissolved Oxygen (% Sat) | | | Moderate |
| Oxygenation Conditions: Other determinant for oxygenation conditions | | | High |
| Nutrient Conditions | | | Good |
| Nutrient Conditions: Other determinand for nutrient conditions | | | Good |
| Nutrient Conditions: Phosphorous Conditions | | | High |
| Phosphorous Conditions: Orthophosphate | | | High |

## 2.2. Lough Mahon WFD Status (2016-2021)

The Lough Mahon (IE_SW_060_0750) is classified as a transitional waterbody within the South Western River Basin District and falls under the Lee, Cork Harbour and Youghal Bay catchment unit (HA 19) (see **Table 2-3** for overall WFD classification).

For the 2016–2021 assessment period (Cycle 2), the waterbody was assigned an overall ecological status of Moderate, determined using probability-based environmental monitoring and the national monitoring assessment approach, with high confidence in the classification. The waterbody is currently identified as 'At Risk' of not achieving its WFD environmental objective. During Cycle 2 (2016-2021), nutrients and organic enrichment were cited as a significant issue, primarily associated with urban wastewater discharges. The environmental objective for the Lough Mahon waterbody is to achieve Good Ecological Status by 2027.

In the latest three-yearly Water Quality in Ireland assessment (2019–2024), the Lough Mahon waterbody was classified as Moderate, with high confidence in the classification, indicating that the overall ecological status has remained unchanged compared to the previous Cycle 2 classification.

The biological quality elements show variation in condition. Phytoplankton status was classified as Moderate, while invertebrate status was classified as Good. Several supporting physico-chemical

elements were also assessed. Nutrient conditions were classified as Moderate, while phosphorus conditions and orthophosphate concentrations were classified as High. Oxygenation conditions were classified as Moderate, although other determinants associated with oxygenation conditions achieved High status. Specific pollutant conditions were recorded as Pass.

Several supporting physico-chemical elements improved between monitoring periods. While nutrient conditions remained classified as Moderate in both assessment periods, phosphorus condition improved from Good (2016–2021) to High (2019–2024). In addition, the other determinant for oxygenation conditions improved from Moderate (2016–2021) to High (2019–2024), while the indicator specific pollutant conditions continued to achieve Pass status. Chemical surface water status was not assessed for the 2019–2024 monitoring period. However, during the 2016–2021 assessment period (Cycle 2), the chemical surface water status for the waterbody was classified as Failing to achieve good.

**Table 2-3: Overall Water Framework Directive (WFD) classification for Lough Mahon, Cycle 2 (2016-2021).**

| Attribute | Details |
|---|---|
| **Name** | Lough Mahon |
| **Code** | IE_SW_060_0750 |
| **WFD Status (2016-2021)** | Moderate |
| **WFD Status (2019-2024)** | Moderate |
| **Catchments** | 19 Lee, Cork Harbour and Youghal Bay |
| **Latitude** | 51.8741 |
| **Longitude** | -8.33311 |
| **Cycle 1 RBD** | South Western |
| **Local Authority** | Cork County Council |
| **Waterbody Category** | Transitional |
| **WFD Risk** | At risk |
| **Protected Area** | Yes |
| **High Status Objective** | No |
| **Heavily Modified** | Yes |
| **Artificial** | No |
| **Area (Km²)** | 12.25 |
| **Length (Km)** | N/A |
| **Transboundary** | No |

The 2019–2024 ecological quality elements contributing to the current interim classification (Moderate ecological status) reflect reduced biological condition across multiple trophic and community components (**Table 2-4**). The overall biological quality element and phytoplankton status/potential are both classified as Moderate, indicating impaired primary producer performance and ecological functioning at the base of the estuarine food web. In accordance with the WFD "one-

out, all-out" principle, the element with the lowest status in each step of the process determines the overall classification.

Hydromorphological conditions and general supporting chemistry conditions are classified as Moderate, reflecting pressures on estuarine structure and physicochemical stability. Oxygenation conditions are also classified as Moderate, including dissolved oxygen metrics, indicating periodic stress on respiration-supporting processes and sensitivity to eutrophication. However, the sub-element "other determinants of oxygenation conditions" is classified as High, suggesting that certain supporting chemical parameters are performing well within acceptable thresholds.

