MarineSpace
Making Sense of the Marine Environment™

Technical Note – Band 2 Marine Licence Application Supporting Document

Version 2.0 – Issued January 2021

1. Introduction

Blue Gem Wind (BGW) is the developer and seabed leaseholder for Project Erebus, a proposed floating offshore wind (FLOW) development in the Celtic Sea region. The project is located approximately 44 km southwest of the Pembrokeshire coastline, in an outline area of interest of approximately 43.5 km².

The work proposed is geotechnical and geophysical survey along the potential cable route and wind farm array of the Erebus Project which is the responsibility of BGW's lead consultant, OWC (the applicant). MarineSpace is the Environmental Impact Assessment (EIA) and consenting consultant for Project Erebus and are acting as the agent to obtain a marine licence for the geotechnical survey.

1.1. Geotechnical surveys

This will include: Cone penetration test (CTP) vibrocore samples and piston core samples to an approximate depth of 20 m, taken within the offshore array area + 1 km buffer, and along the export cable corridor. There will be up to 20 samples within the array area, and 30 samples along the export cable corridor.

The geotechnical survey area comprises the following sections:

- Windfarm Array Area: (43.5 km2) and 1 km buffer;
- Offshore section of the export cable route: defined as >15 m water depth (WD) contour seaward to Windfarm Array Area with a corridor width of 500 m;
- Nearshore section of the export cable route: defined as <15 m WD landward to the Intertidal area with a corridor width of 500 m;

Core samples will be taken from the vessel(s) and there will be no requirement for a jack-up barge to undertake the works. The vibrocorer comprises of a steel tube with an inner plastic liner is lowered to the seabed from the vessel from an A frame or crane. It is then vibrated into the sediment by an electric motor to the required depth. The vibrocorer is removed carefully to avoid disturbance to surrounding sediment, the plastic liner is then removed to expose the collected core sampple. Piston corer use a similar methodology to vibrocores, however weights are used to lower int the seabed rather than through vibration

No sediment is removed through CPT and are therefore non-marine licensable activities. Vibrocore samples and piston core samples both involve the extraction of sediment core samples from the seabed and therefore require a marine licence prior to works taking place.

1.2. Geophysical surveys

The geophysical survey will include acquisition of multibeam echosounder, side scan sonar, magnetometer and sub-bottom profiler data within the offshore array area + 1 km buffer.

Information from the geophysical survey should be input to the Defra JNCC Marine Noise Registry.

2. Need for the surveys

Results from the geotechnical and geophysical acquisition should provide information to inform the Environmental Impact Assessment. Specifically focussing on the following topics:

- Aid the mooring and cabling for Front-End Engineering Design (FEED);
- Corroborate the assumptions made in the interpretation of the existing geophysical data and 'ground truth' the ground model;
- Enable the most appropriate method of subsequent investigation to be determined;
- Soil classification and engineering properties (particle size distribution, density and shear strength, thermal properties, as appropriate);
- Peat, gravel and shell content of the shallow soils;
- Potential for exposed cabling over rocky seabed with anticipated protection from movement due to current or to man-made seabed activity;
- Trenchability; and
- Geological substrate and its relationship with seabed bedforms.
- Delivery of factual geotechnical report;
- Delivery of final geophysical report;

3. Survey Information

3.1. Survey Area

Figure 3.1, below, outlines the survey area within the proposed Project Erebus array site and along the export cable corridor.

3.2. Survey Timing

The geophysical surveys are expected to commence in March 2021 and the geotechnical survey to start in May 2021. Working hours offshore will be continuous 24-hour periods for intervals of at least 14 days between port calls.

The geophysical surveys are expected to take 12 days to complete and the geotechnical surveys 15 days, not including weather downtime.

Whilst the surveys should be completed within 6 weeks, a marine licence is being sought for a 13 month period, from April 2021 to April 2022 to ensure sufficient contingency and reduce the need for subsequent licence variations, should works be delayed.

3.3. Sample volumes

The total volume of material to be removed will not exceed 4 m^3. Core sample diameters will be no greater than 0.1 m and sample length no greater than 8 m.

