# FIVE ESTUARIES OFFSHORE WIND FARM

## VOLUME 5, REPORT 5.1: BENTHIC COMPENSATION STRATEGY ROADMAP – REVISION D (TRACKED)

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In preparation of this document Five Estuaries Wind Farm Ltd has made reasonable efforts to ensure that the content is accurate, up to date and complete for the purpose.

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## DEFINITION OF ACRONYMS

| Term | Definition |
|---|---|
| AEoI | Adverse Effect on Integrity |
| ALDFG | Abandoned, Lost and Discarded Fishing Gear |
| BCSG | Benthic Compensation Steering Group |
| BEIS | Department for Business, Energy and Industrial Strategy (now the Department for Energy Security and Net Zero (DESNZ)) |
| BESS | British Energy Security Strategy |
| BIMP | Benthic Implementation and Monitoring Plan |
| BMAPA | British Marine Aggregate Producers Association |
| BQE | Biological Quality Element |
| CBRA | Cable Burial Risk Assessment |
| Cefas | Centre for Fisheries, Environment and Aquaculture Science |
| CfD | Contracts for Difference |
| CIEEM | Chartered Institute of Ecology and Environmental Management |
| COWSC | Collaboration on Offshore Wind Strategic Compensation |
| cSAC | Candidate Special Area of Compensation |
| CSCB | Cromer Shoal Coal Beds |
| DAS | Discretionary Advice Service |
| DCO | Development Consent Order |
| DDC | Drop Down Camera |
| Defra | Department for Environment, Food and Rural Affairs |
| DEP | Dudgeon Extension Project |
| DESNZ | Department for Energy Security and Net Zero |
| DML | Deemed Marine Licence |
| dSAC | Draft Special Area of Compensation |
| EC | European Commission |
| ECC | Export Cable Corridor |
| EIA | Environmental Impact Assessment |
| ES | Environmental Statement |
| ETG | Expert Topic Group |

| Term | Definition |
|---|---|
| EU | European Union |
| ExA | The Examining Authority |
| FID | Financial Investment Decision |
| Ha | Hectare |
| HHW | Haisborough, Hammond and Winterton |
| HRA | Habitats Regulation Assessment |
| HSE | Health and Safety Executive |
| HV/DC | High Voltage/Direct Current |
| IDRBNR | Inner Dowsing, Race Bank and North Ridge |
| JNCC | Joint Nature Conservation Committee |
| KEIFCA | Kent and Essex Inshore Fisheries and Conservation Authority |
| km | Kilometre |
| $km^2$ | Square kilometre |
| m | Metre |
| $m^2$ | Square metre |
| M&LS | Margate and Lond Sands |
| MCZ | Marine Conservation Zone |
| MEEB | Measures of Equivalent Environmental Benefit |
| MMO | Marine Management Organisation |
| MoU | Memorandum of Understanding |
| MPA | Marine Protected Areas |
| MRF | Marine Recovery Fund |
| MW | Megawatt |
| NE | Natural England |
| NFFO | National Federation of Fishing Organisations |
| NGO | Non-Governmental Organisation |
| NNSSR | North Norfolk Sandbanks and Saturn Reefs |
| nm | Nautical mile |
| NSIP | Nationally Significant Infrastructure Project |
| OCT | Ocean Conservation Trust |
| ODOW | Outer Dowsing Offshore Wind Farm |

| Term | Definition |
|---|---|
| OPRED | Offshore Petroleum Regulator for Environment and Decommissioning |
| OWEC | Offshore Wind Evidence and Change |
| OWF | Offshore Wind Farm |
| OWIC | Offshore Wind Industry Council |
| PINS | The Planning Inspectorate |
| PSD | Particle Size Distribution |
| pSAC | Possible Special Area of Compensation |
| RAG | Red-Amber-Green Assessment |
| RIAA | Report to Inform Appropriate Assessment |
| SAC | Special Area of Conservation |
| SCI | Site of Community Importance |
| SDM | Species Distribution Model |
| SEP | Sheringham Shoal Extension Project |
| SG | Steering Group |
| SNCB | Statutory Nature Conservation Bodies |
| SoS | Secretary of State |
| SPA | Special Protected Area |
| TWT | The Wildlife Trust |
| UXO | Unexploded Ordinance |
| VE | Five Estuaries Offshore Windfarm |
| WFD | Water Framework Directive |
| WNNC | Wash and North Norfolk Coast |
| WWF | World Wide Fund |
| ZORRO | ZOsteRa RestOration |

## GLOSSATY OF TERMS

| Term | Definition |
|---|---|
| Benthic ecology | Benthic ecology encompasses the study of the organisms living in and on the sea floor, the interactions between them and impacts on the surrounding environment |
| Biotope | A region of habitat associated with a particular ecological community |
| Development Consent Order (DCO) | An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Projects (NSIP). |
| Effect | Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria. |
| Environmental Impact Assessment (EIA) | A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Directive and EIA Regulations, including the publication of an Environmental Statement. |
| EUNIS habitat classification | A pan-European system which facilitates the harmonised description and classification of all types of habitats through the use of criteria for habitat identification. |
| Export cables | Cables that transfer power from the offshore substation(s) or the converter station(s) to shore. |
| Export cable corridor (ECC) | The specific corridor of seabed (seaward of Mean High Water Springs (MHWS)) and land (landward of MHWS) from the Five Estuaries array area to the proposed substation areas, within which the export cables will be located. |
| Geophysical | Relating to the physics of the earth. |
| Impact | An impact to the receiving environment is defined as any change to its baseline condition, either adverse or beneficial, resulting from the activities associated with the construction, operation and maintenance, or decommissioning of the project. |
| Intertidal | The area of the shoreline which is covered at high tide and uncovered at low tide. |
| Maximum design scenario (MDS) | The maximum design parameters of each asset (both on and offshore) considered to be a worst case for any given assessment. |
| Mitigation | Mitigation measures, or commitments, are commitments made by the project to reduce and/or eliminate the potential for significant |

| Term | Definition |
|---|---|
| | effects to arise as a result of the project. Mitigation measures can be embedded (part of the project design) or secondarily added to reduce impacts in the case of potentially significant effects. |
| Planning Inspectorate (PINS) | The agency responsible for operating the planning process for Nationally Significant Infrastructure Projects (NSIPs). |
| Report to Inform Appropriate Assessment (RIAA) | A process which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European conservation sites and Ramsar sites. The process consists of up to four stages of assessment: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI) and compensatory measures. |
| Cable protection | Cable protection may be placed on the seabed to protect from current and wave action. |
| Side Scan Sonar (SSS) | Side-imaging sonar used to create an image of the seafloor. |
| Single-beam and multi-beam echo sounders (SBES and MBES) | A type of sonar which transmits soundwaves, using the time taken between emission and return to establish a depth. This can be done using singular or multiple beams. |
| Subtidal | The region of shallow waters which are below the level of low tide. |

# 1 INTRODUCTION

## 1.1 BACKGROUND

1.1.1 Five Estuaries Offshore Wind Farm (VE - hereafter referred to as the 'Applicant') is a proposed extension to the operational Galloper Offshore Wind Farm. VE would be located approximately 37 kilometres (km) off the coast of Suffolk, England (at its closest point).

1.1.2 VE is the proposed extension to the operational Galloper Offshore Wind Farm located 37km off the coast of Suffolk at its nearest point, comprising of both offshore and onshore infrastructure. The onshore connection works are located within the administrative area of Tendring District Council, within Essex County Council. VE will have an overall capacity of greater than 100 Megawatts (MW) and therefore constitutes a Nationally Significant Infrastructure Project (NSIP) under the Section 15 (3) of the Planning Act 2008. Full details of the project description are presented in Volume 6, Part 2, Chapter 1: Offshore Project Description .

1.1.3 The final proposed offshore export cable corridor (ECC) has been developed through extensive route selection and evaluation work, taking into consideration environmental and engineering constraints. The ECC passes through the Margate & Long Sands Special Area of Conservation (M&LS SAC) overlapping with the tip of the most northerly of the 9 sandbanks identified within the SAC (Long Sands Head) (Figure 2.1).

1.1.4 The Applicant is applying for a Development Consent Order (DCO) supported by a range of plans and documents, including an Environmental Statement (ES) which will set out the results of the Environmental Impact Assessment (EIA). The Applicant is also submitting a Report to Inform Appropriate Assessment (RIAA), which sets out the information necessary for the competent authority, in this case the Secretary of State (SoS), to undertake a Habitats Regulations Assessment (HRA) to determine if there is any Adverse Effect on Integrity (AEoI) on the national site network. This Compensation Strategy Roadmap has been prepared to support both the ES and the RIAA.

## 1.2 'WITHOUT PREJUDICE' DEROGATION PREPARATION

1.2.1 The Applicant has concluded that an adverse effect on integrity (AEoI) to the M&LS SAC from the construction, operation and decommissioning of the Project can be ruled out, when considering the detailed project design and associated mitigations which have been committed to (Section 3 and Volume 9, Report 13: M&LS SAC Benthic Mitigation Plan).

1.2.2 However, the Applicant is cognisant of conclusions drawn by the SoS on previous offshore wind farm developments (such as Hornsea Three and the Norfolk Vanguard and Boreas projects) with regard to the potential for an AEoI not being able to be ruled out to SACs with the same features as the M&LS SAC, specifically Annex I 'Sandbanks covered by seawater at all times', arising from the deployment of rock protection.

1.2.3 Therefore, whilst the Applicant is confident that a conclusion of no AEoI can be reached for the Project, in acknowledgement of the previous decisions and taking account of the advice provided by Natural England as to the risk of an AEoI for this site and the relevant features, a 'without prejudice' derogation case has been developed for this site.

1.2.4 The Applicant notes that under European Commission (EC) guidance (European Commission, 2018) the compensation should normally be in place before the effect on the designated feature takes place; however, it acknowledges that there may be situations where it will not be possible to meet this condition. The guidance states that "best efforts should be made to ensure that compensation is in place beforehand, and, in the case that this is not fully achievable, the competent authorities should consider extra compensation for the interim losses that would occur in the meantime".

1.2.5 As part of the process of developing the 'without prejudice' derogation case, the Applicant has developed a 'shortlist' of possible compensation options based on the existing Project proposal, recent DCO decisions which have been consented on the basis of an HRA derogation, and stakeholder feedback received to date. These shortlisted options were narrowed down from a longlist following a ranking criteria assessment (otherwise known as a Red-Amber-Green (RAG) assessment) and are discussed in the Compensation Measures Shortlist Technical Note which was submitted at PEIR[1].

1.2.6 An initial Cable Burial Risk Assessment (CBRA) (Volume 9, Report 9) has been undertaken (and will be updated prior to construction) which has helped to define the approach to cable installation as well as informing the requirement or otherwise for cable protection material over designated sandbank features within the SAC site and the type, design and installation process for any such protection. In the area where the VE offshore ECC crosses M&LS SAC there are also a number of shipping and navigation considerations, which also influence the CBRA. Discussions with shipping and navigation stakeholders are ongoing on matters around installation and burial and will be a significant factor in the final burial specification.

