ATTACHMENT 4.5 COMPLIANCE OF THE PROPOSED MARITIME USAGE WITH THE OBJECTIVES OF THE WFD

Oriel Wind Farm Project

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1.0 Consistency with Water Framework Directive Objectives

This note describes the potential impacts and effects of the proposed SI works on the receiving environment in order to demonstrate that the proposed SI activities are consistent with the Water Framework Directive objectives.

The European Parliament and Council Directive 2000/60/EC, establishing a Framework for Community Action in the Field of Water Policy, 2000, known as the Water Framework Directive (WFD), is the main law for water protection in Europe. It applies to inland, transitional, and coastal waters as well as groundwaters.

An objective of the WFD is to achieve the protection of aquatic ecology and habitats, drinking resources and bathing waters through river basin management planning and monitoring. This objective is summarised as Good Ecological Status (GES) and Good Ecological Potential (GEP) for artificial or heavily modified water bodies.

In addition to achieving good ecological and chemical status, a water body must achieve consistency with standards and objectives specified for protected areas, which include areas designated by the Bathing Water Directive; the Urban Waste Water Treatment Directive; the Shellfish Waters Directive; the Habitats Directive and the Birds Directive. Water bodies that are consistent with WFD standards, but that contain protected areas that are not consistent with protected area standards are downgraded to 'less than good' status. A Natura Impact Statement (Report ref: MDR1520C-TTI-00-XX-RP-Z-0004) has also been prepared for the proposed SI works, which examines the effects of the proposed SI works on the conservation objectives of European sites.

Guidance for undertaking a WFD Assessment is being prepared for planning authorities in Ireland but it is not yet published. However, the authors have had regard to the UK Planning Inspectorate *Guidance Note 18: The Water Framework Directive (Planning Inspectorate, 2017)* in examining if the proposed activities are consistent with the WFD objectives. The author has presented the information in this report having regard to the requirements in section 5.5.8 of MARA's Guidance Note for Applicants applying for a Maritime Usage Licence (MUL), which requires the following:

- Identify the transitional and coastal waterbodies within the Zone of Influence and any protected areas (see section 2.0); and
- Identify potential effects (see section 3.0).

The guidance also requires that the information must be provided by a suitably qualified person (see section 1.1).

1.1 Statement of Authority

The technical competence of the authors is outlined below.

Aoife Edgely is an Associate Marine Scientist in the Environmental Services Business Unit in Tetra Tech. She has over 15 years' experience in the marine science field and is a Chartered Environmentalist and a Full Member of the Institute of Environmental Sciences. Aoife holds an honours degree in Environmental Science from Trinity College Dublin and a Masters in Marine Environmental Protection from Bangor University, Wales. Aoife has delivered the environmental assessments for a wide range of marine and coastal projects, including environmental impact assessment, appropriate assessment and Annex IV species reports.

Rachael Shaw is a Project Scientist in the Environmental Services Business Unit in Tetra Tech. She holds a Bachelor's Degree in Marine Science from the University of Galway and Master's Degree in Climate Change and Managing the Marine Environment from Heriot-Watt University Edinburgh. She has five years' experience

working in consultancy, assisting on a wide range of projects from offshore renewable energy projects to flood relief schemes, including marine and terrestrial surveys. She is a full member with Institute of Environmental Sciences (IES).

Róisín Murphy is a Scientist in the Environmental Services Business Unit in Tetra Tech. She holds an honours degree in Zoology (B.Sc.) and Masters degree in Marine Biology, both from University College Cork. She has two years' experience as a Project Manager at Cork Nature Network, responsible for marine and river surveys, and one years' experience in marine licensing and flood relief projects within Tetra Tech. She is a qualifying member with IES.

2.0 Waterbodies within the Zone of Influence

The nearshore MUL Area lies within the Louth Coast (HA 06) (IE_NB_025_0000) coastal waterbody and small section of the northern array area lies within the Mourne Coast coastal waterbody. Table 2-1 shows a list of key waterbodies in the area as well as their codes, type and distance from the proposed works. These waterbodies are also displayed in Figure 2.1.

Table 2-1 Waterbodies which overlap or are hydrologically connected to the proposed SI works.

