Centre for Environment Fisheries & Aquaculture Science

Cefas

MARINE AND COASTAL ACCESS ACT (2009). APPLICATION FOR A MARINE LICENCE BY MONA OFFSHORE WIND LIMITED FOR THE CONSTRUCTION AND OPERATION OF THE TRANSMISSION ASSETS FOR MONA OFFSHORE WIND FARM OFF LLANDDULAS NORTH WALES EAST IRISH SEA.
Reference Number: ORM2429T

From: Sylvia Blake
Cefas, Lowestoft Laboratory
Date: 13th August

To: Peter Morrison - NRW (via email)

1. With reference to the above application for a marine licence for the construction and operation of the transmission assets for Mona Offfshore Wind Farm off Llanddulas North Wales, in the East Irish Sea by Mona offshore Wind Farm Limited and your request for comments dated 23rd July 2024 please find my comments below

2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for dredge and disposal. The response pertains to those areas of the application request that are of relevance to this field. This minute does not provide specialist advice regarding benthic ecology, marine processes, fish and fisheries, shellfisheries, or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.

3. In providing this advice I have spent 12.5 hours of the allocated 15 hours by the NRW. I have booked my time to ORM2429T.

4. I have provided my comments based on the below category system:
   - Category 1: **Major Comment (Action)-** It is my advice that the application should not be granted a licence until this is resolved. There is high uncertainty or a large risk to the environment. NRW are strongly advised to request this further information then re-consult Cefas.
   - Category 2: **Minor Comment (Action)-** There is data/ information/ evidence missing that could affect the assessment. Provision of the data/information would allow for due diligence to ensure there is sufficient confidence in the applicant's and my own assessment but would not necessarily preclude the granting of a licence. NRW advised to request further information from applicant and then to re-consult Cefas, however NRW may be able to grant licence if this information is not submitted, provided NRW have clear rationale for their decision.
   - Category 3: **Minor Comment (No Action)-** These highlight those things that should be included as best practice but would not affect my overall conclusions. Should be taken forward by the developer for any future applications/ post consent requirements, or presentation issues. NRW case team could pass this on to applicant however this information is not required for consultation with Cefas.
   - Category 4: **Observation-** Statements regarding what is stated in the application, or areas of good practice are highlighted. No action for NRW case team but this could be passed on to applicant if NRW wish, to pass on areas of good practice.

Documents reviewed

5. Marine Licence application for Marine Works form ID: B89640AD_0AF8-4357-A1A8-3E616035B3D6
6. Mona Offshore Wind Limited. Marine Licence cover letter (A3) (Paul Carter-Mona consents lead) to Natural Resources Wales. MOCNS-J3303-JVW-00003 dated 29th April 2024
7. Mona Offshore Wind Limited. Guide to the Marine Licence Application (A2) Document List. MOCNS-J3303-RPS-10005May 2024 F02 by RPS.
8. Mona Offshore Wind Limited. Mona Array Area -Disposal Site Characterisation Report J19 MOCNS-J3303-RPS-10156 February 2024 F01 by RPS.
9. Mona Offshore Wind Limited. Offshore Cable Corridor -Disposal Site Characterisation Report J20 MOCNS-J3303-RPS-10157 February 2024 F01 by RPS.
10. Mona Offshore Wind Project Environmental Statement. Volume 1 Chapter 3, Project Description MOCNS-J3303-RPS-10037 February 2024 FO1 by RPS.
11. Zip file containing shape file for- A5.1 Mona Array area disposal site (Annex 1 figure 1 of this minute).
12. Zip file containing shape file for - A5.2 Mona Offshore cable corridor disposal site (Annex 1 figure 2 of this minute).
13. Excel containing A5 Mona Disposal site coordinates.

Description of the proposed works

14. This advice is in response to NRW request for review of documents provided by Mona Offshore wind limited (the applicant) for a marine licence for the construction and operation of transmission assets for the Mona offshore Wind Farm (the Project) approximately 29km of the coast of Denbigshire and Conwy comprises up to 96 wind turbines in an area of up to 300km^2 and up to four 275 kV max export cables in a corridor of up to 1.5km. The generation assets for the Project are wholly outside Welsh inshore waters and therefore a deemed marine licence has been included as part of the Development Consent Order (DCO) Application. As the transmission assets for the Project are located partially in the Welsh inshore waters, they require a separate ML from NRW marine licensing team.

