MUL Application Supporting Attachment 3.1 Proposed Maritime Usage

Client	University College Cork
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TABLE OF CONTENTS

Chapter			Page
1	**Details of Maritime Usage**		**3**
1.1	Description of Maritime Usage		3
1.2	Application Prioritisation Scoring System		3
1.3	Purpose of Maritime Usage		4
	1.3.1	Site Investigation & Survey Activities	4
1.4	Map		11

1 DETAILS OF MARITIME USAGE

1.1 DESCRIPTION OF MARITIME USAGE

University College Cork (UCC) are establishing a pioneering floating wind testbed, integrated with an energy systems observatory known as FLOWT-EOB within Cork Harbour in Southern Ireland. The main aim of this project is to inform, research and facilitate the extensive future deployment of floating wind technologies in the challenging conditions of the Atlantic Ocean. This infrastructure will advance Ireland's capabilities in offshore renewable energy (ORE).

The proposed Floating Offshore Wind Turbine (FLOWT) location is southeast of Spike Island. An export cable will be installed from the FLOWT passing south or north of Spike Island landing close to the UCC, MAREI building in Ringaskiddy.

This MUL application is for Site Investigation and Survey Activities for the FLOWT-EOB project, as described Part 1 Activity in Schedule 7 "*3. Marine environmental surveys for the purposes of site investigation or in support of an application under Part XXI of the Act of 2000*."

The MUL Application Area is a total of 308.6 ha including:

- The area including and adjacent to the proposed Floating Offshore Wind Turbine (FLOWT) location
- The area including and adjacent to proposed Electric Cable Corridor (ECC) and landfall location.

This application falls under the application prioritisation criteria "*National and European priorities*" described by MARA "*Applications identified as contributing to National and European priorities such as: ORE DMAP and Related Activities (e.g. Offshore Renewable Energy)"* since it supports research and advancement in Ireland's capabilities in offshore renewable energy.

1.2 APPLICATION PRIORITISATION SCORING SYSTEM

UCC appreciate that MARA has developed a dynamic and structured system for the prioritisation of licence applications to provide for effective decision making and to ensure that applications of national strategic importance are prioritised and delivered in a timely manner.

Provides a summary of this application and the Application Prioritisation Criteria. Note application age has not been considered in this summary.

Table 1-1: Summary of application and relevant Application Prioritisation Criteria

Criteria	Description	Summary
National and European priorities	Applications identified as contributing to National and European priorities such as: ORE DMAP and Related Activities (e.g. Offshore Renewable Energy) ORE Non DMAP	This application is for development of ORE infrastructure within the SC DMAP

Criteria	Description	Summary
	European Telecommunication Cables Critical State Infrastructure or Utilities Risk to Life (emergency works)* Risk (Routine works) Compliance, enforcement and regularisation priority	
Policy and Regulatory	Applications linked with national policies and regulatory priorities such as: The National Ports Policy Marine Strategy Framework Directive Water Framework Directive Climate Action Plan	This application is linked with national policies and regulatory priorities including the National Marine Planning Framework and Climate Action Plan
Assessment status	Project Readiness	The application is supported by a comprehensive suite of environmental and technical assessments, including SISAA, RAAIVS, WFD and MSFD assessments. The scope of works is clearly defined and no likely significant effects have been identified.

1.3 PURPOSE OF MARITIME USAGE

1.3.1 SITE INVESTIGATION & SURVEY ACTIVITIES

The proposed Site Investigation activities and surveys will be undertaken to inform the design and environmental assessment of the proposed FLOWT-EOB project. The proposed programme of SI activities to be undertaken within the MUL Application Area is summarised in Table 1-2 and indicative locations of SI activities are shown in Figure 1-1.

