

Marina Quarter Ltd

Marine Environmental Surveys for Haggardstown and Marshes Upper Large- scale Residential Development

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

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List of Acronyms/Glossary

<i>Abbreviation</i>	<i>Definition</i>
<i>MARA</i>	Maritime Area Regulatory Authority
<i>WFD</i>	Water Framework Directive
<i>RBD</i>	River Basin District
<i>GIS</i>	Geographic Information System
<i>SAC</i>	Special Area of Conservation
<i>SPA</i>	Special Protection Area
<i>pNHA</i>	proposed Natural Heritage Area
<i>ZOI</i>	Zone of Influence
<i>RBMP</i>	River Basin Management Plan
<i>SDG 6</i>	Sustainable Development Goal 6

1. Introduction

MARA is required to have regard to the Directive 2000/60/EC, the EU Water Framework Directive, 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 MUL area overlaps three transitional waterbodies; Castletown Estuary (IE_NB_040_0200), Ballymascanlan Estuary (IE_NB_040_0300) and Inner Dundalk Bay (IE_NB_040_0100). As such, the zone of influence includes these three WFD transitional waterbodies.

2.1 Castletown Estuary WFD status (2016-2021)

The Castletown Estuary (IE_NB_040_0200) is classified as a Transitional waterbody within the Neagh Bann River Basin District and falls under the 06 Newry, Fane, Glyde and Dee catchment unit, administered by Louth County Council. For the 2016–2021 assessment period, the waterbody was assigned an overall WFD status of Poor, determined using probability-based environmental monitoring and the national Monitoring assessment approach, with high confidence in the status classification. The estuary is categorised as “At risk” under the WFD risk framework.

Table 1 Overall WFD classification for Castletown Estuary, Cycle 2 (2016-2021)

Attribute	Details
Name	Castletown Estuary
Code	IE_NB_040_0200
WFD Status (2016-2021)	Poor
Catchments	06 Newry, Fane, Glyde, and Dee
Latitude	54.01308
Longitude	-6.36099
Cycle 1 RBD	Neagh Bann
Local Authority	Louth County Council
Waterbody Category	Transitional
WFD Risk	At risk
Protected Area	Yes
High Status Objective	No
Heavily Modified	No
Artificial	No
Area (Km²)	1.91
Length (Km)	N/A
Transboundary	No

The ecological sub-indicators contributing to this classification reflect reduced biological condition across multiple trophic and community components (Table 2). Biological status and phytoplankton potential are both rated as Poor, indicating constrained primary-producer performance and impaired ecological function at the base of the food web. Fish status is rated as Moderate, demonstrating measurable community alteration relative to baseline transitional waters. Hydromorphological and general supporting chemistry conditions are Moderate, reflecting pressures on estuarine structure and physicochemical stability. Oxygenation, dissolved oxygen saturation, and nutrient conditions are also Moderate, signalling periodic stress on respiration-supporting processes and eutrophication sensitivity. Phosphorous conditions are Good, while “Other determinant for oxygenation conditions” is also Good, suggesting that although some specific chemical metrics meet acceptable thresholds, they are insufficient to offset Poor biological and ecological performance in determining overall status.

Table 2 Detailed WFD classification for Castletown Estuary, Cycle 2 (2016-2021)

Status	Assessment Technique	Status Confidence	Value
<i>Ecological Status or Potential</i>	Monitoring	high confidence	Poor
<i>Biological Status or Potential</i>			Poor
<i>Phytoplankton Status or Potential</i>			Poor
<i>Fish Status or Potential</i>			Moderate
<i>Hydromorphological Conditions</i>			Moderate
<i>Supporting Chemistry Conditions</i>			Moderate
<i>General Conditions</i>			Moderate
<i>Oxygenation Conditions</i>			Moderate
<i>Dissolved Oxygen (% Sat)</i>			Moderate
<i>Other determinant for oxygenation conditions</i>			Good
<i>Nutrient Conditions</i>			Moderate
<i>Phosphorous Conditions</i>			Good

2.2 Ballymascan Estuary WFD Status (2016-2021)

The Ballymascanlan Estuary (IE_NB_040_0300) is classified as a Transitional waterbody within the Neagh Bann River Basin District, and forms part of the 06 Newry, Fane, Glyde and Dee catchment unit, under the administration of Louth County Council. For the 2016–2021 assessment period (Cycle 2), the estuary was assigned an overall WFD status of Moderate (Table 3).

Table 3 Overall WFD classification for Ballymascan Estuary, Cycle 2 (2016-2021)

Attribute	Details
Name	Ballymascanlan Estuary
Code	IE_NB_040_0300
WFD Status (2016-2021)	Moderate
Catchments	06 Newry, Fane, Glyde, and Dee
Latitude	54.02171
Longitude	-6.36189

Attribute	Details
Cycle 1 RBD	Neagh Bann
Local Authority	Louth County Council
Waterbody Category	Transitional
WFD Risk	Review
Protected Area	Yes
High Status Objective	No
Heavily Modified	No
Artificial	No
Area (Km²)	0.89
Length (Km)	N/A
Transboundary	No

The status classification for 2016–2021 has been derived using national-scale Grouping assessment of ecological status or potential, with medium confidence in the Moderate classification (**Table 4**).