Importantly, overall nutrient condition is classified as Moderate, with phosphorus condition rated as High (**Table 2-4**), representing an improvement relative to the previous monitoring period (2016–2021). While nutrients were previously identified as a pressure within the waterbody, current monitoring data indicate partial compliance with relevant threshold standards. The overall ecological status of the waterbody remained Moderate between the 2016–2021 and 2019–2024 assessment periods, with improvements recorded in some elements, indicating overall stability and a potential trend towards improvement to status during the next cycle.

**Table 2-4: Detailed Water Framework Directive (WFD) ecological status classification for Lough Mahon (2019-2024).**

| Element | Assessment Technique | Status Confidence | Value |
|---|---|---|---|
| Ecological Status or Potential | Monitoring | High confidence | Moderate |
| Biological Status or Potential | | | Moderate |
| Biological Status or Potential: Phytoplankton Status or Potential | | | Moderate |
| Biological Status or Potential: Invertebrate Status or Potential | | | Good |
| Hydromorphological Conditions | | | Moderate |
| Supporting Chemistry Conditions | | | Moderate |
| Supporting Chemistry Conditions: General Conditions | | | Moderate |
| Supporting Chemistry Conditions: Oxygenation Conditions | | | Moderate |
| Oxygenation Conditions: Dissolved Oxygen (% Sat) | | | Moderate |
| Oxygenation Conditions: Other determinant for oxygenation conditions | | | High |
| Nutrient Conditions | | | Moderate |
| Nutrient Conditions: Other determinant for nutrient conditions | | | Moderate |
| Nutrient Conditions: Phosphorous Conditions | | | High |
| Phosphorous Conditions: Orthophosphate | | | High |
| Specific Pollutant Conditions | | | Pass |

# 3. Impact of Proposed Maritime Usage within Zone of Influence

Effects to water quality include localised disturbance to the seabed at both the North Quays and South Quays proposed survey sites, and may cause very minor, localised redistribution of sediment. The proposed survey methods are temporary, short-term and local in scale, with negligible physical disturbance of the benthos. Grab sampling is proposed to take place for the South Quay surveys, with an area of 1.2 $m^2$ of the intertidal zone, and 0.75 $m^2$ of the subtidal area across 78 samples. They may create negligible, localised disturbance to the benthos with no long-term impacts to the seabed or water quality. The proposed Maritime Usage Licence also includes structural-only investigation of quay walls at Cork North Docks, specifically at Horgan's Quay, the Turning Basin, and North Deep-Water Quay, within the Lee (Cork) Estuary Lower waterbody. These North Quays works comprise above-water and underwater structural survey, including diver-led inspection of the submerged quay wall faces, wall toe and scour conditions, sonar or echo sounding of the riverbed profile at the wall toe, and material testing of structural elements such as concrete coring or chipping where required to confirm compressive strength and durability.

The North Quays structural survey is observational and investigative in nature and does not include ecological or archaeological surveys. Diver operations and sonar profiling at the wall toe do not involve grab sampling, dredging or excavation of the seabed in the North Quays area, and concrete coring or chipping is confined to the quay walls and suspended slabs rather than the riverbed itself. Underwater concrete sampling at the North Quays will only be undertaken where the above-water and underwater visual/physical inspection findings indicate a specific need such as evidence of deterioration, exposed reinforcement, or uncertainty regarding construction material and properties.

All coring and grinding works will employ containment measures, including tarpaulins, casings and controlled collection of cuttings, to prevent debris and residues entering the water column, and all spoil and cutting water will be removed from site and disposed of in accordance with applicable waste management regulations. As a result, the North Quays structural survey introduces no measurable change to nutrient concentrations, dissolved oxygen, salinity, or chemical status, and does not alter hydromorphological conditions or sediment dynamics beyond natural variability within the transitional receiving waters.