Table 1-2 SI Descriptions

Activity	Description	Sampling Effort
Geophysical Surveys		
Intertidal Topographic Survey (Lidar or RTK)	Surveys will comprise conventional land-based topographical techniques and/or laser scanning. Topographic surveys carried out on foot by surveyors are used for collecting detailed	Topographic survey will be undertaken across the intertidal area of the Maritime

Activity	Description	Sampling Effort
	topographical data of the intertidal area at low tide using land surveying equipment. This can include the setting up of a survey station (e.g., tripod and total station and/or laser scanner) from which accurate measurements can be taken. Similarly, more mobile surveying equipment can be used to accurately map the ground. These units can consist of handheld devices, backpacks, or hand-held pole mounted Global Navigation Satellite Systems (GNSS) devices.	Usage Licence (MUL) Area (ECC) to a suitable percentage coverage
Sub Bottom Profiler (SBP)	SBP is used to develop an image of the subsurface, identifying different strata encountered in the shallow sediments. Vessel Towed device Innomar systems may be taken as an example of SBP device, operating frequency range 1 – 115 kHz (TOPAS, Innomar systems (Ruppel et al., 2022).	SBP will be undertaken across the Maritime Usage Licence (MUL) Area (both FLOWT & ECC) to a suitable percentage coverage
Multi beam echo sounder (MBES)	MBES is a system for collecting detailed topographical data of the seabed. Vessel towed or AUV mounted device Sonic 2024-V or Kongsberg EM2040 are examples, operating frequency 170-700 kHz (Kongsberg, 2024a; R2Sonic, 2024) with sound pressure levels in the range of 200-228dB re1µPa @1m	MBES will be undertaken across the MUL Area (both FLOWT & ECC) to a suitable percentage coverage
Side Scan Sonar (SSS)	SSS surveys are used to determine sediment characteristics and seabed features. Vessel towed sonar device. The EdgeTech 4125 an example of an SSS device. Potential operating frequency range 600/1600kHz. Sound pressure levels of 228dB re1µPa @1m	SSS will be undertaken MUL Area (FLOWT & ECC) to a suitable percentage coverage
Magnetometer	A magnetometer is used to identify magnetic anomalies and hazard mapping for metal obstructions, shipwrecks and unexploded ordnance on the surface and in the shallow sub-surface. The Geometrics G-882 can be taken as an indicative equipment example, it is a passive device (i.e. it does not emit any sound waves into the marine environment).	Magnetometer will be undertaken across the MUL Area (both FLOWT & ECC) to a suitable percentage coverage
Metocean Surveys		

Activity	Description	Sampling Effort
Acoustic Doppler Current Profiler (ADCP)	Installed on the seabed and anchored with a suitable mooring structure. It is generally a short-term deployment used to gather seasonal data (e.g. winter storm data) however may be deployed for up to 1 year. To understand the coastal processes of the wider area, individual foot print of the device is typically 1 m^2. 1 No. ADCPs	Within the MUL Area (FLOWT)
Wave Buoy	Wave rider buoys may be deployed to measure wave heights and direction to feed into the detailed design of the project within the Licence Application area. They will be moored to the seabed by a suitably sized mooring structure, individual foot print of the mooring is typically 1 m^2. 1 No. Wave buoys	Within the MUL Area (FLOWT)
Geotechnical Surveys		
Intertidal Trial Pit	A trial pit will be excavated, logged, backfilled and reinstated during a single tidal cycle. Excavated material will be temporarily stored and replaced following the sequence in which it was removed. Subject to access and anticipated ground conditions trial pits will be excavated manually or using a mechanical backhoe. Existing land access routes to investigation locations will be used to the extent practicable. The trial pit will be excavated to a depth of 2 m and will be 2 m^2 in plan.	One trial pit will be excavated in the intertidal area of the Maritime Usage Licence (MUL) Area (ECC)
Boreholes	Aim to provide ground conditions and perform downhole sampling and cone penetration test (CPT). Depth max 20m below seafloor (BSF) Equipment recommended Geobor-S to recover sediment & rock cores. Outer core diameter up to 150mm. The typical frequencies emitted from rotary drilling are between 0.001-0.120kHz and a recorded sound pressure of approximately 145dB re1µPa @1m. Estimated BH installation time up to 10 days.	BHs will be undertaken across the MUL Area (FLOWT) and at the landfall location BH are required at each anchor location (4 no.) and 2 at landfall location