Waterbody Name	Waterbody Code	Waterbody Type	Distance from SI works
Louth Coast	IE_NB_025_0000	Coastal	Nearshore area of offshore cable corridor within waterbody
Mourne Coast	GBNIIE6NB020	Coastal	Small portion of the array area within waterbody
Outer Dundalk Bay	IE_NB_040_0000	Coastal	SI works outside of waterbody (0.3 km from MUL Area)
Carlingford Lough	GBNIIE6NB030	Coastal	SI works outside of waterbody (MUL Area 2.8 km south of waterbody)
Boyne Estuary Plume Zone	IE_EA_010_0000	Coastal	SI works outside of waterbody (MUL Area 13.3 km north of waterbody)
Northwestern Irish Sea	IE_EA_020_0000	Coastal	SI works outside of waterbody (MUL Area 14.8 km north of waterbody)

All of the waterbodies listed in the above table are within and/or are hydrologically linked to the MUL Area by the Irish Sea including SAC and SPA designated sites (i.e. Carlingford Lough SPA, Dundalk Bay SPA, Boyne Estuary SPA, River Nanny Estuary and Shore SPA, North-West Irish Sea SPA, Boyne Coast and Estuary SAC, Clogher Head SAC, Dundalk Bay SAC and Carlingford Shore SAC).

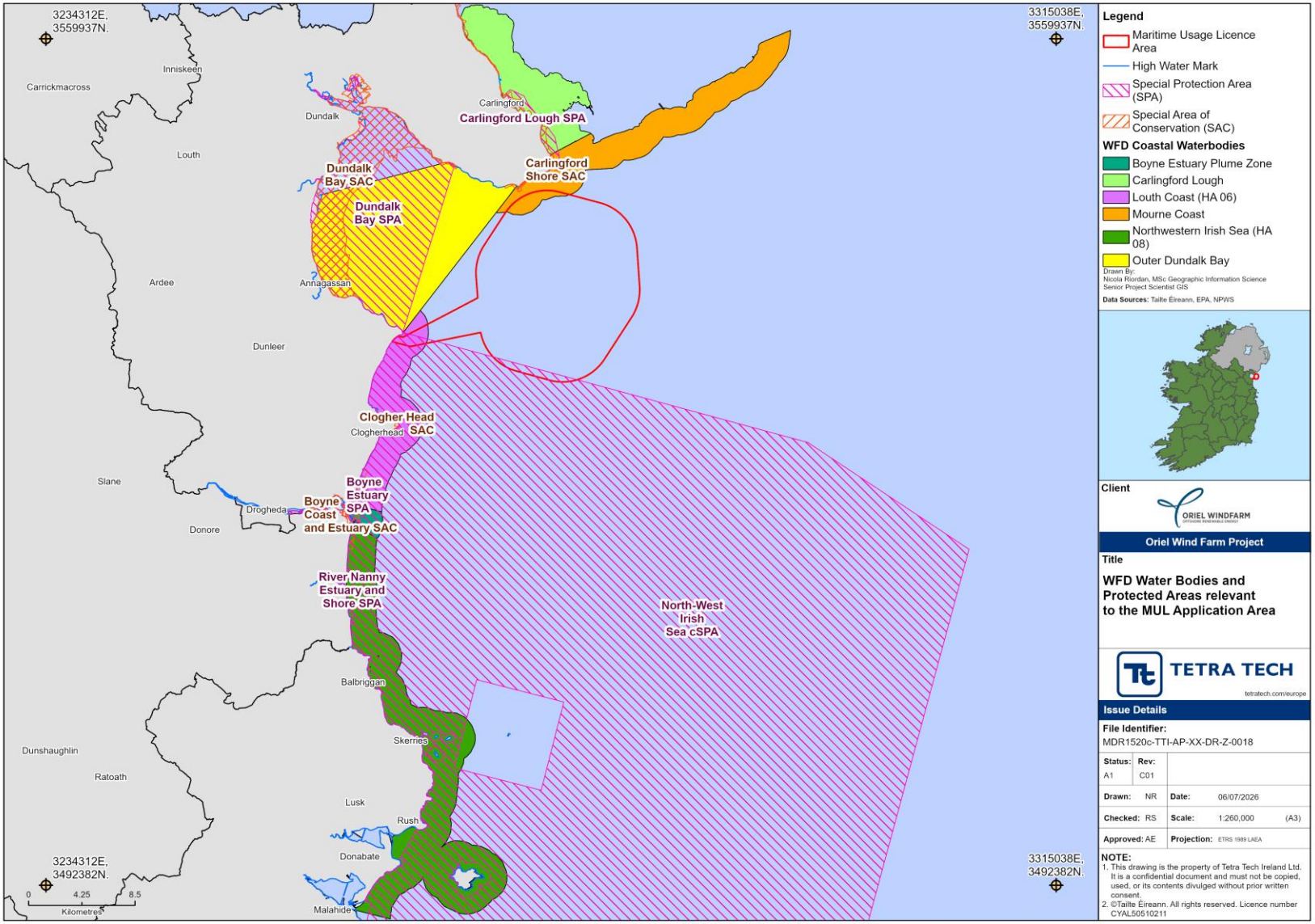

Figure 2.1 WFD Water Bodies and protected areas relevant to the MUL Area

Table 2-2 Bathing Water Areas which overlap or are hydrologically connected to the proposed SI works.