Table 4 Detailed WFD classification for Ballymascan Estuary, Cycle 2 (2016-2021)

Status			Assessment Technique	Status Confidence	Value
<i>Ecological Potential</i>	<i>Status</i>	<i>or</i>	Grouping	medium confidence	Moderate

2.3 Inner Dundalk Bay WFD Status (2016-2021)

Inner Dundalk Bay (waterbody code IE_NB_040_0100) is classified as a Transitional waterbody within the Neagh Bann River Basin District, forming part of the 06 Newry, Fane, Glyde and Dee catchment, under the administration of Louth County Council. For the 2016–2021 assessment period (Cycle 2), the waterbody was assigned an overall WFD status of Moderate and is “At risk” under the WFD risk characterisation framework (**Table 5**).

Table 5 Overall WFD classification for Inner Dundalk Bay, Cycle 2 (2016-2021)

Attribute	Details
Name	Inner Dundalk Bay
Code	IE_NB_040_0100
WFD Status (2016-2021)	Moderate
Catchments	06 Newry, Fane, Glyde, and Dee
Latitude	53.97793
Longitude	-6.30814
Cycle 1 RBD	Neagh Bann
Local Authority	Louth County Council
Waterbody Category	Transitional
WFD Risk	At risk
Protected Area	Yes
High Status Objective	No
Heavily Modified	No
Artificial	No
Area (Km²)	33.34
Length (Km)	N/A
Transboundary	No
Chemistry Data (Download)	SW 2019-2024

The Moderate classification is underpinned by probability-based monitoring of ecological, biological, and phytoplankton status, all classified as Moderate status, while invertebrate status was Good and specific invertebrate pollutant conditions pass (Table 6). General, oxygenation, dissolved oxygen saturation, and supporting chemistry conditions are Moderate, indicating sensitivity to episodic oxygen and nutrient-related stressors but not system-scale morphological modification. Nutrient and phosphorous conditions achieve Good potential, meeting the Directive's expectations for eutrophication control, and Specific Pollutant Conditions are recorded as "Pass". The waterbody also failed to achieve good Chemical Surface Water Status, attributed specifically to PBDE (PBDE-47/99/100 or related) (Table 6).

Table 6 Detailed WFD classification for Inner Dundalk Bay, Cycle 2 (2016-2021)

<i>Status</i>	<i>Assessment Technique</i>	<i>Status Confidence</i>	<i>Value</i>
<i>Ecological Status or Potential</i>	Monitoring	high confidence	Moderate
<i>Biological Status or Potential</i>			Moderate
<i>Phytoplankton Status or Potential</i>			Moderate
<i>Invertebrate Status or Potential</i>			Good
<i>Supporting Chemistry Conditions</i>			Moderate
<i>General Conditions</i>			Moderate
<i>Oxygenation Conditions</i>			Moderate
<i>Dissolved Oxygen (% Sat)</i>			Moderate
<i>Other determinand for oxygenation conditions</i>			High
<i>Nutrient Conditions</i>			Good
<i>Phosphorous Conditions</i>			Good
<i>Specific Pollutant Conditions</i>			Pass
<i>Chemical Surface Water Status</i>			Failing to achieve good*

*Status Failures Reasons: PBDE - unspecified isomers Failure for Chemical Status IE_NB_040_0100

3. Impact of Proposed Maritime Usage within Zone of Influence

Effects to water quality may include localised disturbance to the seabed and very minor, localised redistribution of sediment during benthic grab sampling. The proposed survey methods are temporary, short-term and local in scale. They may create negligible, localised disturbance to benthic habitats, with no long-term impacts to the seabed, hydromorphology or water quality anticipated.

There is minimal risk of introduction of 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 marine environmental surveys. Benthic sediment samples for faunal analysis, particle size analysis and organic carbon analysis will be collected using a 0.025 m² stainless-steel Van Veen grab sampler at project-specific intertidal and subtidal sampling stations, as illustrated in **Attachment 3.1** Description of the Proposed Maritime Usage.

Initial habitat characterisation will be undertaken using non-intrusive visual survey methods, including DDV and/or ROV, where appropriate. These methods will be used to characterise seabed habitats and inform the suitability of sampling locations. Grab sampling will be limited to the minimum required for baseline characterisation and will be undertaken only at suitable locations.

In terms of spillages/oil leaks and other pollutants, the survey vessels will adhere to relevant requirements under the MARPOL and MARPOL Annex I conventions for storage and treatment of onboard pollutants. Vessels will also adhere to relevance requirements under the MARPOL convention for storage and treatment of onboard pollutants and operate in compliance with MARPOL best practice for pollution prevention.