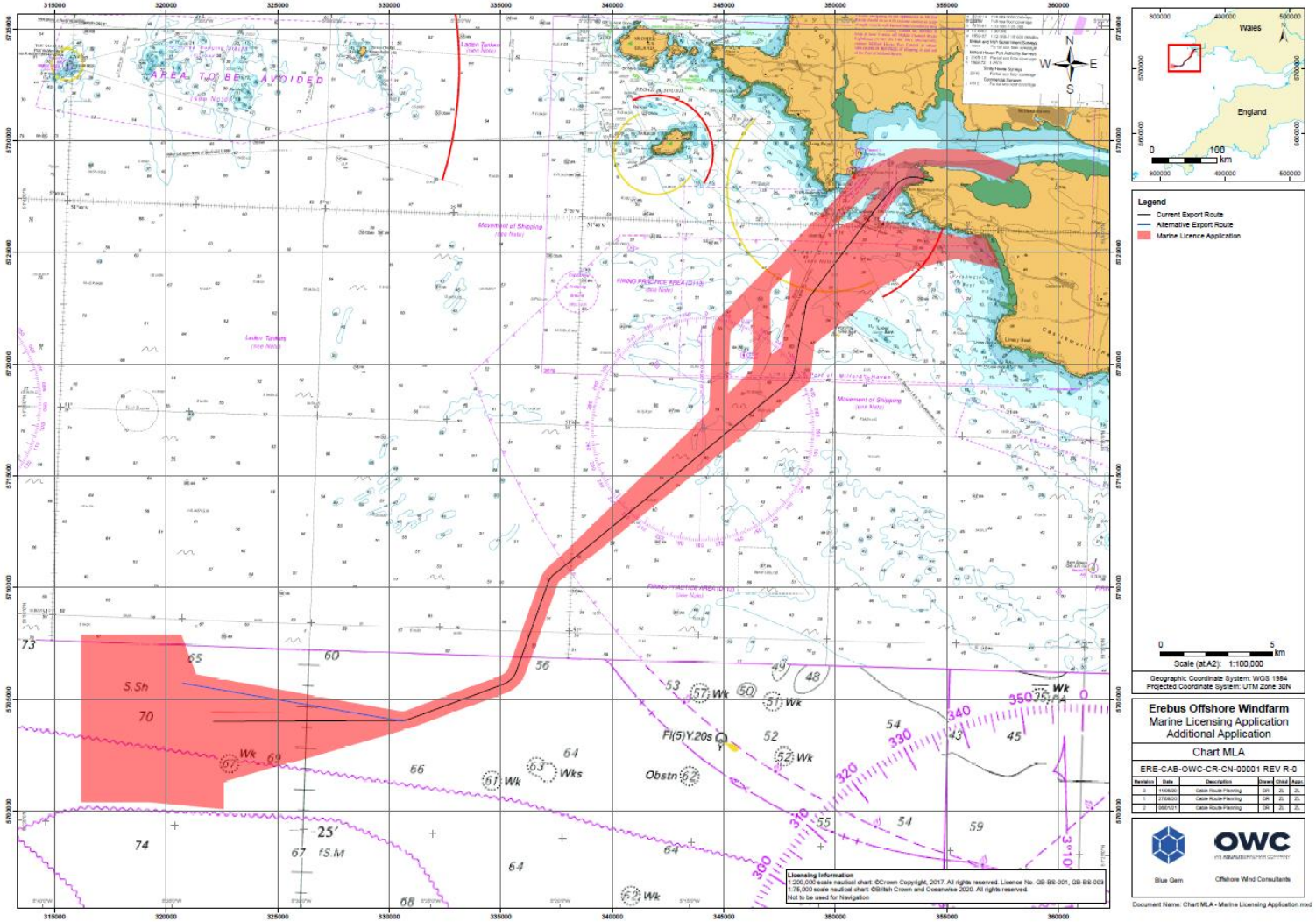
Estimates of the volume of sediment to be removed and the number of core samples are set out in Table 3.1.

Whilst the cone penetration tests (CPT) are not marine licensable activities, they have been included as context for the overall geotechnical works that will take place.