There is minimal risk of introducing pollutants to the environment or significant seabed disturbance that may impact flora or fauna (*e.g.,* sediment accumulation/transport), and as such no deterioration in ecological or chemical status is anticipated as a result of the proposed maritime usage (described in detail in Attachment 3.1 Description of the Proposed Maritime Usage).

In terms of spillages/oil leaks and other pollutants, any survey vessels used will adhere to relevant requirements under the MARPOL and MARPOL Annex I conventions for storage and treatment of onboard pollutants and operate in compliance with MARPOL best practice for pollution prevention. Underwater concrete sampling at the North Quays has the potential to introduce low concentrations of contaminants to the waterbody. These will only be undertaken where the above-water and underwater visual/physical inspection findings indicate a specific need such as evidence of deterioration, exposed reinforcement, or uncertainty regarding construction material and properties. All waste disposal for the proposed surveys at the North and South Quays will be subject to stringent containment and waste management protocols and will not exceed threshold values set in accordance with the WFD.

The method and scale of works are consistent with the WFD's objective to maintain (or aim to achieve) Good ecological and chemical status in transitional receiving waters of the Lee (Cork) Estuary Lower and Lough Mahon (**Table 3-1**). The surveys are also not expected to compromise the integrity of relevant Natura 2000 sites (please see attachment 4.3 SISAA and NIS for more detail on this).

**Table 3-1: Assessment of interaction with Water Framework Directive (WFD) objectives.**

| WFD Quality Element / Objective | Potential Interaction | Assessment Outcome |
|---|---|---|
| Ecological Status or Potential (biological elements: benthic invertebrates, fish, phytoplankton) | Temporary, highly localised disturbance of benthic habitats due to benthic grab surveys undertaken as part of the South Quays environmental investigations, and negligible, localised disturbance associated with diver-led inspection of the quay wall faces, wall toe and scour conditions, and sonar profiling at the North Quays structural survey sites. No ecological or archaeological surveys are undertaken at North Quays, and no grab sampling or seabed excavation occurs in that area. | Short-term and localised; no long-term status change anticipated. The combined environmental and structural survey works do not exert pressures of a type or scale that would alter benthic invertebrate, fish or phytoplankton status or overall ecological classification within Lee (Cork) Estuary Lower or Lough Mahon. |
| Chemical Status (priority substances under EQSD) | No chemical inputs from project. Structural coring and material testing at quay walls and suspended slabs are carried out with containment measures to prevent dust, cuttings or other residues entering the water column, and all spoil is removed and disposed of appropriately. Vessel operations comply with MARPOL requirements | No deterioration. The surveys do not introduce priority substances or other contaminants that could affect chemical surface water status or compromise progress towards good chemical status |
| Hydromorphology (tidal regime, | No change to hydromorphology. Environmental surveys at South Quays involve only small-scale grab sampling and observational investigations, and the North Quays structural survey is confined | No alteration beyond natural variability. The combined surveys do not change tidal regime, morphology or sediment |

| | | |
|---|---|---|
| morphology, sediment dynamics) | to inspection and testing of existing quay structures, with limited observational interaction at the wall toe and no modification of tidal regime, channel morphology or sediment transport processes | dynamics in a way that could influence hydromorphological status. |
| Supporting Physico-chemical Conditions (nutrients, dissolved oxygen, salinity) | No change to nutrients, dissolved oxygen, salinity or other supporting physico-chemical conditions. The surveys involve no discharges, abstractions or emissions that could influence nutrient or oxygen concentrations or salinity regimes, and any temporary, very localised resuspension of sediment during grab sampling or wall toe inspection is negligible relative to natural estuarine variability. | No alteration beyond natural variability. Supporting physico-chemical conditions remain governed by existing pressures and natural processes within the transitional waterbodies. |
| Achievement of Future Status Objectives | Project scale and method compatible with achieving targets. The environmental and structural surveys are short-term, non-polluting, and confined to small footprints within heavily modified estuarine waters, and do not entail permanent works, dredging or reclamation. No permanent effects on ecological or chemical status are anticipated, and the surveys provide baseline information that can support future management and restoration measures. | No constraint on future improvements. The combined survey package does not hinder progress towards achieving good ecological and chemical status in Lee (Cork) Estuary Lower and Lough Mahon by 2027. |