1.2.7 Options for alternative, feasible, cable installation and protection techniques have been assessed and evaluated. Full details of these options to mitigate potential impacts to sandbank features are presented in Section 3 and Volume 9, Report 9.13: M&LS SAC – Benthic Mitigation Plan. The CBRA, engineering evaluations and Expert Topic Group (ETG) discussions have informed the final position on mitigation and 'without prejudice' compensation proposals. This has subsequently informed the RIAA that will accompany the DCO Application, and which sets out in full the assessment of the potential AEoI on the Annex I sandbank features.

[1] 0144_VE_compensation_options_shortlist_note_Final.pdf (fiveestuaries.co.uk)

**Table 1.1: Natural England compensation checklist and project status**

| Natural England compensation checklist | Project status |
|---|---|
| a) What, where, when: clear and detailed statements regarding the location and design of the proposal. | Section 6 details 'what, where, and when' of each compensation option. |
| b) Why and how: ecological evidence to demonstrate compensation for the impacted site feature is deliverable in the proposed locations. | Section 4 and 6 details 'why and how' and provides ecological evidence to support each compensation option. |
| c) For measures at sea, demonstrate that measures have been secured e.g., agreements with other sea or seabed users. | No formal agreements with other sea or seabed users have been secured or agreed yet, however Section 6 outlines potential avenues to do this, as necessary. |
| d) Policy/ legislative mechanism for delivering the compensation (where needed). | Section 2, 3 and 4 details relevant policy/legislative mechanisms for delivering the compensation (where required). |
| e) Agreed DCO/DML requirements/ conditions. | DCO/dML condition/schedule drafting has not been provided with the application as it is understood that DEFRA, NE, the MMO and DESNZ are working up wording associated with DEFRA strategic compensation proposals and this drafting is likely to be made available during examination. |
| f) Clear aims and objectives of the compensation. | Section 6 details clear aims and objectives of each compensation measure. |
| g) Mechanism for further commitments if the original compensation objectives are not met – i.e. adaptive management. | Section 6 details the adaptive management measures for each compensation option. |
| h) Clear governance proposals for the post-consent phase – we do not consider simply proposing a steering group is sufficient. | Governance proposals will become clearer as any proposed compensation measure is brought forward. |
| i) Ensure development of compensatory measures is open and transparent as a matter of public interest, including how information on the compensation would be publicly available. | The Applicant has ensured that relevant information on any compensatory measures is provided with the application and will be made public as part of the application and examination process. |

| Natural England compensation checklist | Project status |
|---|---|
| j) Timescales for implementation especially where compensation is part of a strategic project, including how timescales relate to the ecological impacts from the development. | Section 6 details the timescales for implementation and how this relates to the ecological impacts of the development. |
| k) Commitments to ongoing monitoring of measure performance against specified success criteria. | Commitments to ongoing monitoring will be agreed with SNCBs, where a compensation measure has been committed to. |
| l) Proposals for ongoing 'sign off' procedure for implementing compensation measures throughout the lifetime of the project, including implementing feedback loops from monitoring. | Proposals for ongoing 'sign off' procedure would be agreed with SNCBs. |
| m) Continued annual management of the compensation area including to ensure other factors are not hindering the success of the compensation e.g., changes in habitat, increased disturbance as a result of subsequent plans/projects". | Annual management of the compensation measure would be developed and agreed with SNCBs to satisfy this statement. |

## 1.3 PURPOSE OF THIS DOCUMENT

1.3.1 This document details the final compensation options to support the 'without prejudice' derogation case in relation to:

- Potential loss of sandbanks slightly covered by sea water all the time (hereafter referred to as 'sandbanks') at M&LS SAC resulting from the installation of cable protection material on the offshore export cables in those parts of the SAC where they cross the designated sandbank features.

1.3.2 This document also sets out how each proposed final compensation option would be delivered, including the timeframe for delivery and consideration of any adaptive measures.

# 2 MARGATE & LONG SANDS SAC

## 2.1 OVERVIEW

2.1.1 The M&LS SAC covers an area of 649 square kilometres ($km^2$) and starts to the north of the Thanet coast of Kent and proceeds in a north-easterly direction to the outer reaches of the Thames Estuary. It contains a number of Annex I "Sandbanks slightly covered by seawater at all time", the largest of which is Long Sands itself (Natural England, 2010). The sandbanks are composed of well-sorted sandy sediments, with muddier and more gravelly sediments in the troughs between banks, and the upper crests of some of the larger banks dry out at low tide. The banks are tidally influenced estuary mouth sandbanks, the southern banks are aligned approximately east-west in the direction of tidal currents entering the Thames Estuary from the English Channel whereas Long Sand is aligned in a northeast-southwest orientation with influence from the North Sea. In common with all sandbanks the structure of the banks is dynamic and there have been significant movements of the bank edges over time.

2.1.2 The fauna of the bank crests is characteristic of species-poor, mobile sand environments, and is dominated by polychaete worms and amphipods while more diverse communities of polychaetes, crustacea, molluscs and echinoderms are found in the troughs and on the bank slopes. Mobile epifauna includes crabs and brown shrimp, along with squid and commercially important fish species such as sole and herring.

2.1.3 While the primary reason for designation of this site is the presence of Sandbank Annex I interest features, the reef-forming ross worm (*Sabellaria spinulosa*) is also present. However, distribution of *S. spinulosa* is patchy and aggregations form crusts rather than reefs. Consequently, this species is considered as secondary importance to the site and is not cited as a qualifying feature for SAC designation.

## 2.2 CONSERVATION OBJECTIVES

2.2.1 The conservation objectives apply to the site and individual species and/or assemblage of species for which the site has been classified (the Annex 1 habitat features listed above). The conservation objectives for the site are to ensure that, subject to natural change, the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the Favourable Conservation Status of its qualifying features, by maintaining or restoring:

- the extent and distribution of qualifying natural habitats and habitats of the qualifying species;
- the structure and function (including typical species) of qualifying natural habitats;
- the structure and function of the habitats of the qualifying species;
- the supporting process on which qualifying natural habitats and the habitats of qualifying species rely;
- the population of each of the qualifying species; and
- the distribution of qualifying species within the site.

2.2.2 During the application phase assessments, there was no condition assessment available for the protected Annex I habitat feature (H1110 Sandbanks which are slightly covered by sea water all the time) and historic assessments were not available to view. However, an updated condition assessment for the sandbank feature was published in January 2025[2]. As of the updated condition assessment, all of the Annex I sandbank feature was reported as 'Unfavourable Declining'.

## FAVOURABLE CONDITION

2.2.3 'Favourable condition' is the term used in the UK to represent 'Favourable Conservation Status' for the interest features of SACs. For an Annex 1 habitat, 'Favourable Conservation Status' occurs under the Habitats Directive when:

- its natural range and the area it covers within that range are stable or increasing;
- the specific structure and function, which are necessary for its long-term maintenance, exist and are likely to continue to exist for the foreseeable future; and
- the conservation status of its typical species is favourable[3].

2.2.4 Favourable condition of Annex I Sandbanks which are slightly covered by seawater all the time and Annex I Reefs is based on the long-term maintenance of the following (JNCC and Natural England, 2013):

- extent of the habitat;
- diversity of the habitat;
- community structure of the habitat (population structure of individual species and their contribution to the function of the habitat); and
- natural environmental quality (e.g., water quality, suspended sediment levels).

2.2.5 The M&LS SAC Annex I feature (H1110 Sandbanks which are slightly covered by sea water all the time) is currently 'Unfavourable Declining' due to two of the three sub-features being in 'Unfavourable Declining' condition. These are "A5.1-Subtidal coarse sediment" and "A5.2-Subtidal sand". The other sub-feature, "A5.4 Subtidal mixed sediments" is reported as being in 'Favourable' condition.

## EXISTING PRESSURES

2.2.6 The M&LS sandbank sub-features that are currently 'Unfavourable Declining' are reported to be due to the following adverse condition pressure:

- Physical change to another seabed type (Cables and Electricity from renewable energy sources).

2.2.7 The M&LS sandbank features are also reported to have the following condition threats:

- Penetration and/or disturbance of the substratum below the surface of the seabed, including abrasion (Cables); and
- Abrasion/disturbance of the substrate on the surface of the seabed (Aggregate extraction and Fishing).

[2] Margate and Long Sands SAC – Feature Condition (Jan 2025)
[3] Favourable Conservation Status: UK Statutory Nature Conservation Bodies Common Statement

2.2.8 Therefore, to fulfil the conservation objectives for these Annex I features, the Competent Authorities for this area are advised to manage human activities within their remit such that they do not result in deterioration or disturbance of the site's features from the pressures outlined above (JNCC and Natural England, 2013). A fishing bylaw currently exists which prohibits the use of bottom trawled fishing gear in two areas of the M&LS SAC.

2.2.9 Natural England has raised in consultation engagement (Table 5.1) that they consider existing pressures on the interest features of M&LS SAC are likely to be hindering the conservation objectives for the site.

### TARGETS FOR ACHIEVING FAVOURABLE CONDITION

2.2.10 Natural England's Supplementary Advice Targets[4] of relevance to the Project for Annex I sandbanks are outlined in Table 2.1.

**Table 2.1: Supplementary advice targets for sandbanks of relevance to VE.**

| Attribute | Target |
|---|---|
| Distribution: presence and spatial distribution of biological communities | Maintain the presence and spatial distribution of subtidal sandbank communities. |
| Extent and distribution | Maintain the total extent and spatial distribution of subtidal sandbanks to ensure no loss of integrity, while allowing for natural change and succession. |
| Structure and function: presence and abundance of key structural and influential species | [Maintain OR Recover OR Restore] the abundance of listed typical species, to enable each of them to be a viable component of the habitat. |
| Structure: non-native species and pathogens | Restrict the introduction and spread of non-native species and pathogens, and their impacts |
| Structure: sediment composition and distribution | Maintain the distribution of sediment composition types across the feature (and each of its subfeatures). |
| Structure: species composition of component communities | Maintain the species composition of component communities. |
| Structure: topography | Maintain the presence of topographic features, while allowing for natural responses to hydrodynamic regime, by preventing erosion or deposition through human-induced activity. |
| Structure: volume | Maintain the existing (where no previous evidence exists) or best-known (where some evidence exists) |

[4] https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK0030371&SiteName=Margate+and+Long+Sands&SiteNameDisplay=Margate+and+Long+Sands+SAC&countyCode=&responsiblePerson=&SeaArea=&IFCAArea=&NumMarineSeasonality=%2c0%2c0

| Attribute | Target |
|---|---|
| | volume of sediment in the sandbank, allowing for natural change. |
| Supporting processes: energy / exposure | Maintain the natural physical energy resulting from waves, tides and other water flows, so that the exposure [High / Medium / Low] does not cause alteration to the biotopes, and stability, across the habitat. |
| Supporting processes: physico-chemical properties (habitat) | Maintain the natural physico-chemical properties of the water. |
| Supporting processes: sediment contaminants | Restrict surface sediment contaminant levels to concentrations where they are not adversely impacting the infauna of the feature (and each of its subfeatures). |
| Supporting processes: sediment movement and hydrodynamic regime (habitat) | Maintain all hydrodynamic and physical conditions such that natural water flow and sediment movement are not significantly altered or prevented from responding to changes in environmental conditions. |
| Supporting processes: water quality - contaminants (habitat) | Reduce aqueous contaminants to levels equating to High Status according to Annex VIII and Good Status according to Annex X of the Water Framework Directive, avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data. |
| Supporting processes: water quality - dissolved oxygen (habitat) | Maintain the dissolved oxygen (DO) concentration at levels equating to High Ecological Status (specifically ≥ 5.7 mg L-1 (at 35 salinity) for 95 % of year) avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data. |
| Supporting processes: water quality - nutrients (habitat) | Maintain water quality at mean winter dissolved inorganic nitrogen levels where biological indicators of eutrophication (opportunistic macroalgal and phytoplankton blooms) do not affect the integrity of the site and features, avoiding deterioration from existing levels. This target was set using the Environmental Agency 2019 water body classifications data. |
| Supporting processes: water quality - turbidity (habitat) | Maintain natural levels of turbidity (eg concentrations of suspended sediment, plankton and other material) across the habitat. |

## 2.3 QUANTIFICATION OF EFFECT ON THE M&LS SAC

2.3.1 In the RIAA (Volume 5, Report 4) the Applicant provides an assessment of both habitat loss and habitat disturbance for Annex I Sandbanks. Habitat loss associated with cable protection would be long term, for the duration of the project, which is expected to be approximately 40 years, whereas habitat disturbance would be temporary, for a maximum of a few months in any one location. Further detail on sediment mobility and suitability of ground conditions for cable burial is presented in the following sections.