Bathing Water Area	Bathing Water Area Code	Distance from SI works
Port, Lurganboy	IENBBWC025_0000_0300	SI works outside of bathing water area (2 km from MUL Area)
Shelling Hill/Templetown	IENBBWC040_0000_0100	SI works outside of bathing water area (4 km from MUL Area)
Clogherhead	IENBBWC025_0000_0200	SI works outside of bathing water area (8 km from MUL Area)
Seapoint	IENBBWC025_0000_0100	SI works outside of bathing water area (9 km from MUL Area)
Laytown/Bettystown	IEEABWC020_0000_0700	SI works outside of bathing water area (17 km from MUL Area)

There are no bathing water areas within the MUL Area (see Table 2-2). The closest bathing water area is Lurganboy Beach, Co. Louth (IENBBWC025_0000_0300) located 2 km south of the MUL Area with excellent water quality as of 2025. Given the intervening distance there is no pathway to impact from the SI Works to Lurganboy Beach. According to the Addendum EIAR for Oriel Wind Farm (RPS, 2024)[1], all bathing water areas are outside the modelled tidal excursion from the offshore wind farm and offshore cable corridor areas (where the geotechnical investigations are proposed). While the sites listed in Table 2-2 are hydrologically linked to the MUL Area by the Irish Sea, the temporary nature of SI works, and baseline levels of turbidity given the tidal nature of the Irish Sea mean that bathing water quality will not be affected by the proposed SI works.

Table 2-3 lists the protected areas within or adjacent to the MUL Area, while Table 2-4 shows the overall WFD status of the relevant waterbodies from 2013-2024.

Table 2-3 WFD Register of Protected Areas (2018) within or adjacent to the MUL Area.

Protected Area	WFD Protected Area Type	Site Code	Distance from SI works
Dundalk Bay	Shellfish Area	IE_NB_040_0000	SI works within waterbody
Carlingford Lough	Shellfish Area	IE_NB_030_0000	Approximately 5 km
Gormanstown	Shellfish Area	IE_NB_025_0000 IE_EA_010_0000 IE_EA_020_0000	Approximately 7 km
Balbriggan\Skerries	Shellfish Area	IE_EA_020_0000	Approximately 24 km
Carlingford Lough SPA	SPA with Water Dependent Habitats/Species	004078	2 km

[1] 07 Marine Processes.pdf accessed June 2026

Protected Area	WFD Protected Area Type	Site Code	Distance from SI works
Dundalk Bay SPA	SPA with Water Dependent Habitats/Species	004026	0.3 km
Boyne Estuary SPA	SPA with Water Dependent Habitats/Species	004080	12 km
Carlingford Shore SAC	SAC with Water Dependent Habitats/Species	002306	0.5 km
Dundalk Bay SAC	SAC with Water Dependent Habitats/Species	000455	4 km
Clogher Head SAC	SAC with Water Dependent Habitats/Species	001459	6 km
Boyne Coast And Estuary SAC	SAC with Water Dependent Habitats/Species	001957	10 km
Inner Dundalk Bay	Nutrient Sensitive Areas - Lakes and Estuaries	IE_NB_040_0100	Approximately 12 km
Boyne Estuary	Nutrient Sensitive Areas - Lakes and Estuaries	IE_EA_010_0100	Approximately 15 km

Table 2-4: Overall WFD status of the relevant waterbodies from 2013-2024

Waterbody	Overall WFD status			
	2010-2015	2013-2018	2016-2021	2019-2024
Louth Coast	Unassigned	High	High	High
Outer Dundalk Bay	Good	Good	High	High
Mourne Coast	Unassigned	Unassigned	Unassigned	Unassigned
Carlingford Lough	Unassigned	Moderate	Unassigned	Unassigned
Boyne Estuary Plume Zone	Good	Moderate	Moderate	Poor
Northwestern Irish Sea	Good	High	Good	Good

3.0 Potential effects

The potential effects on water bodies identified as a result of the proposed SI works include the following as described further in section 3.1 to 3.3:

- An increase in the amount of suspended sediment within the water column;
- Risk of pollution and/or accidental spills;
- The introduction and/or spread of invasive non-native species (INNS)

As assessed and concluded in Section 5 of Attachment 4.3 Natura Impact Statement (NIS) (Report ref: MDR1520C-TTI-00-XX-RP-Z-0004), with the implementation of mitigation (as repeated in section 4 of this report), the SI works will not affect the favourable conservation status of relevant QIs and SCIs. As such, there will be no adverse effect on site integrity of SACs and SPAs as a result of disturbance (above water and underwater) during the SI works. Therefore, the SI works will not contribute to any risk of deterioration in the overall WFD Status.