Table 3.1. Estimated core sample volumes for geotechnical surveys

Sample Type	Area	No. of Samples	Volume per sample (m^3)	Total volume of samples (m^3)
Cone Penetration Test (CPT)	Project Erebus Array Site	10	n/a	n/a
VibroCore/piston		20	0.04	0.80
Cone Penetration Test (CPT)	Export Cable Corridor	10	n/a	n/a
VibroCore/piston		30	0.04	1.2
Estimated total volume of all samples (m^3)				**2.00**

Figure 3.1. Survey area for geophysical and geotechnical surveys



4. Designated sites and mitigation

4.1. Designated sites

The survey works will be within and close the following designated sites:

- Pembrokeshire Marine Special Area of Conservation (SAC);
- West Wales Marine SAC; and
- Skomer, Skokholm and the Seas off Pembrokeshire Special Protected Area (SPA).

Figure 4.1 shows the proposed survey works area of the Project Erebus array site and export cable corridor in relation to designated sites.

The Skomer, Skokholm and the Seas off Pembrokeshire SPA is classified for the protection of: European storm-petrel Hydrobates pelagicus, Manx shearwater Puffinus puffinus, Atlantic puffin Fratercula arctica, and lesser black-backed gull Larus fuscus, as well as red-billed chough Pyrrhocorax pyrrhocorax, short-eared owl Asio flammeus and breeding seabird assemblage. The West Wales Marine SAC is designated for the presence of harbour porpoise Phocoena phocoena (1351) and Pembrokeshire Marine SAC is designated for estuaries (1130), large shallow inlets and bays (1160), reefs (1170), grey seal Halichoerus grypus (1364), and shore dock Rumex rupestris (1441).