2.3.2 Therefore, the 'without prejudice' compensation measures would only be appropriate for long-term habitat loss and not for temporary disturbance (as recovery would occur). The only cause of long-term habitat loss within the M&LS SAC as a result of the project would be through the installation of cable protection and therefore the measures provided within this document are designed to compensate for maximum amounts of cable protection which could be installed by VE within the M&LS SAC.

### SEDIMENT MOBILITY

2.3.3 The seabed survey data, other available data as outlined in the ES, Volume 6, Part 2, Chapter 2: Marine Geology, Oceanography and Physical Processes, and the outline CBRA, Volume 9, Report 9, indicate that where the ECC crosses the M&LS SAC is outside of the key areas of sediment mobility along the offshore ECC, but there are megaripples present in the area which are likely to be affected by a degree of mobility. Therefore, it is possible that as well as boulder clearance, debris clearance and unexploded ordinance (UXO) clearance, pre-sweeping of mobile sediments may be required to create a suitable seabed surface to enable cable burial to be achieved and maintained. If required pre-sweeping is likely to be limited to the removal of the megaripple crests to remove any steep gradients caused by them. Should this be undertaken the material removed from ML&S SAC will be placed within the offshore ECC, within the M&LS SAC or the same sediment cell, to ensure that sediment remains in the same sediment cell and therefore no sediment is being removed from the local sediment transport system, only redistributed.

### SUITABILITY OF GROUND CONDITIONS FOR CABLE BURIAL

2.3.4 The available data on the ground conditions in the ECC in the M&LS SAC and CBRA work undertaken to date illustrates that the cable will be buried either into sand, sandy gravel or gravelly sand deposits or in the London clay that sits below these surficial sediments. Based on this information it is expected that it will be possible to effectively bury the cables in the M&LS SAC. However, it is not possible to completely rule out the potential need for cable protection if burial fails for any reason (e.g. due to equipment breakdown, or presence of unexpected boulders / cobbles in the London clay that may hamper burial).

2.3.5 As detailed within Volume 9, Report 13: M&LS SAC Benthic Mitigation Plan, this provides a detailed process that will be followed to ensure that cable protection is the last form of cable protection that will be considered when all other options have been exhausted.

## CABLE PROTECTION WORST CASE SCENARIO

2.3.6 As detailed within Volume 9, Report 13: M&LS SAC Benthic Mitigation Plan, to refine the MDS for cable protection in the M&LS SAC, the ground conditions and seabed obstructions/anomalies have been assessed, along with the feasible route alignments across the offshore ECC. The cables could be routed anywhere in the offshore ECC and this flexibility will need to be maintained until geotechnical data is secured and detailed route engineering and burial assessment is undertaken pre-construction, by the cable installation contractor.

2.3.7 The shortest route option would run across the northern extent of the offshore ECC. The location of the final routes in this area will be informed by necessary separation from the North Falls cables which will be located directly north of the VE offshore ECC and agreement with shipping and navigation stakeholders via the Navigation Installation Plan (NIP, Document 9.20). Feedback from Harwich Haven Authority has indicated that the cables should be installed at least 1 km south of the pilot boarding area to avoid creating additional risks for pilot boarding activities which would push the cables into the central area of the offshore ECC.

2.3.8 Based on the ground conditions, and variations in potential final route lengths through the M&LS SAC, a total length of 900 metres (m) of cable protection in the SAC has been assumed as the realistic MDS.

2.3.9 The full list of mitigation is presented in Volume 9, Report 13: M&LS SAC Benthic Mitigation Plan which details that the Project have committed to removable cable protection at the end of the life of the cables.

### FOOTPRINT OF CABLE PROTECTION IN THE M&LS SAC

2.3.10 If required, ~~T~~the maximum total footprint of removable cable protection installed by VE within the M&LS SAC will not exceed 5,400 square metres ($m^2$).

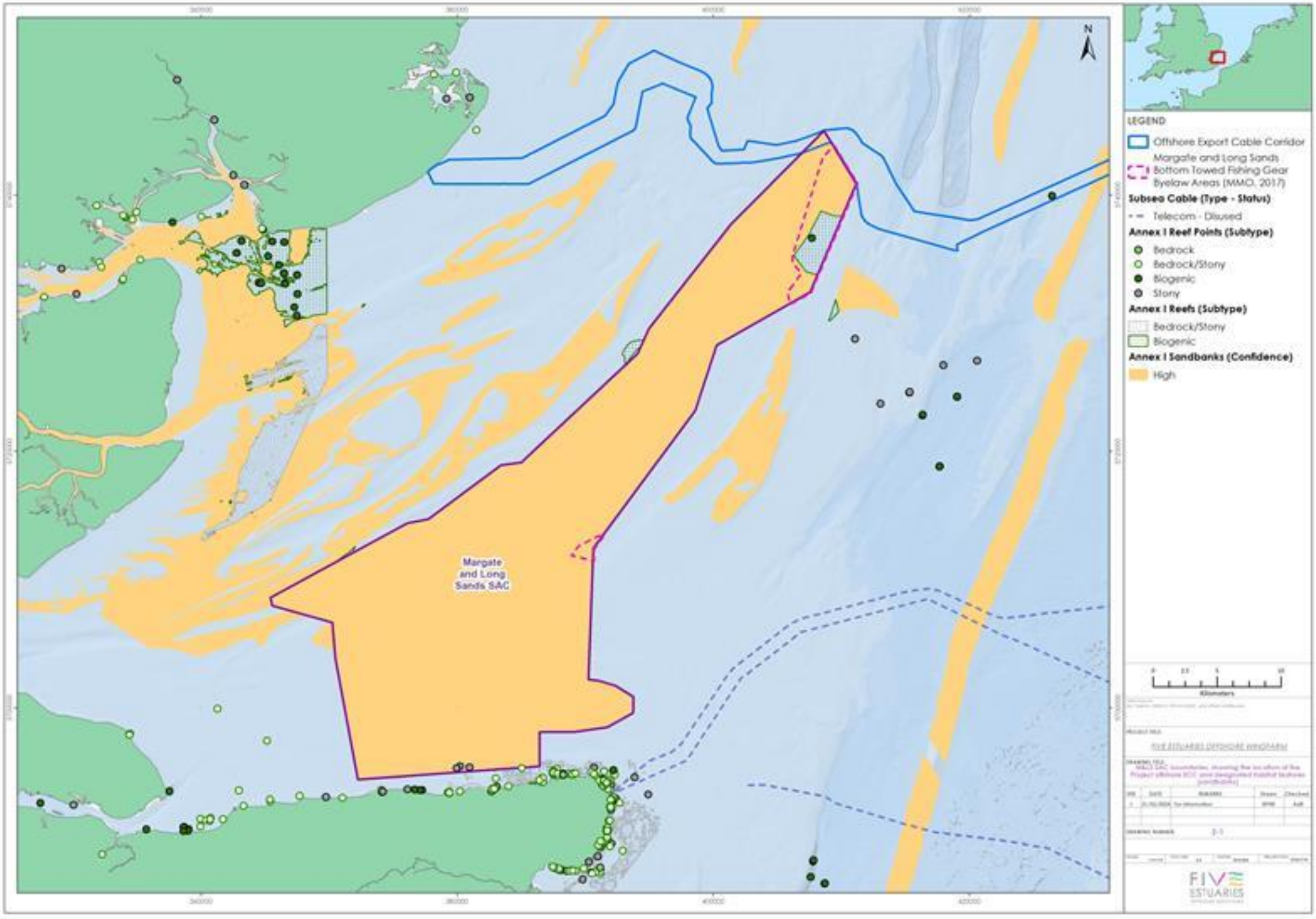
### VOLUME OF CABLE PROTECTION IN THE M&LS SAC

~~2.3.10~~2.3.11 If required, the cable protection installed by VE within the M&LS SAC will not exceed a maximum height of 1.1m or a maximum volume of 5,400 $m^3$.

### QUANTIFICATION OF EFFECTS

~~2.3.11~~2.3.12 Based on the information above, the Applicant considers that compensation should only be required once it is known whether or not cable protection has been installed because ground conditions indicate that burial should be achievable in this location. The Applicant does recognise that the guidance described in Section 4.2 makes clear that, if possible, compensation should be in place prior to the effect occurring, however the guidance does make allowance for situations where this is not possible because the effect may not occur.

~~2.3.12~~2.3.13 The Applicant considers that the VE case is one such example, due to the fact that the placement of cable protection is highly unlikely, and this can only be established following cable installation.


N
Margate
and Long
Sands SAC
LEGEND
Offshore Export Cable Corridor
Margate and Long Sands Bottom Towed Fishing Gear Byelaw Areas (MMO, 2017)
Subsea Cable (Type - Status)
Telecom - Disused
Annex I Reef Points (Subtype)
Bedrock
Bedrock/Stony
Biogenic
Stony
Annex I Reefs (Subtype)
Bedrock/Stony
Biogenic
Annex I Sandbanks (Confidence)
High
Kilometers
FIVE ESTUARIES

# 3 MITIGATION STRATEGY

## 3.1 NATURAL ENGLAND ADVICE ON BENTHIC MITIGATION

3.1.1 Natural England has produced strategic aims and objectives for offshore wind impact mitigation (Natural England, 2021) based around the impact 'mitigation hierarchy' of avoid, mitigate, and compensate, outlined by the Chartered Institute of Ecology and Environmental Management (CIEEM) (CIEEM, 2018) with the aim of *"development leaving nature in a better state, including through emerging mechanisms for nature improvement and enhancement"*.