## 4. Designated Waters

There is no overlap of the Proposed Maritime Usage Licence (MUL) Area with designated Shellfish Waters, bivalve mollusc production areas, or designated Bathing Waters. The easternmost extent of the MUL Area partially overlaps Cork Harbour Special Protection Area (SPA) (site code: 004030), which forms part of the Natura 2000 network designated under the Birds Directive (2009/147/EC). Survey activities within this area will be limited to low-impact environmental investigations (subtidal and intertidal surveys). The potential for effects on European sites has been assessed separately in Attachment 4.3 Supporting Information for Screening for Appropriate Assessment and Natura Impact Statement. The Proposed MUL Area also overlaps two proposed Natural Heritage Areas (pNHAs): Douglas River Estuary pNHA (site code: 001046) and Dunkettle Shore pNHA (site code: 001082). These sites comprise estuarine and intertidal habitats associated with the Douglas River estuary and the mouth of the Glashaboy River, respectively. Both pNHAs form part of the wider Cork Harbour estuarine complex and overlap in part with the Cork Harbour SPA. These areas support wetland habitats and provide important habitat for wintering waterbirds. The proposed site investigation surveys within these areas will be limited to brief subtidal and intertidal investigations associated with environmental sampling. The surveys will not involve dredging, reclamation, discharges, or permanent

alteration of habitats. Given the temporary, localised and non-polluting nature of the proposed surveys, no pathway has been identified by which the surveys could affect the status or objectives of the designated waters listed above.

The Lee Estuary and Lough Mahon are designated as Nutrient Sensitive Areas under the Urban Waste Water Treatment Directive (91/271/EEC), as transposed into Irish law through the Urban Waste Water Treatment Regulations (S.I. No. 208/1999, S.I. No. 254/2001, S.I. No. 440/2004 and S.I. No. 48/2010) and most recently updated by S.I. No. 403/2025 (Urban Wastewater (Nutrient-Sensitive Areas) Regulations 2025).

Nutrient-sensitive areas are waters identified as being eutrophic or at risk of eutrophication in the absence of protective measures. Eutrophication arises from nutrient enrichment, principally nitrogen and phosphorus, and may result from urban wastewater discharges, agricultural runoff, and other diffuse inputs. Designation under the Urban Waste Water Treatment Directive requires enhanced (tertiary) treatment of relevant urban wastewater discharges to reduce nutrient loading to sensitive receiving waters. For the purposes of the Water Framework Directive Register of Protected Areas, the waterbody containing the designated sensitive area represents the nutrient-sensitive area. Ireland also implements the Nitrates Directive (91/676/EEC) through a Nitrates Action Programme prepared in accordance with Article 5 of the Directive. This establishes measures to control agricultural nutrient inputs at a national scale in order to prevent deterioration of surface and groundwaters and to protect nutrient-sensitive waters.

The designation of the Lee Estuary and Lough Mahon reflects the need to manage nutrient inputs at a catchment scale. However, the proposed site investigation surveys are short-term and localised in nature. The surveys comprise discrete sampling and associated vessel activity. They will not involve discharges, nutrient inputs, or any alteration of hydromorphology. Any temporary sediment disturbance will be minimal and spatially confined. Vessels will operate in accordance with MARPOL Annex I best practice for pollution prevention, including required fuel and oil management and spill prevention procedures.

Given the limited scale, duration and non-polluting characteristics of the proposed surveys, no pathway has been identified by which the site investigation surveys could contribute to nutrient loading, eutrophication processes, or deterioration of water quality within the designated Nutrient Sensitive Area. The proposed maritime usage is therefore consistent with the objectives of the Urban Waste Water Treatment Directive, the Nitrates Directive, and the Water Framework Directive

requirement to prevent deterioration of protected areas and support the achievement of Good Ecological Status.