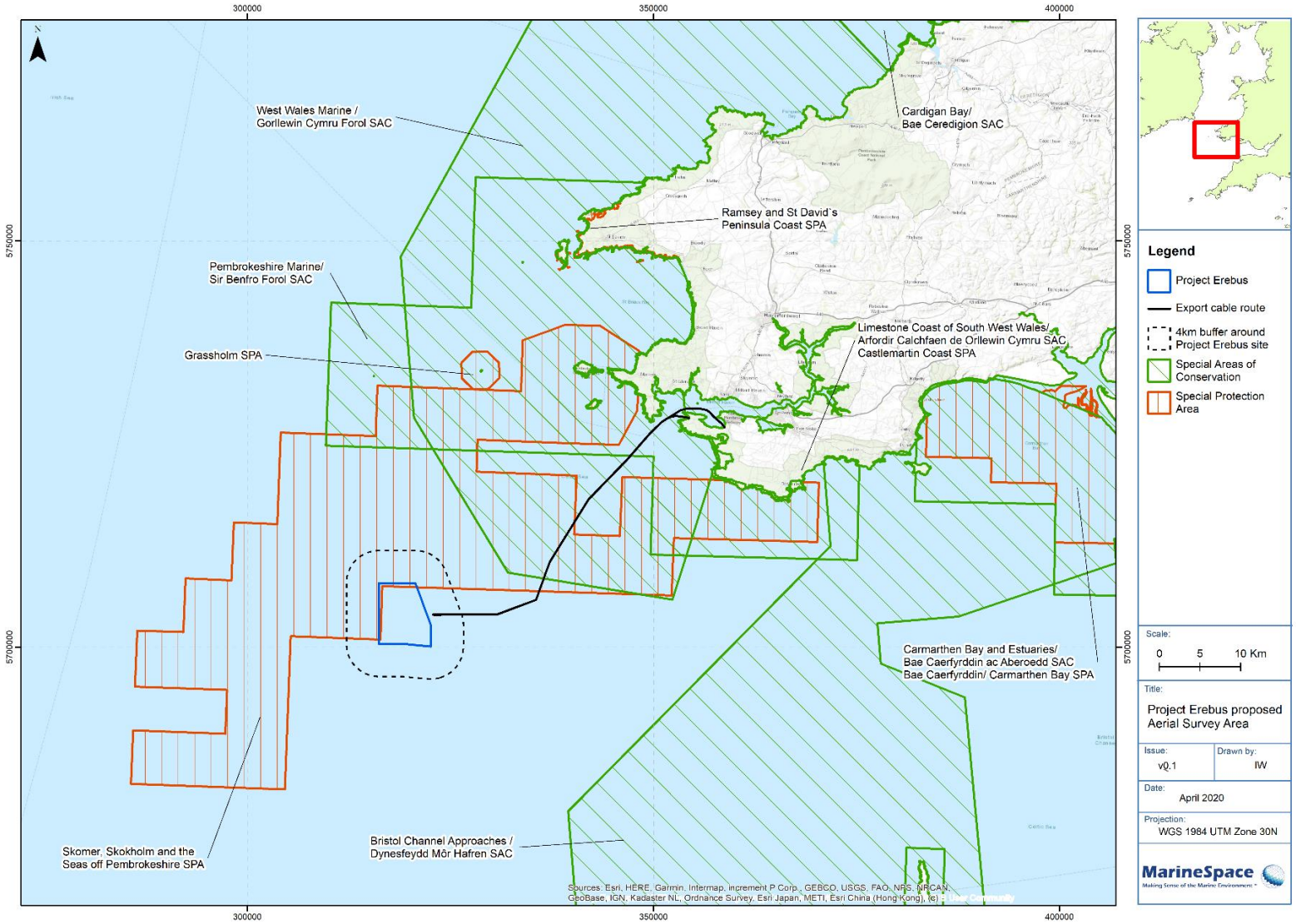
4.2. Proposed mitigation measures

The proposed works may pose a risk to these protected areas through increases in turbidity or contaminant concentrations following disturbance of benthic sediments. However, the volume of sediment disturbed is expected to small and will therefore rapidly be diluted to background levels. Any changes will be highly localised in terms of spatial extent and limited in duration to within a single tidal cycle. Any changes can therefore be classed as temporary and will not pose a threat of adverse impacts upon any of the designated sites identified.

The following mitigation measures and environmental best practice will be adhered to throughout the survey work to minimise risk to the marine environment and designated sites:

- Relevant Guidance for Pollution Prevention (GPP) including PPG 6: Works and maintenance in or near water;
- All equipment, temporary structures, access tracks, waste and/or debris associated with the works will be removed on completion of the works;
- Bunding, storage facilities and spill kits will be employed to contain and prevent the release of fuel, oils and chemicals associated with the plant, refuelling and construction equipment into the marine environment;
- Plant, vehicles and machinery will not be refuelled on the foreshore.
- Coatings and treatments will be suitable for use in the marine environment and are used in accordance with best environmental practice; and
- All equipment, materials, machinery and PPE used will be in a clean condition prior to their arrival on site, and upon removal from site, to minimise risk of introducing non-native species into the marine environment.

Figure 4.1. Survey area in relation to designated sites*



*Please note the export cable route on this chart has not been revised, however this does not affect the list of designated sites for consideration.

5. Navigation and other sea users

The Maritime and Coastguard Agency (MCA) and Trinity House have been consulted regarding the proposed geophysical and geotechnical surveys and have provided best practice advice.

The works will adhere to the following MCA advice:

1. Comply with all maritime safety related legislation and guidance, including COLREGs;
2. Issue local notification to marine users - including fisherman's organisations, neighbouring port authorities and other local stakeholders - to ensure that they are made fully aware of the activity; and
3. Notify HM Coastguard, in this case zone28@hmcg.gov.uk of the works prior to commencement.

The Ministry of Defence (MoD) will be notified in relation to survey activity in proximity to MoD activities in the area. The survey corridor will pass through the Castlemartin Sea Danger Area for approximately 20 km. The works will not start until written confirmation is received from relevant MoD contacts that the survey is acceptable to proceed.

6. Archaeology

The Dyfed Archaeological Trust (DAT) have been consulted regarding the proposed geophysical and geotechnical surveys and have provided advice.

Best practice archaeological guidance will be adhered to minimise the risk to sites of archaeological interest. These include:

- English Heritage (2013) Marine Geophysics Data Acquisition, Processing and Interpretation: Guidance Note;
- Standard Guidance for Archaeological Geophysical Survey (CifA, 2016);
- Wessex Archaeology (2007) Historical Environment Guidance for the Offshore Renewable Energy Sector (COWRIE); and
- Offshore Geotechnical Investigations and Historic Environment Analysis: Guidance for the Renewable Energy Sector (Gribble and Leather, 2011).