3.1.2 As part of the pre-application consultation process, Natural England advised that the impacts on sensitive features of the M&LS SAC could be avoided, reduced and mitigated by implementing (but not exclusively) the following mitigation measures identified in Table 3.1 below. The M&LS SAC Benthic Mitigation Plan (Volume 9, Report 13) sets out the detailed mitigation commitments.

**Table 3.1 Review of mitigation options proposed by Natural England in July 2023**

| NE recommended mitigation | Suitability for VE |
|---|---|
| Avoid Designated Site – e.g., Hornsea Project 3 removed infrastructure from Markham's Triangle Marine Conservation Zone (MCZ) | VE are unable to avoid Margate and Long Sands (M&LS) SAC due to safety concerns raised by Harwich Haven Authority with regards to cable installation and presence in close proximity to pilot boarding activities. |
| Reduce number of export cables though use of HV/DC system or coordinated approach with other projects – e.g., Norfolk Projects | Number of export cables has been reduced from 4 to 2 following Preliminary Environmental Information Report (PEIR) feedback and therefore the footprint and impact to the benthic environment has been significantly reduced. HDVC technology is not appropriate for Five Estuaries due to the distance from shore (HVDC is typically used for much longer links) and supply chain constraints associated with securing HVDC cables and converter stations in the necessary timescales. |
| Cutting and removing sections of disused cables to avoid cable crossings – e.g., Norfolk Projects | Not relevant for VE – no disused cables to cross in M&LS SAC. |
| Micro siting cables around reef and other features of ecological importance – All projects post Lincs Offshore Wind Farm consent 2008 | The feature of interest in this case is Annex I sandbank and it is not possible to completely avoid the feature due to the shipping and navigation constraints located directly to the north of the SAC. The route corridor is located in the northern tip of the M&LS SAC to reduce the footprint in the SAC as far as possible. VE will seek in pre-construction route engineering to minimise the cable length in the SAC through the detailed cable route design. This engineering design work will be informed by surveys to determine |

| NE recommended mitigation | Suitability for VE |
|---|---|
| | the location of features of potential archaeological interest, potential items of unexploded ordnance (UXO) and will inform cable burial risk assessment (CBRA). |
| Sandwave levelling to reduce risk of free spanning cables and requirement for external cable protection –All projects since 2016 have included an element of this | Provision for sandwave levelling has been made in the assessment in order to aid effective cable burial. Whilst there are no sand waves in the area where the offshore export cable corridor (ECC) crosses M&LS SAC, there are megaripples and therefore sand wave levelling may be necessary. Sand wave levelling is performed specifically to help ensure the cable is laid on a consistent seabed which (a) helps to ensure the cable is not overstressed (and thus reduces further interventions as a result), and (b) gives a more consistent level from which to bury the pipe into the seabed. This in turn increases the likelihood that the required depth of lowering of the cable is achieved since it allows the burial system to operate more consistently by removing the peaks and troughs caused by the sand waves. This will help avoid the need for further cable protection measures in this area. |
| Adoption of the reburial hierarchy with external cable protection being last resort – all projects | The flow chart provided in Section 5 provides an overview of the proposed hierarchy regarding cable reburial. Prior to cable lay and burial operations commencing further surveys to develop the ground model will be completed. This will allow a good definition of the soils and seabed to be developed which in turn will allow the experienced cable lay contractor to select the most appropriate methodology for burial to maximise the confidence in achieving the required depth of lowering for the cable. This is the first and primary mitigator in avoiding external cable protection. If the required depth of lowering is not achieved, then first, further passes will be attempted to try to improve the depth of lowering. If again this is not achieved a mass flow excavator or alternative tool could be employed to improve the depth or lowering, however, confidence must be high that the material on top of the cable will remain in place through the life of the cable. |
| Pre-consent – finalise cable burial risk assessment using Geotech. data to focus cable protection requirements to areas where cables are likely to be sub-optimally buried e.g., mixed sediment | The available environmental data for the area (such as the project specific geophysical data) gives a good degree of certainty that the ground conditions will be suitable for burial as set out in Section 4 and the Outline Cable Burial Risk Assessment (CBRA) – Volume 9, Report 9. |

| NE recommended mitigation | Suitability for VE |
|---|---|
| Use of guard vessels and/or advance mapping to avoid sub-optimally buried/surface laid cables negating the need for physical cable protection e.g., Lincs Offshore Wind Farm cable in the Wash | An Automatic Identification System (AIS) monitoring service is unlikely to be practically used to identify practical risks to the cable. The main protection risks from large ships will come from (a) vessels anchoring, which will only happen in emergency situations given the proximity to several traffic separation schemes or (b) through loss of cargo, e.g. a failed container. Neither of these aspects would be identified through AIS.<br>For smaller vessels which present aspects such as over trawling risks then the issue is more challenging as their transponders may not always be active and nor are they always the strongest transmitters. This means a smart system would not even identify is a vessel is active in the area.In this location, which has extensive and route constrained shipping traffic, a guard vessel sitting on station or patrolling an exposed area of cable would add obstruction and risk to the shipping and navigation in the area. |
| Requirement to install cable protection with the minimal footprint e.g., pinning – TWT cable corridors work | The market is constantly developing, and RWE is a responsible developer which is continually striving for sustainable solutions. The market will be monitored and if a more suitable protection option is available at the time of installation (if required) then it will be considered. It is noted a small footprint option will likely add value both for the M&LS SAC and for end-of-life considerations for the site. The status of technology readiness is provided in Section 7. |
| No use of jack up barges along export cable routes through benthic SACs – e.g., Norfolk Offshore Wind Farm projects | Given the position of the M&LSC SAC avoidance of jack-up operations is desirable due to the high levels of shipping activity in the area. A commitment has been made to not use a jack up barge within the M&LS SAC within the Margate and Long Sands Benthic Mitigation Plan. |
| No cable protection in fisheries byelaw areas to avoid hindering reef recovery, noting that cable may still go through the outskirts of these areas – e.g., Norfolk Projects | VE Offshore ECC avoids the byelaw area. |
| Designing rock armouring to mirror the structure and function of geogenic reef – advised for | No ecological merit as the feature of discussion is Annex I sandbank. |

| NE recommended mitigation | Suitability for VE |
|---|---|
| Viking Link interconnector | |
| Detonation of UXO outside of designated sites to avoid the creation of a crater – suggested for Dudgeon and Sheringham Extension projects | Not appropriate due to shipping and navigation pressures. |
| Bundling of cables | Bundling has a number of disadvantages and is not seen as preferred for this application. The risk to both cables being damaged in any risk event is increased, and repair is more complex. Moreover, whilst High Voltage Directional Current (HVDC) cables have been installed as a bundled pair, the HVAC 220kV or 275kV cables likely to be used for VE are significantly heavier and not within the standard capabilities of installation vessels. It is likely installers will have significant concerns about installing these as a bundled pair particularly in deeper waters. |

# 4 BENTHIC COMPENSATION APPROACH

4.1.1 To allow for sufficient time to engage with stakeholders and develop robust 'without prejudice' compensation plans and supporting evidence, the Applicant has investigated the feasibility of compensation options during the pre-application period. However, it should be noted that these workstreams are not intended to prejudice the outcome of the ongoing HRA process. As detailed within the final RIAA (Volume 5, Report 4), the Applicant has concluded that there is no potential for AEoI to the M&LS SAC. Therefore, and as outlined above, the Applicant is presenting this document and the proposed derogation and compensation case as without-prejudice, in the event that the SoS disagrees with the Applicants conclusion.

## 4.2 GUIDANCE

4.2.1 Should the SoS conclude that an AEoI cannot be ruled out and that there are no alternative solutions, Article 6(4) of the Habitats Directive "*requires that all necessary compensatory measures are taken to ensure the overall coherence of the network of European sites as a whole is protected*."

4.2.2 As mentioned previously, ideally, compensation should be functioning before the effects takes place, although it is recognised that this may not always be possible, as stated in the EC Guidance (2012): *"in principle, the result of implementing compensation has normally to be operational at the time when the damage is effective on the site concerned. Under certain circumstances where this cannot be fully fulfilled, overcompensation would be required for the interim losses."*

4.2.3 The National Policy Statement for Renewable Energy Infrastructure (EN-3) (2023) states that applicants should refer to the latest Department for Environment, Food and Rural Affairs (Defra) compensation guidance. Defra (2021) draft best practice guidance for developing compensatory measures in relation to Marine Protected Areas (MPAs) sets out the following principles that compensation should satisfy:

- Link to the conservation objectives for the site or feature and address the specific damage caused by the permitted activity;
- Focus on providing the same ecological function for the species or habitat that the activity is damaging OR, where this is not technically possible, provide functions and properties that are comparable to those that originally justified designation;
- Not negatively impact on any other sites or features;
- Ensure the overall coherence of designated sites and the integrity of the MPA network; and
- Be able to be monitored to demonstrate that they have delivered effective and sustainable compensation for the impact of the project. The monitoring and management strategy must require further action to be taken if the compensation is not successful.

4.2.4 In relation to the second bullet point above, the guidance provides a hierarchy approach (see Table 4.1).

4.2.5 It should be noted that an update to the Defra compensation guidance has been published (Defra, 2024), although this is still in consultation and was received during document finalisation, so has not been relied on to inform the development of the strategy but has been considered where possible. The current consultation held as part of Defra's Offshore Wind Environmental Improvement Package (OWEIP) focusses on 'ecological effectiveness' and 'local circumstances' as the primary consideration when identifying compensatory measures, with measures that benefit the specific feature at risk being encouraged over measures that would benefit different qualifying features at risk but which could provide 'functional equivalence'

**Table 4.1: Compensation hierarchy (Source: Defra, 2021)[5]**

| Hierarchy of Measures | Description |
|---|---|
| 1. Address the same impact at the same location. | Address the specific impact caused by the permitted activity in the same location (within the site boundary) |
| 2. Same ecological function different location | Provide the same ecological function as the impacted feature; if necessary, in a different location (outside of the site boundary) |
| 3. Comparable ecological function same location. | Provide ecological functions and properties that are comparable to those that originally justified the designation in the same location as the impact (within the site boundary) |
| 4. Comparable ecological function different location | Provide ecological functions and properties that are comparable to those that originally justified designation; if necessary, in a different location (outside of the site boundary) |

4.2.6 The guidance states that the compensation should be secured before the impact takes place, recognising that ideally the compensation would be functioning prior to construction, but that this is not always possible: "*Where this is not possible, it is important that necessary licences are in place, finances are secured, and realistic implementation plans have been agreed with the appropriate bodies to demonstrate that the compensatory measure is secured*."

[5] New guidance was published whilst this document was being finalised (https://consult.defra.gov.uk/offshore-wind-environmental-improvement-package/consultation-on-updated-guidance-for-environmental/supporting_documents/090224%20OWEIP%20Consultation%20on%20updated%20policies%20to%20inform%20guidance%20for%20MPA%20assessments_.pdf). Whilst the Applicant is aware of this documentation it is noted that (1) the documentation is still out for consultation and (2) the Project delivery programme did not allow for full inclusion of the recommendations.