The method and scale of works are consistent with the WFD's objective to prevent deterioration and to support the achievement or maintenance of good ecological and chemical status in the transitional and coastal receiving waters of Inner Dundalk Bay, Castletown Estuary and adjacent marine habitats (Table 7). The surveys are also not expected to compromise the integrity of relevant Natura 2000 sites (please see attachment 4.3).

Table 7 Assessment of interaction with WFD Objectives.

<i>WFD Quality Element / Objective</i>	<i>Potential Interaction</i>	<i>Assessment Outcome</i>
<i>Ecological Status or Potential (biological elements: benthic invertebrates, fish, phytoplankton)</i>	Temporary, highly localised disturbance of benthic habitats due to benthic grab surveys (Van Veen grab sampling). Non-intrusive DDV and/or ROV will be used where appropriate to characterise seabed habitats and inform the suitability of sampling locations.	Short-term and localised; no long-term status change anticipated
<i>Chemical Status (priority substances under EQSD)</i>	No chemical inputs, emissions or discharges are associated with the proposed survey works. Survey vessels will operate in accordance with relevant pollution-prevention requirements	No deterioration
<i>Hydromorphology (tidal regime, morphology, sediment dynamics)</i>	The Proposed Maritime Usage does not include construction, dredging, excavation, infilling, repair works or any permanent alteration of the seabed or shoreline. Potential interaction is limited to negligible, temporary sediment disturbance during grab sampling.	No change to hydromorphological conditions beyond negligible, temporary sediment disturbance.
<i>Supporting Physico-chemical Conditions (nutrients, dissolved oxygen, salinity)</i>	No change to nutrients, dissolved oxygen, salinity, temperature or other supporting physico-chemical conditions.	No alteration beyond natural variability
<i>Achievement of Future Status Objectives</i>	Project scale and method are temporary and limited to marine environmental baseline survey activity. No permanent effects are proposed.	No constraint on future improvements

4. Designated Waters

A designated Shellfish Area (Dundalk Bay; EU Protected Area Code IEPA2_0044) overlaps spatially with the Inner Dundalk Bay WFD Transitional waterbody (Code IE_NB_040_0100) but does not overlap with the project's anticipated zone of influence for the proposed marine site investigation surveys. The Shellfish Area is formally registered as a Shellfish protected area type under the European Union Bathing Water and Shellfish Regulations transposing EU Directive 2006/113/EC and is monitored under the Neagh Bann RBD catchment unit.

Given the nature, method, scale, and temporary duration of the proposed Maritime Usage, no chemical inputs, emissions, or pollutant discharges are associated with the survey work. The proposed survey programme comprises temporary marine environmental baseline surveys, including non-intrusive visual survey methods, where appropriate, and limited 0.025 m² stainless-steel Van Veen grab sampling at discrete intertidal and subtidal sampling stations. Survey vessels will adhere to MARPOL Annex I best practice, where applicable, for the storage and management of onboard pollutants, and spill-prevention protocols, ensuring no deterioration of water quality is anticipated. Given the short-term, highly localised, and non-polluting nature of the survey programme, the proposed Maritime Usage is consistent with the WFD objective to prevent deterioration of designated protected areas and will not compromise the environmental supporting conditions required to maintain or achieve Good ecological or chemical status within Dundalk Bay.

As the Shellfish Area does not overlap with the project Zone of Influence, and given the survey programme is short-term, highly localised, and non-polluting, no deterioration of shellfish-water supporting conditions is anticipated.

No bathing waters were identified within the ZOI.

Statement of Authority

This report has been prepared by Anastasiia Khokhlova (B.Sc. (Hons), B.Sc. (Hons)), as the primary author. Anastasiia holds a First-Class Honours degree in Applied Freshwater and Marine Biology from Atlantic Technological University, Galway, and an Honours degree in Physics and Astronomy from the National University of Kyiv-Mohyla Academy. Her academic training includes freshwater and marine ecology, aquatic resource management, environmental legislation, GIS and advanced data analysis. She is a Graduate Marine Consultant with AQUAFAC and has experience conducting hydrological and water-quality assessments in Ireland, including hydrological assessments for water abstraction licensing considering abstraction pressures, hydrological conditions and Water Framework Directive (WFD) waterbody status. She has also contributed to

the statistical characterisation of WFD High Status river waterbodies, including analysis of catchment characteristics and environmental pressures associated with changes in High Status, and contributed to the preparation of the NPWS National Coastal Lagoon Monitoring Programme report, including reporting and interpretation of physicochemical and biological information. Drawing on this academic background and applied experience in hydrology, water quality and aquatic environmental assessment, Anastasiia is suitably qualified to undertake the WFD assessment for the proposed maritime usage.

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. 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.