3.1 Suspended Sediment

The drilling of boreholes and removal of sediment from the seabed may introduce small amounts of sediment into the water column. The geographical extent of this impact will be limited to the MUL Area. Given the limited area of potential sediment transport, as demonstrated in the tidal excursion modelling in the Oriel Wind Farm EIAR[1], currents and tides would ensure that the sediment is quickly dissipated and unlikely to represent a significant elevation above sediment levels normally associated with the ebb and flood tides. It is expected that the significance of impact will be short-term, and negligible in nature in the context of water quality and WFD Status and conditions will likely return to baseline after the SI works are completed. Therefore, the SI works will not contribute to any risk of deterioration in the overall WFD Status and will be fully consistent with WFD objectives.

3.2 Pollution and/or accidental spills

It is possible that accidental spills from equipment (e.g. jack up barge and work vessels) may cause a negative impact on water quality and WFD Status. However, with the implementation of standard measures any spills will be treated immediately and be limited in extent. All vessels operating in the marine environment must adhere to the International Convention for the Prevention of Pollution from Ships (MARPOL) which is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. The Sea Pollution Act, 1991, as amended ratified MARPOL in Ireland, and will apply to the vessels carrying out the SI works. In addition, all substances handled and/or used whilst undertaking the works are required to be handled, used, stored, and documented in accordance with assessments and the Chemicals Act 2008, as amended (No. 13 of 2008) and Chemicals (Amendment) Act 2010, and amended (No. 32 of 2010) and associated Regulations. In the unlikely event of a chemical spillage, or accidental leak, and applying the requirements and mitigation set out in Chemicals Act 2008 and Chemicals (Amendment) Act 2010, the WFD status and conditions would likely return to baseline following completion of the works. Therefore, the SI works will not contribute to any risk of deterioration in the overall WFD Status and will be fully consistent with WFD objectives.

3.3 Invasive Non-Native Species (INNS)

Vessel and equipment movements from outside the local area have the potential to introduce or spread INNS. The potential pathway for INNS introduction due to the proposed SI works is through vessel ballast water, hull fouling, and survey equipment transferred from other water bodies.

The International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004, entered into force globally on 8 September 2017. It is a treaty, adopted by the International Maritime Organization (IMO) in order to help prevent the spread of potentially harmful aquatic organisms and pathogens in ships' ballast water, including invasive species[2]. The Sea Pollution (Miscellaneous Provisions) Act 2006 gives effect to a number of internationally agreed instruments including the International Convention on Ballast Water Management 2004. The Convention stipulates that ships must manage their ballast water so that aquatic organisms and pathogens are removed or rendered harmless before the ballast water is released into a new location. The risk of introduction of INNS will therefore be managed through standard biosecurity protocols and cleaning procedures as outlined in Section 4.0 below. With these measures in place, the residual risks of INNS introduction are negligible, ensuring no deterioration of WFD status and full consistency with WFD objectives.

[2] https://invasives.ie/about/legislation-policy/ - Accessed July 2026

4.0 Mitigation measures

4.1 Standard water quality measures

As is standard procedure onboard vessels operating in the marine environment, the following standard measures will be implemented:

- All vessels will comply with international standards according to the MARPOL (maritime pollution) Convention and the Sea Pollution Act 1991, as amended with respect to wastewater and food waste discharges. Hazardous materials, radiation sources or chemicals will be stored, handled, used and documented in accordance with those legal provisions and also the Safety Health and Welfare at Work Act 2005, as amended, and associated regulations, which apply to vessels as places of work, and the Chemicals Act 2008, as amended, and associated regulations, accepted guidelines, and technical standards and requirements.
- An oil pollution emergency plan will be implemented onboard all survey vessels. This plan will specify:
    - Information on the location and detail of spill response resources on board;
    - Information on crew training in relation to oil pollution response; and
    - How crew will interface with other vessel operators, where applicable.
- Spill kits will be stored on board all vessels and will also be available where machinery is operating in the intertidal zone. Any fluid leaks or spills will be cleaned up immediately. All machinery or vehicles on the intertidal area will be fuelled on the hard-standing surface of a car park or road and at least 10 m from a drain or gully.
- In line with the IMO Ballast Water Management Convention, anti-fouling and biosecurity measures will be undertaken including ensuring hulls and submerged equipment are free from fouling organisms prior to mobilisation, implementation of ballast water management protocols, regular cleaning and inspection procedures for survey equipment prior to deployment.