## 4.3 LONGLIST

4.3.1 The first stages of the "without prejudice" benthic compensation strategy involved reviewing all OWF projects that have proposed an equivalent compensatory measure to date. A longlist was collated based, in part, on the compensation provided as part of previous OWF derogation cases. This focused primarily on projects that have submitted DCO applications within the southern North Sea region as these are located within the same geographic regions as the Project and are likely to impact similar features and sites.

## 4.4 SHORTLIST RANKING SYSTEM

4.4.1 The longlist options for sandbanks were grouped into four compensation themes: habitat improvement, habitat re-creation, reserve creation and threat reduction (see VE OWFL, 2022).

4.4.2 Table 4.2 shows the initial RAG assessment results for the longlist options for M&LS SAC.

4.4.3 The compensation options aimed at compensating for sandbanks specifically, of which seven were ranked as red (low scoring), four as amber (intermediate scoring) and four as green (high scoring). Only the green options are taken forward to the shortlist and discussed further in this report.

**Table 4.2: RAG scores for sandbank compensation options.**

| COMPENSATION OPTION | RAG SCORE |
|---|---|
| Extending a SAC | GREEN |
| Redundant infrastructure removal | GREEN |
| Marine debris removal | GREEN |
| Marine debris awareness and engagement | GREEN |
| Fisheries management (spatial reduction or development of new management mechanism) | AMBER |
| Facilitating lost fishing gear retrieval | AMBER |
| Marine activity restrictions | AMBER |
| Aggregate dredging activity management | AMBER |
| Management of navigational dredging methods | RED |
| Establishing new sandbank areas | RED |
| Microplastic and contaminant loading research | RED |
| Removal of marine non-native species | RED |
| Improving hydrodynamics | RED |
| Improving water quality | RED |

4.4.4 Through ongoing consultation regarding the benthic compensation strategy, an additional option of non-like-for-like compensation was added, specifically consideration of projects such as seagrass creation/restoration. This is discussed in more detail in Section 6.5.

## 4.5 STRATEGIC COMPENSATION

4.5.1 One of the principal challenges for developers in relation to derogation is identifying and securing robust compensatory measures which are acceptable to regulators and Statutory Nature Conservation Bodies (SNCBs). To address this challenge, Defra is proposing to *"develop a library of ecologically robust strategic compensatory measures in partnership with indury and environmental stakeholders that are commercially feasible and deliverable"* (Defra, 2022).

4.5.2 Defra (2022) defined 'strategic compensatory measures' as measures *"that work across a wide area, joining-up across projects and organisations to deliver an ecological benefit greater than the sum of its parts and/or measures that can only be delivered by Government (e.g., enhanced protection of MPAs)."*

4.5.3 The Project understands that Natural England regards strategic compensation as ecologically effective and could provide a solution to species or habitats impacted by multiple offshore windfarms. Furthermore, the British Energy Security Strategy (BESS) commits to both speeding up the deployment of offshore wind and to the measures proposed in the Offshore Wind Environmental Improvement Package policy paper, including strategic compensatory measures and a centralised Marine Recovery Fund (MRF) to help facilitate delivery of these measures.

4.5.4 As of the 29th January 2025, Defra released a Written Ministerial Statement and interim guidance regarding the Marine Recovery Fund. The Applicant believes this provides significant comfort to the Secretary of State that if compensation is required the use of MPA designation and/ or extensions of MPAs can be relied upon.

4.5.5 It should be noted that strategic compensation is the Applicant's and Natural England's preferred option, should compensation be ultimately required.

4.5.6 Within the Written Ministerial Statement, and expanded upon in the interim guidance, Defra recognises that detailed information usually expected by DESNZ Secretary of State may not be fully available until the Government's MPA designation/extension programme is complete. The WMS therefore commits to the production of high-level Implementation and Monitoring Plans (IMP), which should be obtained from Defra by the applicant and provided to the DESNZ Secretary of State before works which give rise to the adverse effect for which compensation is required can commence. This high level IMP must then be submitted for approval by DESNZ Secretary of State.

4.5.7 Whilst the Applicant's preferred option is strategic compensation via the MRF, if for whatever reason strategic compensation was not ultimately possible, information is provided within this report for other project alone measures that could be implemented, should compensation ultimately be required.

## 4.6 RECENT EXAMPLES OF BENTHIC COMPENSATION

4.6.1 A number of recent consent decisions have required the delivery of compensation measures for benthic features (primarily sandbank features) due to the potential need for cable protection on the sandbank features of various SACs in the southern North Sea. This includes Hornsea Three, Norfolk Vanguard and Norfolk Boreas, with details of the measures required provided below. Dudgeon Extension and Sheringham Extension have considered the need to provide Measures of Equivalent Environmental Benefit (MEEB) for impacts from cable protection through the Cromer Shoals MCZ and this is also discussed below.

4.6.2 These projects evaluated a range of compensation measures throughout the pre-application, examination and post-examination phases, providing evidence on the feasibility and effectiveness of the measures to the SoS, however, to date, only measures relating to the recovery of marine debris and reduction of marine debris and education have been taken forward within the determined consents.

4.6.3 The measures initially proposed by those projects align with those considered for this Project; those measures included on the short-list for Hornsea Three, Norfolk Vanguard and Norfolk Boreas include:

- Blue mussel bed restoration;
- Removal of, and awareness raising in relation to, marine debris;
- Retention of dredged material within the relevant sandbank systems;
- Establishment of a new biogenic reef;
- Extending the boundary of SACs to incorporate currently unprotected Annex I habitats; and
- Fisheries management– reduction in intrusive fishing methods.

### HORNSEA THREE

4.6.4 When the SoS granted consent for Hornsea Three OWF on the 31 December 2020, this was the first project in UK waters to be granted a DCO which contained within it a condition to secure compensation for AEoI on a marine SAC. The Appropriate Assessment completed by the former Department for Business, Energy & Industrial Strategy (BEIS) (2020) (now (DESNZ)) as part of the HRA did not rule out AEoI to the North Norfolk Sandbanks and Saturn Reefs (NNSSR) SAC and therefore the consent was issued on the basis of a derogation case being required. As is the case for M&SL SAC the NNSSR SAC is also designated for the Annex 1 Habitat: sandbanks which are slightly covered by sea water all of the time; this site was also designated for *Sabellaria spinulosa* reefs. The Appropriate Assessment for Hornsea Three also concluded that an AEoI could also not be ruled out for the Wash and North Norfolk Coast (WNNC) SAC which is also designated for, amongst other features, sandbanks which are slightly covered by sea water all of the time.

4.6.5 Compensation measures required for Hornsea Three were:

- Marine litter removal within a specified area within the WNNC and NNSSR SACs;
- Marine debris reduction and awareness campaign measures in relation to the WNNC and NNSSR SACs; and

## NORFOLK BOREAS AND VANGUARD

4.6.6 During the Norfolk Boreas and Norfolk Vanguard Examinations, a number of compensation measures were proposed that would address the potential effects of offshore export cable protection material on the Haisborough, Hammond and Winterton (HHW) SAC. The HHW SAC is also designated for sandbanks which are slightly covered by sea water all of the time, as well as *S. spinulosa* reefs. A range of different compensatory measures were developed should the SoS conclude that AEoI on the HHW SAC could not be ruled out as a result of its Appropriate Assessment. The DCOs granted for these projects stipulated the following compensation measures:

- A quantum of marine debris removal from within the HHW SAC; and
- Marine debris reduction and awareness campaign measures in relation to the HHW SAC.

4.6.7 The SoS's response on the projects' Benthic Implementation and Monitoring Plan from 30th October 2023 states that the Plan in its current form cannot be approved[6]. The reason for not approving the plan included the lack of evidence and programming as to how 8.3 hectares of marine debris could be removed prior to the commencement of cable installation works.

[6] https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010079/EN010079-004594-Norfolk%20Projects%20-%20BIMP%20response%20-%2031%20Oct%202023.pdf

# 5 CONSULTATION

5.1.1 The Applicant recognised the potential to develop ‘without prejudice’ compensatory measures for impacts arising from the Project from an early stage of the development. ETG members were consulted on the longlist and the shortlisted compensation options throughout the development of these. The ETG members are Natural England, the Marine Management Organisation (MMO) and the Centre for Fisheries, Environment and Aquaculture Science (Cefas).

5.1.2 The Applicant received early consultation responses from the shortlisting of compensation options process in July 2022. Since then, the Applicant has met with key stakeholders regularly to receive formal feedback on the development of potential measures. Table 5.1 presents the most recent consultation responses of relevance to this measure, some of the historic advice is outdated by latest developments.

**Table 5.1: Consultation responses in relation to benthic compensation.**

| Consultee | Comment | The Project Response |
|---|---|---|
| Defra, Meeting, January 2024 | Defra stated that they had recommended to the new SoS that there was ecological merit in SAC extensions and that due consideration was being given for inclusion of this measure within the MRF. Defra also said that this measure would only be undertaken once, but that it would be delivered strategically once it was clear the total compensation required. | Since these discussions with Defra the Applicant is aware through engagement with the OWIC derogation group that the SoS has approved SAC extensions being included in the MRF, with Defra supporting this position. This compensation strategy has been updated to support this advance. |
| Natural England, Meeting, Feb 2024 | Natural England were clear to state that they were working with DESNZ and Defra to provide the relevant support to Projects that might require SAC extension as a compensation measure and that they are designing template dML conditions for the use of strategic compensation. Whilst this is not available currently, this should be available at examination for the Project. | The Applicant is encouraged by this latest advice from Natural England and should state that the preferred option in this strategy is for strategic compensation in the form of an SAC extension (if required). |
| NE, DAS Advice Letter, December 2023 (DAS/27347/456347) | Natural England highlighted to the Project that regulators are more likely to be supportive of one/two large extensions of SACs which have the ecosystem functionality and negates the requirement for further extensions. We refer to the indicative extension area of HHW SAC found at Figure 4.4. of Page 27 of Habitats Regulations Derogation, Provision of Evidence Appendix 3 – Haisborough, Hammond and Winterton Special Area of Conservation (SAC) – In Principle Compensation Measures. | The Applicant has taken full consideration of this advice from Natural England and has updated the strategy accordingly within Section 2. |
| NE, DAS Advice Letter, December 2023 | Natural England highlights that telecom cables must be surface laid and remain so if they are to removed as a compensation measure. However, because they are small it is often the case | The Applicant has taken full consideration of this advice. However, this measure has been kept within the |