15. In addition to the marine licence application, Mona Offshore Wind Limited has submitted an application for a DCO which is currently being considered by the Planning Inspectorate. The proposed DCO includes a deemed Marine Licence for the Generation Assets. Further information on the application for a DCO can be found on the Planning Inspectorate's website[1].

16. The DCO and Marine Licence will, among other things, authorise:
    a. The installation, operation and maintenance of up to four subsea export cable circuits, and any associated cable protection. The Project's offshore export cable corridor (ECC) extends south-eastwards from the array area to the proposed landfall at Llanddulas in Conwy;
    b. The construction, operation and maintenance of up to four offshore substation platforms (OSPs) and their foundations as well as interconnector cables connecting the OSPs to each other, including any associated cable and scour protection; and
    c. Ground investigation works, removal of accidentally dropped objects, Unexploded Ordnance (UXO) clearance and disposal of sediments to a designated site.

[1] https://infrastructure.planninginspectorate.gov.uk/projects/wales/mona-offshore-wind-farm/

17. The maximum spoil volume anticipated to be removed from sandwave clearance within the ECC is 1,504,000m^3 and 1,167,415m^3 in the array area (a total of 2,671,415m^3 seaward of mean high water (application form cited at point 5) and a maximum spoil arising (including drilling and cable laying etc.) for the array area disposal site of 13,037,497m^3(document cited at point8).

18. Up to four temporary deposits which will be used as backfill, associated with the exit pit/trench for the four export cables under the intertidal zone through trenchless techniques located up to 1km seaward of mean low water springs, the location of which will be confirmed as part of post consenting.

Responses to questions proposed by Natural Resources Wales (NRW). All responses are observations unless otherwise stated. These comments are limited to the area within my remit which includes physical and chemical characterisation for dredge and disposal activities.

NRW Advice required on:

1. **Whether sufficient sampling has taken place**
2. **Whether the sampling indicates that the material is suitable for disposal at sea**
3. **Whether a single site should be designated to cover both array area disposal and the offshore cable corridor disposal or whether it would be expected that this would be separate designated disposal sites, and**
4. **Confirmation of any further sampling requirements during the duration of the licence to comply with OSPAR requirements.**

Question 1. Has sufficient sampling taken place?

19. The number of sample stations which have been analysed for sediment chemistry has been presented in sections 1.7.1 and 1.7.2 of Volume 2, Annex 2.1 Benthic subtidal and intertidal ecology of the Environmental Statement (ES). The full sediment contamination data are presented in Appendix F. Across the array 10 samples were collected (8 in 2021 and 2 in 2022) and 18 from the array area (2022), a total of 28 samples (Annex 1 Figure 3). This is below the OSPAR guidelines on the management of dredged material 2014-06 updated 2024 which recommends 16-30 samples for 500,000-2,000,000m^3 of dredged material, with an extra 10 per million cubic metres. Therefore 28 samples is slightly lower than would be anticipated for a dredge of around 2.5Mm^3. However, the material across the array area ranged from gravelly sand to muddy sandy gravel with most samples classified as gravelly sand (section 1.4.2.2 characterisation report 8) and so this number of samples is acceptable given the nature of the seabed.

Question 2. Is the material suitable for disposal to sea

20. Particle size analysis of the sediments within the Mona Offshore cable corridor show the material to be predominantly sand (80% with gravel (15%) and fine sediment (5%)) and classified predominantly gravelly sand across the array area.

21. Response to S42 consultation (document cited at 8) for JNCC was that *"material from sandwave clearance will be deposited in the vicinity of the clearance site. Additionally some of the sediment from the Mona Array Area may be removed from the system to be used as ballast for the gravity base foundations. Specifically, the dredging and site preparation associated with conical gravity base foundations may involve the use of up to 7,000 m^3 of this material per foundation as ballast within the structure. The remaining material will be sidecast to a location*

adjacent to the foundation." The proposed disposal site is therefore within the array area or cable corridor (Annex 1 figure 1).