## 5. Other Considerations

The core principles of the WFD are to prevent the deterioration of water body status, to protect and enhance existing water bodies, and to promote the long-term sustainable use of water. The Directive also seeks to protect, enhance, and restore aquatic ecosystems through progressive reductions in discharges, emissions, and losses of priority substances, while working towards the cessation or phasing-out of priority hazardous substances. It requires the progressive reduction of groundwater pollution and prevention of further contamination and contributes to the mitigation of floods and droughts. The WFD also addresses hydromorphological pressures, requires the implementation of River Basin Management Plans, and sets out the overarching goal of achieving “good” ecological and chemical status for all waters.

In Ireland, the Directive is implemented through the European Communities (Water Policy) Regulations 2003 (as amended). The current cycle, the Third River Basin Management Plan (2022–2027), establishes national goals and measures to address pressures including nutrient enrichment, urban wastewater, hydromorphological alteration and diffuse inputs to transitional waters such as the lower River Lee Estuary.

The Cork Docklands South Quays Project extends approximately 3.4 km along the River Lee from Kennedy Quay to Blackrock Village and includes public realm improvements, repair and/or replacement of quay walls and jetties, and integrated flood defence measures. In parallel, the North Docks scheme includes public realm and transport infrastructure, with associated structural repair and upgrade of existing quay walls and slabs at Horgan’s Quay, Turning Basin, and the North Deep-Water Quay. The proposed Maritime Usage Licence relates solely to site investigation surveys required to inform the detailed design of these works, comprising environmental, archaeological and structural surveys at the South Quays, and only structural surveys at the North Quays.

The site investigations comprise discrete sampling and associated vessel operations. The surveys are temporary and localised in nature and will not involve dredging, reclamation, wastewater discharges, nutrient inputs, or permanent alteration of channel morphology. Any sediment disturbance will be minor and short-term, limited to the immediate footprint of the sampling locations. Vessels will operate in accordance with standard marine pollution prevention measures, including MARPOL Annex I requirements for the management of fuels and oils, and will use dynamic positioning to reduce the

need for seabed anchoring under normal operating conditions, minimising any physical interaction between the vessel and the seabed.

Having regard to the scale, duration and nature of the proposed surveys, no pathway has been identified by which the surveys could result in deterioration of ecological or chemical status, adversely affect hydromorphological quality elements, or compromise the environmental objectives established under the Water Framework Directive for the receiving waterbodies. The proposed maritime usage is therefore consistent with the WFD requirement to prevent deterioration and does not conflict with the objectives of the current River Basin Management Plan.

## 6. Statement of Authority

This report has been prepared by Alanna Mitchell (B.Sc., M.Sc.), as the primary author. Alanna holds a First-Class honours degree in Marine Science (B.Sc.) with National University of Ireland, Galway, where she studied and surveyed intertidal shores in Galway to develop baseline information for future monitoring, including investigating species assemblages, richness, and biotopes (JNCC). She holds a First-Class honours degree in Marine Biology (M.Sc.) from University College Cork, where she participated in a project sponsored by the Marine Institute investigating the reproduction, health, and immunology of native oysters in artificial conditions. She is specialised in intertidal monitoring around Irish coasts and Geographical Information Systems (GIS) programmes. Alanna is Consultant Ecologist in the marine sector and has worked on a range of projects including sanitary surveys, benthic audits, EIAR, NIS, Assessment of Impacts of the Maritime Usage reports and assessments of Marine Usage Licences.

This report has been reviewed by Dr. A. Long who is a Principal Marine Consultant with over a decade of experience across consultancy, government, and academia, with a PhD in marine ecology from the University of Galway. His career has focused on the assessment and management of environmental impacts in the marine environment, with specialist expertise in Environmental Impact Assessment, Appropriate Assessment, Maritime Usage Licences, and Dumping at Sea permits. He has successfully managed and delivered complex multidisciplinary projects for high-profile clients in Ireland, Australia, and Brazil in sectors including fisheries, aquaculture, offshore renewables, ports, and wastewater, authoring over 50 major technical reports. His background includes detailed ecological and environmental quality assessments, monitoring programme design, and statistical analysis, supported by peer-reviewed publications and international research collaborations. Drawing on this expertise and his in-depth knowledge of EU and Irish environmental legislation, Dr. Long is suitably qualified to

provide a robust consideration of the project's consistency with the objectives of the Water Framework Directive.