| Consultee | Comment | The Project Response |
|---|---|---|
| (DAS/27347/456347) | that they will be regularly covered and exposed and therefore unlikely to be hindering the conservation objective of the site. In addition, because of their size, it is unlikely there will be sufficient redundant cables to provide sufficient compensation. | strategy as an option based on the limited other available mechanisms to deliver compensation for sandbank features. It should also be noted that OPRED has highlighted the issues relating to the removal of redundant oil and gas infrastructure, specifically that this would reverse decisions made based on comparative assessments where the outcome of 'leave in-situ' has been reached after consideration of aspects such as safety, risk of technical failure, impact on the environment, impact on other users of the sea and economic factors. Which is why the focus has been put on 'telecom' cables. |
| NE, DAS Advice Letter, December 2023<br>(DAS/27347/456347) | Natural England is not supportive of marine debris removal and/or marine debris awareness and engagement; therefore, we have not provided comments on this section. Please see published SNCB paper. In addition, evidence is emerging that strongly supports our position of this not being progressed for further projects. | These measures have been removed from the strategy. |
| NE, DAS Advice Letter, December 2023<br>(DAS/27347/456347) | Natural England does not support the creation or restoration of intertidal habitat as compensation for subtidal features.<br>We consider subtidal seagrass restoration projects to still be at the trial stage in the UK. There is currently insufficient evidence on methods or the success of restoration projects to understand where and how this measure could work at scale. The potentially long timescales for some habitats to reach | The Applicant has taken due regard of Natural England's comments in relation to subtidal seagrass restoration. This measure has been left relatively high level on account of this however, the Applicant does not wish to remove it completely due to the uncertainty |

| Consultee | Comment | The Project Response |
|---|---|---|
| | ecosystem functionality is an additional consideration. Therefore, further work needs to be done to understand this before we would be able to be supportive of this measure.<br><br>It is important to consider the features for which this could provide benthic compensation and how it may meet the tests of the relevant legislation and maintain coherence of the MPA network. Natural England is concerned that, used incorrectly, this measure will lead to a loss in some impacted features across the MPA network which will not be replaced. Careful consideration must be given to the appropriateness of creating/restoring one habitat at the expense (i.e. loss) of a different designated habitat.<br><br>At present, Natural England's view is that the creation/restoration of alternative habitats to those impacted would not represent appropriate compensation. | surrounding the MRF and SAC extensions. |
| PINS Section 51 advice regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023 | The document states that there is no current feature condition assessment for the M&LS SAC and that information has been requested from Natural England. The Inspectorate would expect the HRA to report on the conservation status of the SAC or otherwise explain what has been assumed in the assessment and why. This should include, as relevant, information provided by Natural England at project update meetings. | The latest conservation advice for M&LS SAC has been presented within Section 2. The HRA relies on latest information from Natural England. |
| PINS Section 51 advice regarding draft application documents submitted by Five | The Inspectorate notes that the Applicant does not propose compensation for habitat disturbance as a full recovery of the sandbank features is expected, with the timescale being in the order of 5 to 10 years for the more energetic parts of the offshore export cable corridor. The Inspectorate advises that | Natural England stated within DAS advice letter (15 December 2023, letter: DAS/27347/456347) that compensation has been required for disturbance to Annex I reef for the Norfolk Projects. |

| Consultee | Comment | The Project Response |
|---|---|---|
| Estuaries Offshore Wind Farm Ltd, November 2023 | the report should indicate to what extent this position is agreed with Natural England as the ANCB. | However, as no biogenic reef is associated with an impact to the SAC from VE and as a result of the conclusions of the RIAA in relation to temporary habitat disturbance on sandbank features (Volume 5, Report 4), compensation efforts are focused on the long-term change in habitat type associated with cable protection. |
| PINS Section 51 advice regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023 | The Inspectorate notes that Natural England suggested a fifth compensation option for the shortlist of removal of pressure from other sources. The report should explain how this option has been considered, including a description of measures explored and the outcome of any stakeholder engagement. The Applicant may wish to refer to the Natural England compensation checklist. | Removal of anthropogenic pressures has been considered within this report within Section 6.4.<br>It should be noted that Natural England advised that the removal of litter/marine debris will not be accepted as compensation as the efforts of retrieving the debris outweighed the benefits for marine debris removal (NE Compensation Meeting: 11/2013). This has therefore been removed from the strategy. |
| PINS Section 51 advice regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023 | The Inspectorate welcomes the Applicant's consideration of the potential to use strategic compensation following pre-application advice from Natural England, including the planned MRF. It would be beneficial if this section of the report could be updated with the latest position at the point of DCO application submission, and whether the Proposed Development would commit to any such measures if they become available during the timeframe of the project delivery. | The report has been updated to reflect the latest advice from the OWIC derogation group that the SoS has approved SAC extensions being included in the MRF, with Defra supporting this position. This compensation strategy has been updated to support this advance. |

| Consultee | Comment | The Project Response |
|---|---|---|
| PINS Section 51 advice regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023 | The Inspectorate notes Natural England's s42 advice regarding benthic mitigation measures to be explored and that the Applicant is working with Natural England to develop a separate mitigation plan. Mitigation should be considered at the assessment of adverse effects on integrity stage of the HRA. | The final mitigation plan is presented within Section 3 and Volume 9, Report 9.13: M&LS SAC – Benthic Mitigation Plan. Furthermore, due consideration of mitigation is given within the HRA. |
| PINS Section 51 advice regarding draft application documents submitted by Five Estuaries Offshore Wind Farm Ltd, November 2023 | The Inspectorate notes that there are several hold points in the draft report where further information is awaited in respect of the options under consideration for compensatory measures. The Inspectorate would expect the report to be complete at the point of DCO application submission, including:<br>• a full description of the measure proposed, including location, footprint and design;<br>• what arrangements would be required to deliver the measure, for example third party agreements or separate consents, and the status of these;<br>• evidence to demonstrate how the option would fully compensate for the adverse effects of the Proposed Development such that the coherence of the national site network is maintained and the timescales involved in reaching this; and<br>• a fuller description of the adaptive management that might be required as to relevant to the options being considered.<br>Due to the nature of the potential effect, the Applicant considers it may not be possible to implement the selected | The Applicant has advanced each measure as far as practicable at this stage, bearing in mind that this presents a 'without prejudice' compensation case and noting the change in opinion on some of these matters through the consultation process.<br>The Benthic Implementation and Monitoring Plan (BIMP) (Volume 5, Report 5.2) is intended to be a working document that will be worked on in consultation with the Benthic Compensation Steering Group (BCSG), at the post-consent phase, particularly in relation to some aspects of delivery including adaptive management of any proposed measures. However, it should also be noted that it is now likely that DEFRA will take forward SAC extension compensation strategically and as such the Applicant may have limited influence |

| Consultee | Comment | The Project Response |
|---|---|---|
| | compensatory measures before a negative effect occurs; the report should explain how the coherence of the National Site Network would be maintained if this should occur e.g. whether any overcompensation is required for interim losses and, if so, how this is secured.<br><br>In addition to the above considerations, regarding the option for non-like-for-like compensation, should the proposed measures form part of an existing, separate habitat restoration project, the report should explain how the Proposed Development's contribution would be additional to that which is already planned. | on implementation and monitoring of strategic compensation.<br><br>Overcompensation for interim losses has been considered within the documentation.<br><br>In relation to additionality, this aspect relates solely to the seagrass creation/ restoration strategy. As detailed, if implemented the Project would ensure and detail that any efforts would be additional to any pre-planned efforts. |

# 6 "WITHOUT PREJUDICE" BENTHIC COMPENSATION STRATEGY

6.1.1 Following the short-listing process, the following measures have been further developed to explore how each could be delivered, considering:

- The specific benefit of each measure to the National Site Network;
- The expected scale which may be required;
- How the measure would be delivered;
- Specific challenges associated with implementation; and
- Monitoring requirements.

6.1.2 The following sections present information to address the above points for each of the short-listed measures. The four short-listed measures are the following;

- Extending an SAC
- Removal of anthropogenic pressure
- Redundant infrastructure removal
- Seagrass restoration

6.1.3 To note, a fifth option has been removed from the measures previously presented in earlier versions of this document. At deadline 7, the project alone measure of *Removal of anthropogenic pressure – Aggregate pressure removal* was removed from the list of potential compensation options. Due to the updated condition assessment, with aggregate extraction cited as a condition threat, it was unlikely that a project alone measure will provide additionality to what will be required as a result of the updated assessment.

## 6.2 SAC EXTENSION

### OVERVIEW

6.2.1 This option refers to changing the boundary (extending the area) of an existing SAC designated for sandbanks to include an additional area of qualifying sandbank habitat. The protection of currently unprotected Annex 1 sandbank habitat anywhere in the UK could potentially deliver compensation for the Project. However, there are a few extension areas that have been discussed with Natural England as having ecological merit due to the quality of the sandbank and the supporting features.

6.2.2 SAC extensions with ecological merit include an extension to the Inner Dowsing, Race Bank and North Ridge (IDRBNR) SAC boundary to encompass the sandbank system (Docking Shoal) outside but next to the current boundary (Figure 6.1) and a westerly extension of the Haisborough Hammond and Winterton (HHW) SAC (Figure 6.3). Further information on the ecological merit of this extension is presented in the section below.

6.2.3 Fundamentally, however, this is a strategic measure that must be delivered by Defra in conjunction with Natural England and the JNCC and is not considered a project alone measure. Therefore, this measure to a large degree is outside the Project's control.

6.2.4 Natural England advised that an extension area must demonstrate ecosystem functionality. Furthermore, Natural England stated that any possible time lag between the impact occurring, and the implementation of compensation must demonstrate overall ecological gain over the lifetime of the development. This is discussed further within the following sections.

6.2.5 This measure would demonstrate that any sandbank habitat loss is offset, or compensated for, by increasing the area of designated sandbanks within the region, which will in turn ensure that legal protection is afforded to the newly designated area thereby maintaining the ecological coherence of the sandbank network in the region. It is also considered to be of high environmental value to other species of conservation importance.

6.2.6 The Applicant recognises that this is a complex and rigorous process (largely outside the Project's control), and that there is no certainty of outcome prior to the process starting. However, the Applicant maintains that due to the level of existing data (see below for information on existing data), the fact that appropriate Annex I habitat has been identified in the proposed area to be extended, and that the proposed area is not currently widely used by other marine industries (Figure 6.5 and Figure 6.6), these particular extension would have a very good chance of being designated.

6.2.7 It should be noted that this is not an exhaustive list of possible extension areas, however, are the ones highlighted as ecologically important as per conversations with Natural England (Table 5.1). It is understood that the strategic extension areas will be identified by Defra in collaboration with Natural England and the JNCC, so it outside the Project's control.

6.2.8 The Applicant notes that Defra's preference is to undertake the SAC extension process once to account for all projects anticipating the need to use the measure as strategic compensation. To support this strategic approach, the Applicant has commenced discussions with other developers, who may have to deliver compensation for the same feature (sandbanks) at other sites, to coordinate activities and share information, including data availability and potential scale of impacts. To facilitate ongoing discussions and demonstrate the willingness of multiple developers to collaborate on this measure, the Applicant is progressing a Memorandum of Understanding (MoU) with the Outer Dowsing Offshore Wind Farm (ODOW).

6.2.9 Whilst the legal mechanism for delivering this measure strategically does not currently exist, the Applicant recognises that it is expected be in place by the time the Project is seeking to deliver compensation. Natural England advised that the Project drafts the DCO in such a way that the Project would be able to discharge its compensation requirements at a strategic level. It is expected that drafting on this will be progressed by Defra, DESNZ, MMO and NE during the course of examination. The Applicant will continue to engage with DEFRA and NE during the examination phase to gain clarity on timescales.