Activity	Description	Sampling Effort
CPT	CPTs are a method for testing in situ soil parameters. CPTs can be performed as either Seabed CPTs or downhole in boreholes. The diameter of the downhole CPT will be equal to the diameter of the borehole up to 150mm (Geobore S as described above). The depth of a CPT test will be maximum 20m, also equal to the borehole maximum depth. The standalone CPT surface area sampled will be 10 cm^2. CPTs are anticipated to have an operating frequency of 50-16,000 Hz and an SPL of 189 dB (Reiser, et al., 2010).	CPTs will be undertaken across the MUL Area (FLOWT & ECC). 4 no. CPT within the FLOWT. CPTs will be undertaken at 500 m intervals along the length of the ECC.
Vibro Corer	Aim to provide shallow geotechnical testing for cable installation. Vibrocoring, a technique for collecting core samples of the seabed sub-strata sediments, consists of a vibrating mechanism attached to a metallic core which is driven into the sediment by the force of gravity, enhanced by vibration energy. Typical estimated time required for activity – 30 min to 2 hours per location. Typically, an area of 1 m^2 of seabed is sampled. Vibro corer deployed from vessel Depth max 6m BSF Frequency range 50 Hz and a recorded sound pressure of approximately 188dB re1µPa @1m. (Vibrocore from Chorney *et al*. (2011))	VC will be undertaken across the MUL Area (ECC). VC will be undertaken at 500 m intervals along the length of the ECC.
Rock Coring	Shallow bedrock or/and outcropping bedrock may be encountered along the ECC route and at the MUL Area FOWT Typically, an area of 1 m^2 of seabed is sampled. The rock coring may be performed for the top 3 m below seafloor to determine the rock type and characteristics.	Rock coring may be undertaken across the MUL Area (ECC). Where rock is present along the ECC, rock coring will be performed at selected intervals.
Environmental Surveys		

Activity	Description	Sampling Effort
Drop frame camera system	Seabed imagery will be collected by use of a drop frame camera system from up to 20 locations to characterise epibenthic communities and assess suitability of locations for grab sampling. Typical estimated time required for activity – 20 mins per location.	Dropdown camera will be undertaken MUL area (FLOWT & ECC)
Grab Samples	A grab sampler (Day, Van Veen or mini-Hamon grab) will be used to collect sediment samples from up to 20 locations, providing a snapshot of the sediment characteristics and infaunal communities at those locations. Up to 4 no. replicates will be collected from each location. Typical estimated time required for activity – 15 mins per replicate. Typically, an area of 0.1 m^2 of seabed is sampled per deployment.	Grab samples will be undertaken MUL area (FLOWT & ECC)
CPODs / sound traps	Marine mammal acoustic monitoring using up to CPODs deployed on the seabed at up to 2 locations may be undertaken. A SoundTrap hydrophone may be deployed alongside the CPODs. Typically, an area of 1 m^2 of seabed is required per deployment.	Within MUL area (FLOWT & ECC)
Vessels		
Survey Vessels	The geophysical SI is proposed to be performed using an SUV, UAV and small boat such as a catamaran, up to 15 m in length. The geotechnical SI is proposed to be performed from Jack-ups and shallow berth vessels. A small capacity CPT unit and VC unit can be mobilised on a shallow berth vessel which can be used for sampling and testing along the ECC and at the FOWT Survey vessels will adhere to standard navigation protocols and comply with embedded speed restrictions applicable	MUL area (FLOWT & ECC)
Jack-up rigs	The geotechnical SI is proposed to be performed from Jack-ups and shallow berth vessels. The jack-up vessels can be used for soil sampling and rock	MUL area (FLOWT & ECC)

Activity	Description	Sampling Effort
	coring at the FOWT location and spot coring along the ECC route. BHs deployed from a jack-up barge. Estimated seabed contact 1m^2 for each leg (4 no.).	