4.2 Avoidance of underwater noise impacts

Standard risk avoidance and/or risk reduction measures will be in place on geophysical and geotechnical survey vessels (including JUB), as required under *Guidance to Manage the Risk to Marine Mammals from Man-made Sound Sources in Irish Waters* (DAHG, 2014). These measures will comprise visual observation during daylight hours and the use of soft start procedures, where appropriate. The incorporation of these measures will avoid auditory injury and reduce disturbance to marine mammals. The relevant sections of the DAHG (2014) guidance are as follows:

- 4.3.2 Drilling;
- 4.3.4 (i) Seismic surveys (including sparkers and boomers); and
- 4.3.4 (ii) Multibeam, single beam, side-scan sonar & sub-bottom profiler surveys.

In the interests of brevity, the detailed text from DAHG (2014) has not been repeated in full below. MMOs will review the source material prior to undertaking mitigation and a Marine Mammal Mitigation Plan (MMMP) will be drawn up prior to survey commencement. For geophysical, seismic and geotechnical surveys a qualified and experienced marine mammal observer (MMO) shall be appointed to monitor for marine mammals and to log all relevant events using standardised data forms.

1. For surveys utilising geophysical techniques (no parker/boomer), acoustic surveying shall not commence if marine mammals (or otters) are detected within a 500m radial distance of the sound source intended for use, i.e., within the Monitored Zone. The same applies for geotechnical investigations.

2. For surveys utilising sparker/boomer, surveying shall not commence if marine mammals (or otters) are detected within a 1,000m radial distance of the sound source intended for use.
3. Sound producing activities shall only commence in daylight hours where effective visual monitoring, as performed and determined by the MMO, has been achieved. Where effective visual monitoring, as determined by the MMO, is not possible the sound-producing activities shall be postponed until effective visual monitoring is possible.
4. An agreed and clear on-site communication signal must be used between the MMO and the Works Superintendent as to whether the relevant activity may or may not proceed, or resume following a break (see below). It shall only proceed on positive confirmation with the MMO.
5. As the surveys will be undertaken entirely in waters up to 200m deep, the MMO shall conduct pre-start-up constant effort monitoring at least 30 minutes before the sound-producing activity is due to commence. Sound-producing activity shall not commence until at least 30 minutes have elapsed with no marine mammals detected within the Monitored Zone by the MMO.
6. The prescribed Pre-Start Monitoring shall subsequently be followed by a ramp-up/soft-start procedure which should include continued monitoring by the MMO. Soft-start must be used in advance of all sound-producing activities, including during testing of acoustic sources. Please refer to the relevant section of the guidance for detailed information on soft-starts for different equipment. Please note that no soft-start is required under DAHG (2014) for geotechnical survey/drilling.
7. Soft-start procedures must be undertaken for a period of 20 minutes for geophysical surveys, and for a period of 40 minutes for seismic survey (including sparker and boomer surveys).
8. In all cases where a Ramp-Up Procedure is employed the delay between the end of ramp-up and the necessary full output must be minimised to prevent unnecessary high-level sound introduction into the environment.
9. Once the Ramp-Up Procedure commences, there is no requirement to halt or discontinue the procedure at night-time, nor if weather or visibility conditions deteriorate nor if marine mammals occur within the Monitored Zone.
10. Please refer to the relevant section of the guidance for detailed information on dealing with breaks in sound output and line turns.

Full reporting on MMO operations and mitigation undertaken must be provided to the Regulatory Authority.

5.0 Conclusion

With the implementation of the mitigation measures described above, there will be no long term or significant negative impacts on the relevant water bodies as a result of the SI works proposed in this MULA. GES will be maintained and supported through the implementation of the proposed mitigation and adherence with standard procedures for vessels operating in the marine environment. SI works will not impact compliance with standards and objectives specified for protected areas, which include areas designated by the Bathing Water Directive; the Urban Waste Water Treatment Directive; the Shellfish Waters Directive; the Habitats Directive and the Birds Directive.

In conclusion, the SI works will not give rise to any risk of deterioration in WFD status or prevent the achievement of the relevant water body objectives. Therefore, the works are consistent with the WFD objectives.