## VALUE AND FUNCTION

6.2.10 This measure will ensure that any sandbank habitat loss is offset, or compensated for, by increasing the area of designated sandbanks within the region, which will in turn ensure that legal protection is afforded to the newly designated area, thereby maintaining the ecological coherence of the sandbank network in the region. It is also considered to be of high environmental value to other species of conservation importance.

6.2.11 Natural England believes that 'Extending SAC and/or protecting a new area for benthic habitats' could be a suitable compensation option for the VE proposals due to the ecological merit.

6.2.12 As detailed above the two extension areas that the Project has presented (in consultation with Natural England), include:

- An extension to the IDRBNR SAC to encompass the sandbank system (Docking Shoal) and supporting outside but next to the current boundary (Figure 6.1); and
- And extension to the HHW SAC to encompass the sandbank system and supporting habitats outside but next the current boundary (Figure 6.3).

6.2.13 Although this is considered to be a feasible option as European Marine Site extensions have taken place in the past, such as for the Outer Thames Estuary SPA extension (Natural England & JNCC, 2016), there is some uncertainty around which site is most suitable for extension and the relevant administrative/legal processes to initiate following the UK's Exit from the EU. However, this it outside the Project's control.

6.2.14 It is understood that the identification of extension areas will be led by Defra to ensure that the overall coherence of the MPA network is maintained, and that Defra will use advice from Natural England and the Joint Nature Conservation Committee (JNCC). However, initial identification of data sets show suitable sandbank areas are available outside the IDRBNR SAC and HHW SAC, which supports the proposal of the extension of these sites as a strategic compensation measure. Furthermore, the Project has been engaging with stakeholders, regulators and other developers on these options.

6.2.15 Whilst the Applicant does not have the powers to designate an extension to an SAC, many of the preceding steps such as site selection, data collection/collation/analysis, early phase consultation, can be supported. The Applicant will continue to work with Defra on the development of this measure.

### ECOSYSTEM FUNCTIONALITY

6.2.16 Whilst current monitoring data do not exist for these extensions, Figure 6.2 and Figure 6.4 demonstrate broadscale habitats data (EMODnet, 2022) that highlights the predominance of sandy substrates at both proposed SAC extension sites with area of sandbanks likely in southern half of the Docking Shoal and the majority of the area adjacent to HHW SAC.

6.2.17 High energy areas such as subtidal mobile sandbanks are characterised by a biota of low diversity, lack of sedentary forms especially bivalve molluscs, and the numerical dominance of agile swimmers such as haustoriid amphipods and isopods. These species have a short life span and are characterised by their ability to withstand sediment disturbance (Elliott et al., 1998).

6.2.18 Species diversity as well as overall community structure, is influenced by the habitat stability and sediment type. Coarse sediments, which are unstable and difficult to burrow into, are dominated by epifauna, while fine sediments are increasingly dominated by infauna (Elliott et al., 1998).

6.2.19 Subtidal mobile sandbanks provide prey for demersal fishes, especially the mobile small crustaceans which migrate from the sediment and thus become available for predation (Costa & Elliott 1991; Marshall & Elliott, submitted). These areas are often important as fish nursery areas, e.g. plaice (Gibson, 1973).

6.2.20 Sandbanks are also often important areas for crab populations, for example the Docking Shoal (proposed extension area, Figure 6.2) and Race Bank off the Norfolk coast support a large crab population as well as numerous other epifauna, particularly echinoderms. The epifaunal component may represent a large proportion of the biomass of the sand bank fauna with large numbers of echinoderms such as the common starfish *Asterias rubens* and brittle stars such as *Ophiura albida*. Predatory fauna such as hermit crabs e.g. *Eupagurus bernhardus*, harbour crab *Liocarcinus depurator* and the edible crab *Cancer pagurus* may also be present.

6.2.21 Sandeels (*Ammodytes* spp.) have a close association with the sandy substrates into which they bury to protect themselves from predators. Once settled, studies have shown that sandeels are mostly resident, rarely travelling over 20 miles from their home areas and they rarely emerge from the seabed between September and March, except to spawn.

6.2.22 Birds such as the guillemot, razorbill, puffin and the terns will feed on the fish such as sandeels (Batten et al., 1990). Both the arctic tern and the puffin rely on populations of sandeel as their predominant food source. The sandeel is also an important food source for wintering birds such as scoters, little terns and the red-throated diver (Gibbons et al., 1993). Guillemots and razorbills although not as selective as puffins and terns will also eat sandeels.

### REVIEW OF EXISITING DATA – IDRBNR SAC

6.2.23 The area identified in Figure 6.1 has been subject to significant environmental surveys aimed at identifying and characterising Annex I sandbank habitats within the southern North Sea. Relevant surveys includes the following:

- Inner Dowsing, Race Bank and North Ridge, Haisborough, Hammond and Winterton Special Areas of Conservation (SACs) Joint Wash Baseline Survey (2011): JNCC, Natural England and Cefas worked together to identify the location, extent and condition of Annex I habitat features at these two sites;
- OneBenthic (Cefas) data;
- Special Area of Conservation (SAC): Inner Dowsing, Race Bank and North Ridge SAC Selection Assessment;
- Centrica, 2008. Docking Shoal Offshore Wind Farm, Environmental Statement. Volume I: Offshore Works; and

- EMODnet (2022) broad scale seabed habitat map for Europe.

6.2.24 EMODnet (2022) data indicates that the area of Docking Shoal proposed as an extension to the IDRBNR SAC is characterised primarily by sand and muddy sands with some coarser mixed sediments evident in the eastern third of the area (Figure 6.2). Surveys undertaken in relation to the proposed Docking Shoal OWF in the northern half of the proposed extension area reported that sediments were predominantly sandy with variable proportions of gravel (Centrica, 2008).

6.2.25 Information from OneBenthic indicates that benthic communities throughout the area are generally polychaete dominated with the most common faunal grouping characterised by species typical of sandy habitats such as Nephtydae, Spionidae and Ophelidae.

6.2.26 Biotopes identified from Docking Shoal during OWF related surveys included:

- Sparse fauna in Atlantic infralittoral mobile clean sand (EUNIS biotope MB5231; UK biotope SSa.IFiSa.IMoSa)
- Dense *Lanice conchilega* and other polychaetes in Atlantic tide-swept (EUNIS biotope MB3237; UK biotope SS.SCS.ICS.Slan)
- *Moerella* spp. with venerid bivalves in Atlantic infralittoral gravelly sand (EUNIS biotope MB233; UK biotope SS.SCS.ICS.MoeVen
- Atlantic circalittoral mixed sediment (EUNIS biotope MC42; UK biotope SS.SMx.CMx)
- *Hesionura elongata* and *Microphthalmus similis* with other interstitial polychaetes in Atlantic infralittoral mobile coarse sand (EUNIS biotopeMB3234; UK biotope SS.SCS.ICS.HeloMsim)
- *Flustra foliacea* and *Hydrallmania falcata* on tide-swept circalittoral mixed (EUNIS biotope MC4241; UK biotope SS.SMx.CMx.FluHyd)
- *Sabellaria spinulosa* on stable Atlantic circalittoral mixed sediment (EUNIS biotope MC2211; UK biotope SS.SBR.PoR.SspiMx)

6.2.27 The Ross worm *Sabellaria spinulosa* was found on mixed sediments throughout the northern area of Docking Shoal surveyed in relation to the OWF. However, abundances were generally low to moderate in encrusting form or forming aggregation of tubes amid shells and stone which were not considered to constitute a biogenic reef. Other reef building species present included mussels, although the population did not constitute a reef.

6.2.28 *S. spinulosa* reefs have been recorded in the southern half of the proposed extension area and have appear to be typical for the region rising from the surrounding coarse sandy seabed to heights of between 5cm to 10cm (Limpenny et al., 2010). The reefs were reported as being consolidated structures of sand tubes showing seafloor coverage of between 30% to areas where reef occupied 100% of the sediment. Some parts of the reefs appeared to be acting as sediment traps, with exposed tube height accordingly reduced within the core parts of reefs. It was reported that whilst the positions of core reef may temporally shift location, this area of sandbank had supported stable reef mosaics for a significant number of years, although temporal variability in reef dynamics was evident (Foster-Smith et al., 1999; Foster-Smith & Hendrick, 2003; Limpenny et al., 2010).

6.2.29 The area identified in Figure 6.3 has been subject to several environmental surveys aimed at identifying and characterising Annex I sandbank habitats within the southern North Sea. Relevant surveys include the following:

- OneBenthic (Cefas) data;
- Unicomarine, 1999 - Likely changes to the benthic fauna following development of the proposed Sarah Jane Windfarm on Middle Scroby Sands;
- EMODnet (2022) broad scale seabed habitat map for Europe; and
- Cefas (2006) - Scroby Sands Offshore Wind Farm – Coastal Processes Monitoring. Final Report for the Department of Trade and Industry.

6.2.30 EMODnet (2022) data indicates that the area to the west of the HWW SAC proposed as an extension to the SAC is characterised primarily by sand and muddy sands with some coarser mixed sediments evident in the nearshore extent of the area; areas of biogenic reef are evident overlapping between the SAC and the proposed extension area (Figure 6.4). Surveys undertaken in relation to the Scroby Sands OWF which is located in the middle of the proposed extension area reported that sediments were predominantly sandy with variable proportions of gravel (Cefas, 2006).

6.2.31 Information from OneBenthic indicates that benthic communities throughout the area are generally polychaete dominated with the most common faunal grouping characterised by species typical of sandy habitats such as Nephtydae, Spionidae and Ophelidae.

6.2.32 Benthic surveys undertaken in the vicinity of the Scroby Bank OWF indicated that the fauna was relatively poor, with species typical of mobile sands such as polychaete worms and amphipod crustaceans; no sessile epifauna was recorded (Unicomarine, 1999). The study area was characterised by one biotope: *Nephtys cirrosa* and *Bathyporeia* spp. in Atlantic infralittoral sand (EUNIS biotope MB5233; UK biotope SS.SSa.IFiSa.NcirBat).

### OBJECTIVE AND SCALE

6.2.33 It is noted that the delivery of this measure would be outside of the Project's control and is most likely to be delivered as a strategic, Defra/government led, measure. As such, it is possible that delivery of the measure could occur either prior to (by incorporating the Project's worst case cable protection footprint into the extension) or after the impact.

6.2.34 According to Natural England, the extent of the area to be designated must provide ecosystem functionality and network benefits and therefore the area for extension would need to encompass a whole sandbank system and the supporting habitats. Natural England advised that any extension must demonstrate ecosystem functionality and consider both the uncertainty around delivering this proposal and any possible time lag between the impact occurring and the implementation of compensation such that the Project provides overall ecological gain over the lifetime of the development. Therefore, the Project has moved away from the application of compensation ratios for the replacement of potentially lost habitat.