Figure 1-1 Indicative Site Investigation sampling locations

1.4 MAP

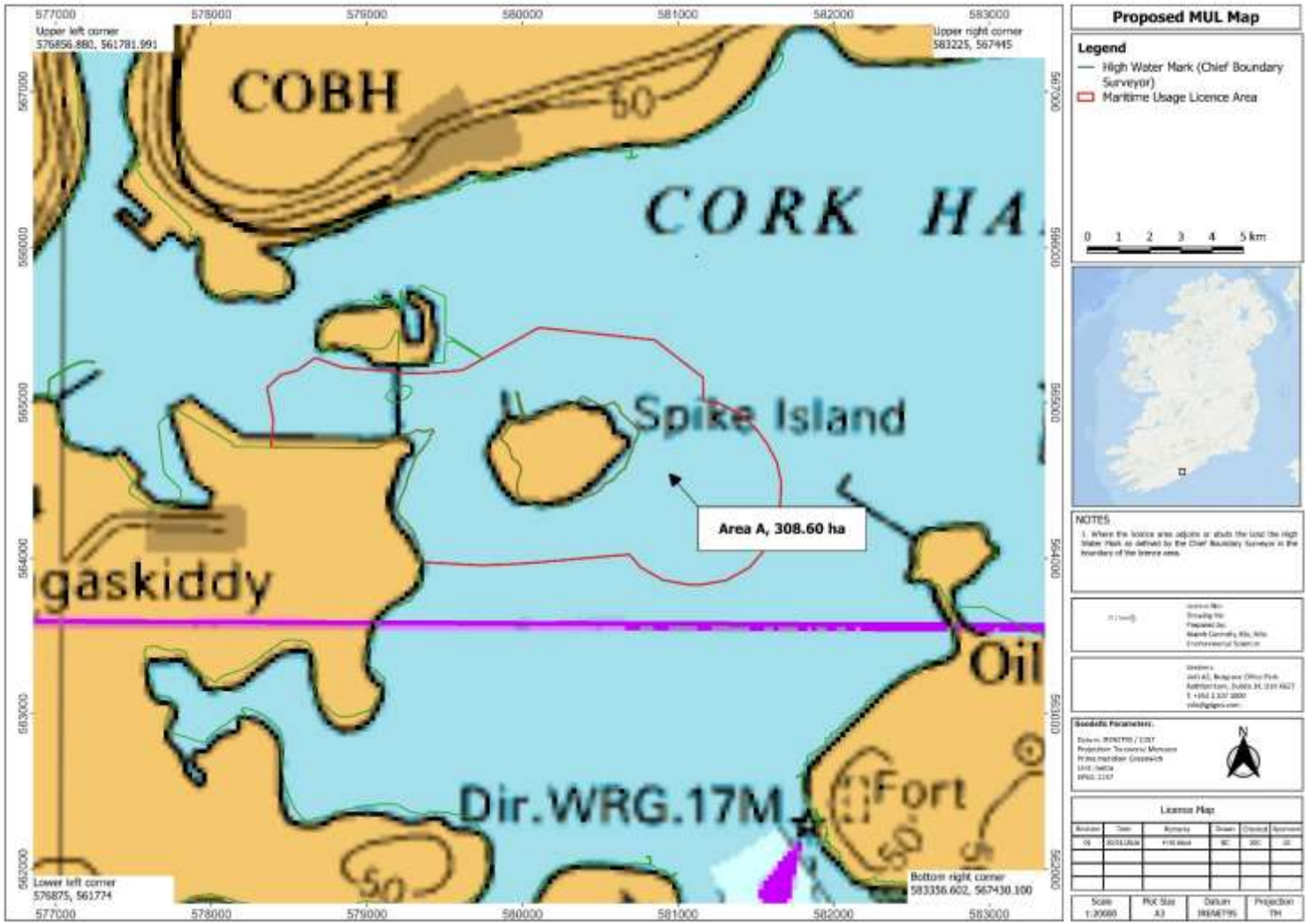


Figure 1-2 Map showing the location of the proposed Maritime Usage



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