Array area characterisation

22. The array characterisation report section 1.4.2.3 summarised chemical contamination from analysis undertaken, which comprises trace heavy metals including arsenic, polyaromatic hydrocarbons (PAHS) and polychlorinated biphenyls (PCBs) by SOCOTEC UK Limited which is an MMO validated laboratory for the analysis of dredge material, which is appropriate:

    "levels of chromium, copper, nickel, lead, mercury and zinc did not exceed the relevant Cefas (Centre for Environment, Fisheries and Aquaculture Science) Action Level 1 (AL1) or the Canadian Threshold Effect Level (TEL) in any of the samples. Concentrations of arsenic did however exceed Cefas AL1 at two sample stations in the Mona Array Area but were below the Cefas Action Level 2 (AL2). Additionally, the concentration of cadmium marginally exceeded the Cefas AL1 at a single station in the Mona Array Area. No samples exceeded Cefas ALs or the Canadian TEL or Probable Effect Level (PEL) for PCBs. Levels of PAHs did not exceed the relevant Canadian TEL or PEL thresholds. Concentrations of organotins were below the limit of detection at all stations ES Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report)."

23. **Minor comment (No action):** From this assessment I agree that the material is acceptable for disposal to sea. The conclusion in section 1.8.1.5 and 1.817 is that contamination of surrounding sediments is highly unlikely, and whilst this is true for the contaminants which have been assessed, this does not consider other determinands such as brominated flame retardants, which have not been analysed. However given the predominantly coarse nature of the material and location of the works (being well distanced from any significant sources of such contaminants), the risk of contamination from the release of sediments as a result of disturbance during construction within the array is likely to be low.

24. A greater risk is the potential longer-term impact of disposal/deposition of drill arisings on the seabed, which, due to the size of the sediment particles, are likely to remain in situ for long periods of time. No moderate or major adverse effects in terms of Environmental Impact Assessment were predicted in relation to relevant receptors (negligible to minor adverse were predicted). I leave these comments to the relevant nature conservation bodies and benthic ecologists as part of the ES assessment.

25. **Minor comment (No action):** I note that analysis of organochlorines are included on separate sample templates (excel workbook) however, these results do not appear to have been commented on within the characterisation report (document at 8), these would have been nice to have included. Levels of organochlorines were indicated to be below the limit of detection for all sites except ENV 40 and ENV50 but levels observed were around the level of detection and not of concern.

Offshore cable corridor characterisation

26. The characterisation report describes the contaminant levels for 18 sediment samples analysed by SOCOTEC UK Limited for particle size, trace heavy metals including arsenic, PAHs and PCBs. A summary provided section 1.4.2.4 states;

    "levels of cadmium, chromium, copper, nickel, lead, mercury and zinc did not exceed the relevant Cefas Action Level 1 (AL1) or the Canadian Threshold Effect Level (TEL) in any of the samples. Concentrations of arsenic did however exceed Cefas AL1 at three sample stations in the Mona Offshore Cable Corridor and 17 stations were above

the Canadian TEL. Levels at all stations were, however, below Cefas Action Level (AL) 2 and the Canadian Probable Effect Level (PEL). No samples exceeded the relevant Cefas ALs or the Canadian TEL or PEL for PCBs. Levels of PAHs were below the relevant Canadian TEL and PEL levels. Concentrations of organotins where below the limit of detection at all stations (Volume 6, Annex 2.1: Benthic subtidal and intertidal ecology technical report of the ES).”

27. No effects of moderate or major adverse significance (i.e. significant in EIA terms) were identified in relation to sediment disposal, with only negligible to minor adverse effects predicted on relevant receptors. I defer to colleagues in statutory conservation bodies in regards to their comments and predicted effects within the ES as this is outside my remit. However, I agree with the comments in section 1.8.15 that deposition of sediment from disposal activities is predicted to only result in short term, spatially discrete impacts, and that the seabed material to be disposed of in situ is not heavily contaminated (as outlined in paragraph 1.4.2.4). This is supported by the sediment data, which have shown that contamination of surrounding sediments will be highly unlikely.

28. **Minor comment (No action):** I note that analysis of organochlorines are included on separate sample templates (excel workbook) however, these results do not appear to have been commented on within the characterisation report (document at 9), these would have been nice to have included.

29. Results of the analysis provided on excel templates, indicate that levels for organochlorines observed were below the LOD with the exception of sample OCC143, although this level was close to the limit of detection.

Question 3. Should a single site be designated to cover both array area disposal and the offshore cable corridor disposal or should these be separate designated sites?

30. Bathymetry data used to identify sandwaves determined that up to 50% of the total length of the inter-array cables and 60% of the inter-connector cables would require sandwave clearance. Site-specific geophysical data from the Mona Array Area and bathymetry data also identified that up to 50% of foundation locations may require sandwave clearance. If dredging is required, it would be carried out by dredging vessels using suction hoppers or similar. Pin piles for the foundation are driven and/or drilled into the seabed. If drilling is required, spoil arising from the drilling will be disposed of within the vicinity of the source. Although the characterisation report suggests that spoil arising from drilling and trenching would be much lower than the volumes presented for sandwave clearance and that trenching generally places material to either side of the trench allowing for backfill thus no disposal site is considered necessary (document cited at point 8 section 1.2.2.2). The characterisation of the ECC (document cited at point 9) focuses on the material to be disturbed as a result of sandwave clearance. Due to the disturbance of the disturbance of the sediments and the regulations, therefore, require both the array and the cable corridor to be designated for disposal to be able to comply with the annual disposal return data requirements for the UKs signatory obligations under OSPAR and the London convention/London Protocol.

31. The characterisation report for the array area after consideration of alternative options for dredge material concludes that the disposal in situ remains the most viable option and has the advantage of retaining the sediment within the local sedimentary system and I agree with this assessment. There is no evidence to suggest that material from the cable corridor would be deliberately disposed of within the array area and vice versa, and where the array area meets the cable corridor some migration and deposition in either area may occur. Thus, it would seem

pragmatic to designate one site for both areas. (area of the array- Annex 1 figure 1, and the area of the offshore cable corridor - Annex 1 figure 2).

32. **Minor comment (Action):** Plotting the area of the disposal sites from the co-ordinates provided in the shape file show the offshore cable corridor to be split into 3 areas (figure 3) however the figures in the characterisation reports (documents 8 and 9 figures 1 and 2 copied in Annex 1 below) show the area of the offshore cable corridor to be continuous, therefore I have assumed that the area to be designated would be continuous and the applicants shape file needs amended, unless there is a specific reason for the separation.

Question 4. Are any further samples required for the duration of the licence to comply with signatory obligations for OSPAR and London Convention/London Protocol.

33. **Minor comment (No action):** No although it is expected practice to see justification of the sample analyses selected for the characterisation, such as use of OSPARs secondary list of contaminants within the reports for both the array and the Offshore cable corridor for completeness (please see point 23).

Any additional comments

34. I note the use of plastic/synthetics are applied for in point 8(a)(c) of the application form (cited at point 5). The works include rock protection, concrete mattresses, fronded mattresses and rock bags as cable protection. However, the NRW should consider the risks of placing plastic infrastructure into the marine environment should they degrade. The final design of these frond mattresses will be detailed in the offshore construction method statement that will be submitted to and approved prior to commencement of development. This is secured within the draft DCO submitted with the application for consent.

35. I note (document cited at 8) in the June 2023 NRW S42 consultation NRW requested that the PAH data be checked as one station which seems to exceed a relevant threshold needs reporting. The applicant responded that PAH assessment data had been checked and confirmed that no relevant thresholds were exceeded (section 1.7.2 of Volume 2, Annex 2.1 Benthic subtidal and intertidal ecology of the ES) and thank the applicant for their response.

36. **Minor comment (Action):** Whilst the impact on receptors is predicted to be negligible, there is potential for sediments around the piles to remain for some time depending on the particle size of the arisings. Consideration of the volume and height of residual sediments at the time of decommissioning should be included in licence conditions for the decommissioning process. This is because at end of life if piles are to be removed, excavation around the piles would be required to be able to cut the piles to below the seabed if being left in situ. This consideration should include potential for release of contaminants from the original drilling (drill fluids, dyes, cement and grout may have been used etc. chemicals like paints (especially avicides), coatings, rig wash or hydraulic fluids etc.) used during the operation and maintenance as well as the potential from other contaminants released/introduced to the marine environment from the cutting process. This is to help inform any characterisation of the site that may be required at that time for disposal/dispersal of the arisings/excavated material).

37. I note that the EMODnet data indicates that the Mona Offshore Cable Corridor is situated entirely within high intensity sandeel spawning grounds, with substrates mainly comprising gravelly sand and (gravelly) sand, which are preferred sandeel habitats. This was confirmed by the site-specific data PSA results, which indicated that most stations within the Mona Offshore Cable Corridor were classified as preferred habitat for sandeel spawning (section 1.2.4.8

characterisation report). I defer to specialist advisors with regard to fisheries and impacts for sandeel spawning, as a timing restriction may be required as a condition for use of the site for construction and maintenance if designated for disposal.

Summary

38. The data provided is sufficient to characterise the area for disposal of sediments arising at the array area and offshore cable corridor for Mona offshore Wind Farm. Although there are fewer samples collected and analysed than are recommended in the OSPAR agreement 2014-06 updated 2024 (Guidelines for the Management of Dredged Material at Sea) e.g. 16-30 for up to 2Mm^3 with an extra 10 samples per million meters cubed, due to the coarse nature of the material over the site and likely low risk as contaminants (which generally are more likely to be observed in finer sediments) the number of samples is acceptable.

39. Levels of contaminants were such that the environmental risk from the release of contaminants from the sediments as a result of the construction or operation of Mona Offshore Wind Farm is likely to be low.

40. If NRW determine require the array area and the export cable corridor designated although there is no clear advantage of either designating these together or separately, as the applicants intend to dispose of dredged material close to the extraction site and that both areas being adjacent may find some deposition from works adjacent to their site, for efficiency the suggestion is for one disposal area to be opened if required for the sole use of the construction and operation/maintenance works at Mona to be closed upon completion of the works. The disposal site shape file should be amended for the offshore cable corridor to be continuous (as per comment 32).

Sylvia Blake
Senior Marine Advisor

Quality Check	*Date*
Joe Perry	19/08/2024

Annex 1

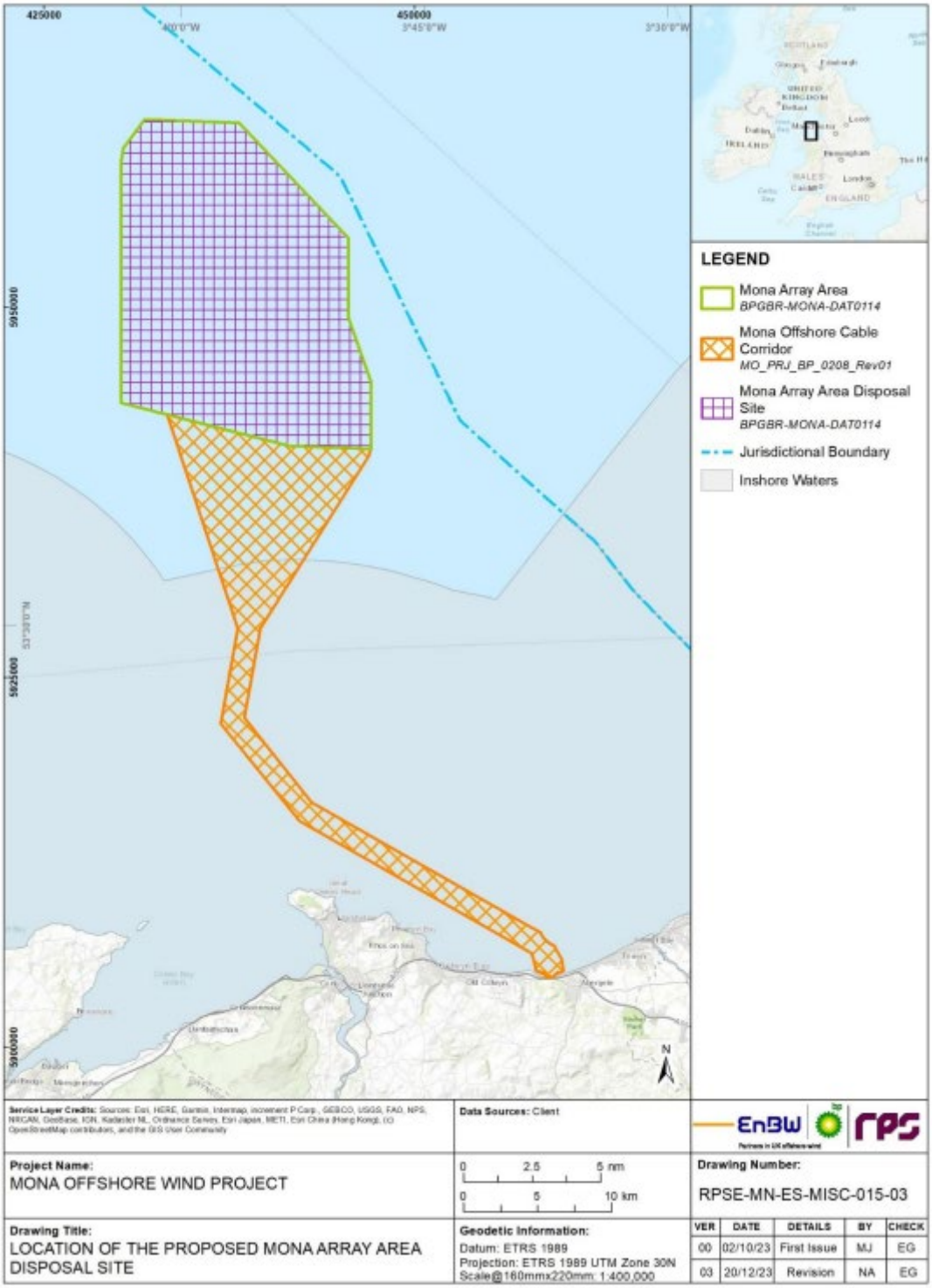

Figure 1 location of the proposed Mona array disposal site.

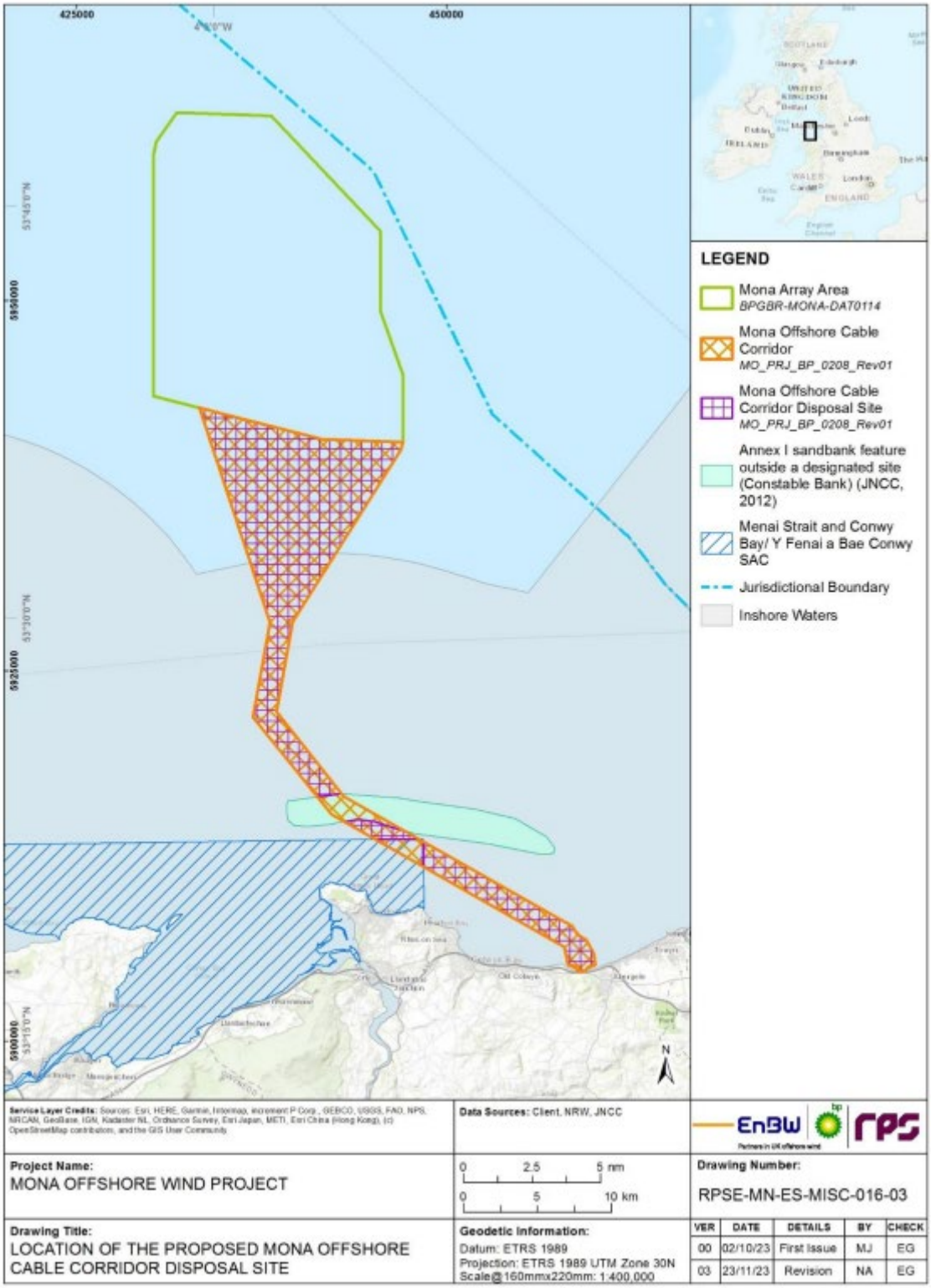

Figure 2 location of the proposed Mona offshore cable corridor disposal site.

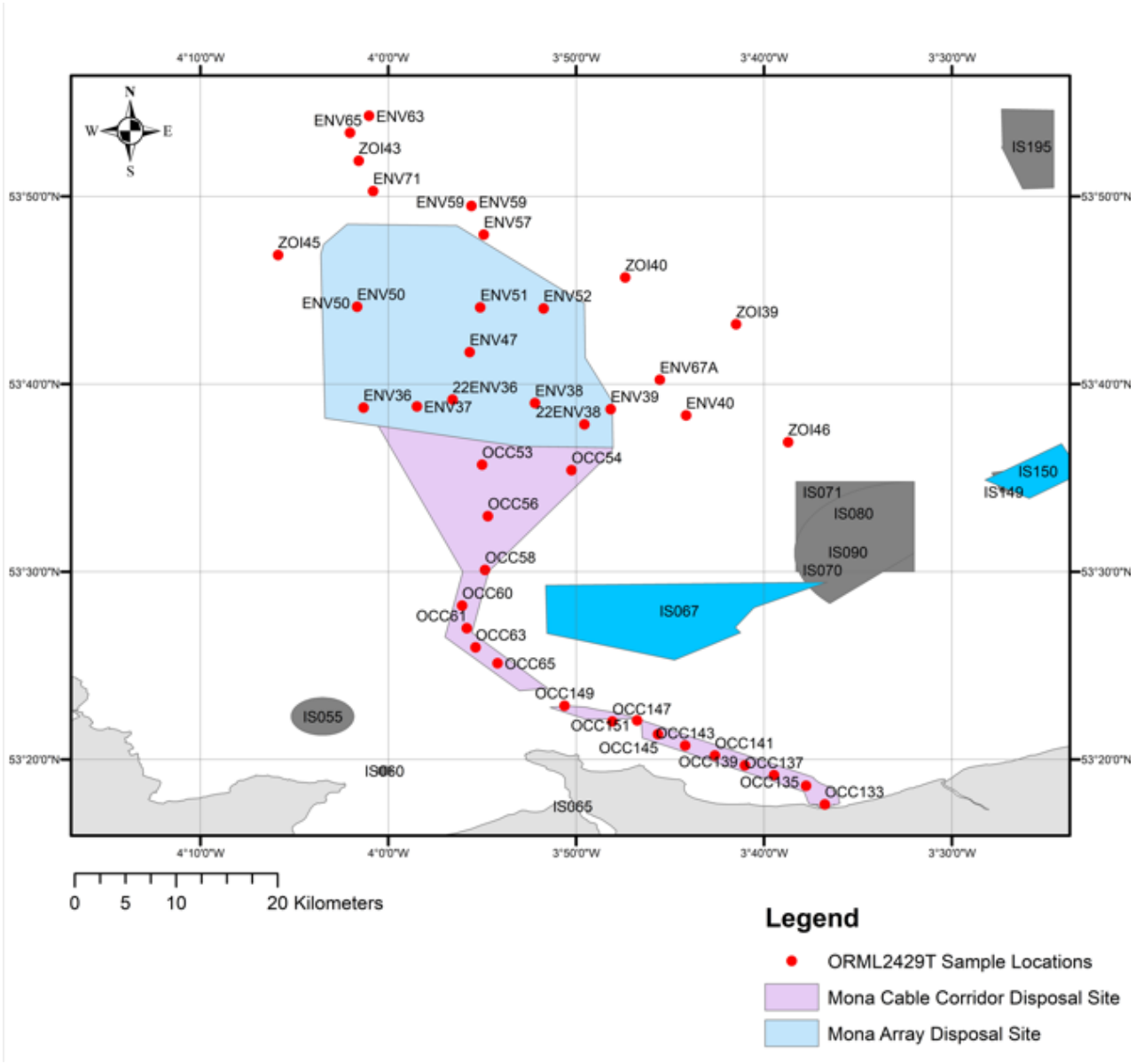

Figure 3 Sample stations for Morgan Offshore Wind Farm assets.