6.2.35 The extension areas identified are:

- IDRBNR SAC Extension Area = 408 $km^2$
- HHW SAC Extension Area = 253 $km^2$

6.2.36 If required, the worst-case cable protection on Annex I sandbanks within the M&LS SAC would have a maximum footprint and volume of 5,400 $m^2$ and 5,400 $m^3$ respectively (as detailed within Section 2.2.9). Therefore, these extension areas are extremely ambitious when considering the scale of the features for compensation and would only be deliverable strategically

6.2.37 Defra have indicated that strategic compensation is likely to be available for this measure, as the SoS has given the go ahead for SAC extensions to be included as strategic compensation for Round 4 OWF and extension projects. It is anticipated that the Project would be able to commit to buy the appropriate amount of compensation when/if it is required and this would be proportional to the impact. Additional compensation might be required to ensure that the Project provides overall ecological benefit over the lifetime of the development but the specific requirements of the strategic schemes are not yet defined.

### PROJECT ALONE SPATIAL SCALE

6.2.38 The minimum area required to offset the worst-case cable protection on Annex I sandbanks within the IDRBNR SAC would be 5,400 $m^2$. Further details of this are presented in Section 2.2.9.

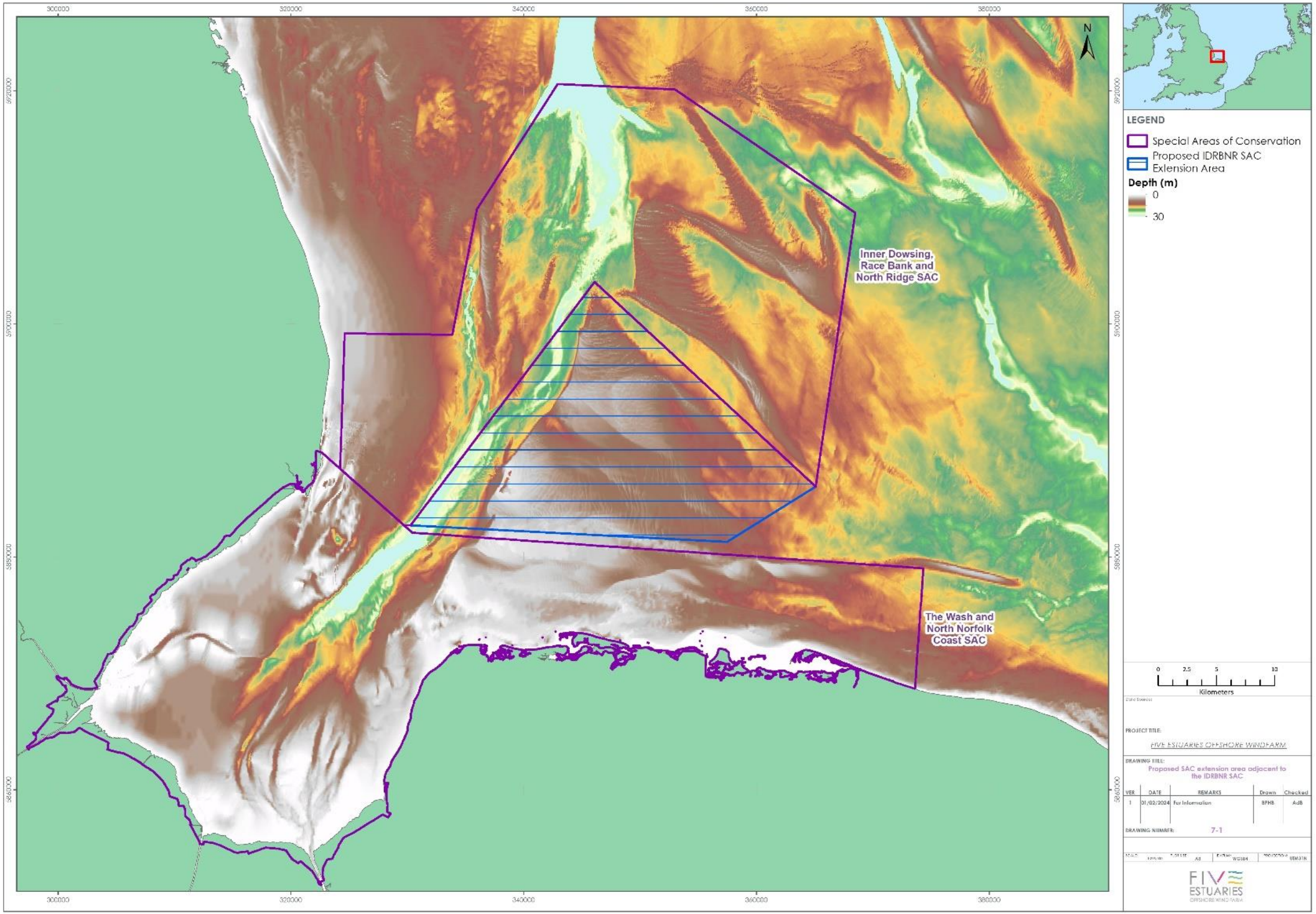
### PROJECT IN-COMBINATION SPATIAL SCALE

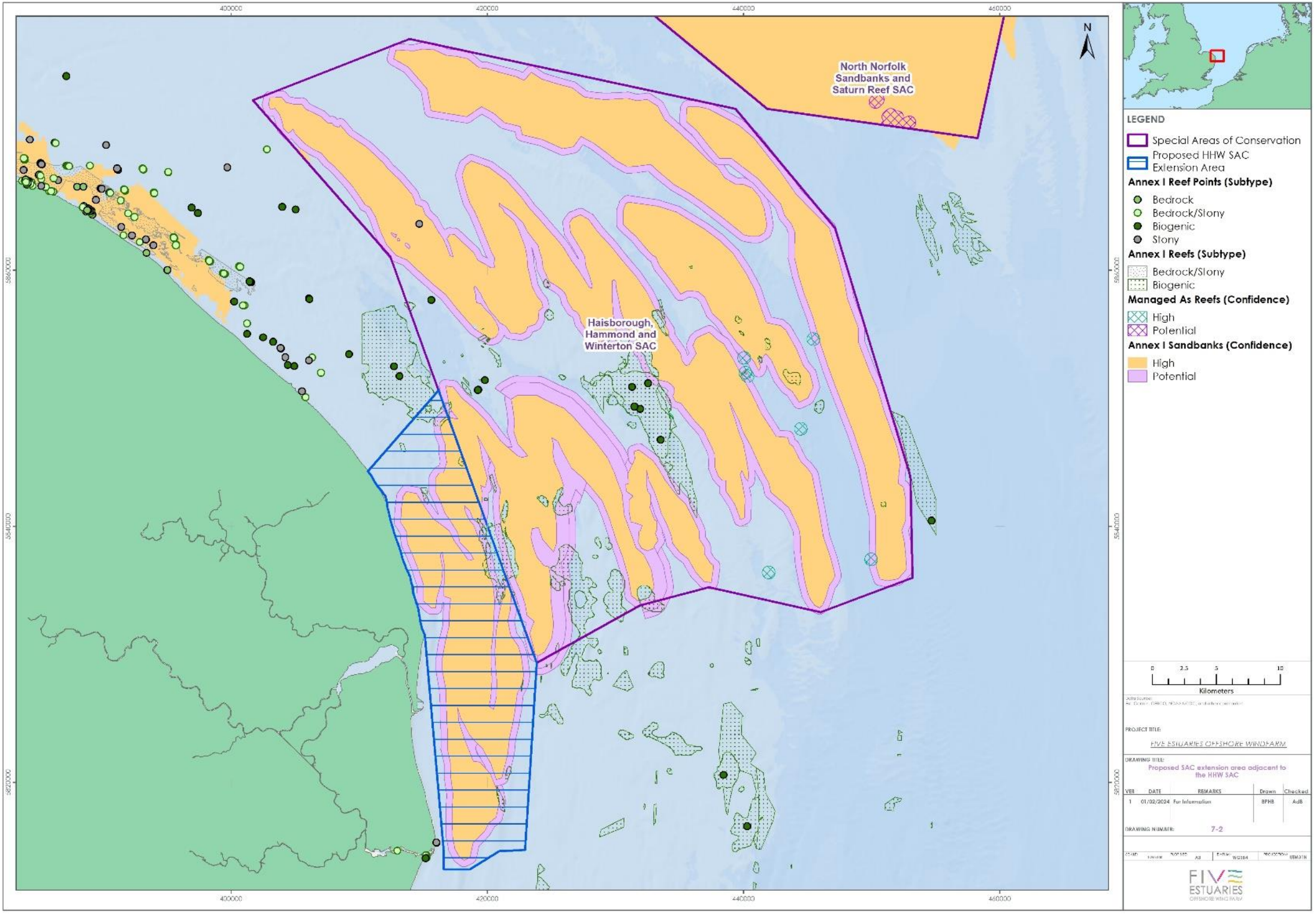
6.2.39 Table 6.1 details the worst-case quantum of effect from cable protection associated with project's that might require compensation in the form of SAC extension. This includes the Project, Norfolk Vanguard, Norfolk Boreas, ODOW, Dogger Bank South East, Dogger Bank South West and Dogger Bank D.

**Table 6.1: Project in-combination impacts to protected sandbank habitat within southern North Sea.**

| OWF Project | Status | Maximum Impacted area to Sandbank from Cable Protection Material ($m^2$) |
|---|---|---|
| Norfolk Vanguard | Consented | 24,000 $m^2$ |
| Norfolk Boreas | Consented | 24,000 $m^2$ |
| Five Estuaries | Submitted | 5,400 $m^2$ |
| ODOW[5] | Pre-application | 5,870 $m^2$ |
| R4 Dogger Bank[7] | Pre-application | 40,320 $m^2$ |
| Dogger Bank D[5] | Pre-application | 2,034,000 $m^2$ |
| **Total** | | **2,109,590$m^2$** |

[7] Where projects are not consented, the latest available information is used herein, either from the respective PEIRs or direct information sharing with the relevant developer.


300000
320000
340000
360000
380000
5920000
5900000
5880000
5860000
N
Inner Dowsing, Race Bank and North Ridge SAC
The Wash and North Norfolk Coast SAC
LEGEND
Special Areas of Conservation
Proposed IDRBNR SAC Extension Area
Depth (m)
0
30
0
2.5
5
10
Kilometers
PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM
DRAWING TITLE:
Proposed SAC extension area adjacent to the IDRBNR SAC
VER
DATE
REMARKS
Drawn
Checked
1
01/02/2024
For Information
BPHB
AdB
DRAWING NUMBER:
7-1
WGS84
UTM31N
FIVE ESTUARIES
OFFSHORE WIND FARM


400000
420000
440000
460000
N
North Norfolk Sandbanks and Saturn Reef SAC
Haisborough, Hammond and Winterton SAC
LEGEND
Special Areas of Conservation
Proposed HHW SAC Extension Area
Annex I Reef Points (Subtype)
Bedrock
Bedrock/Stony
Biogenic
Stony
Annex I Reefs (Subtype)
Bedrock/Stony
Biogenic
Managed As Reefs (Confidence)
High
Potential
Annex I Sandbanks (Confidence)
High
Potential
0 2.5 5 10
Kilometers
PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM
DRAWING TITLE:
Proposed SAC extension area adjacent to the HHW SAC
VER DATE REMARKS Drawn Checked
1 01/02/2024 For Information BPHB AdB
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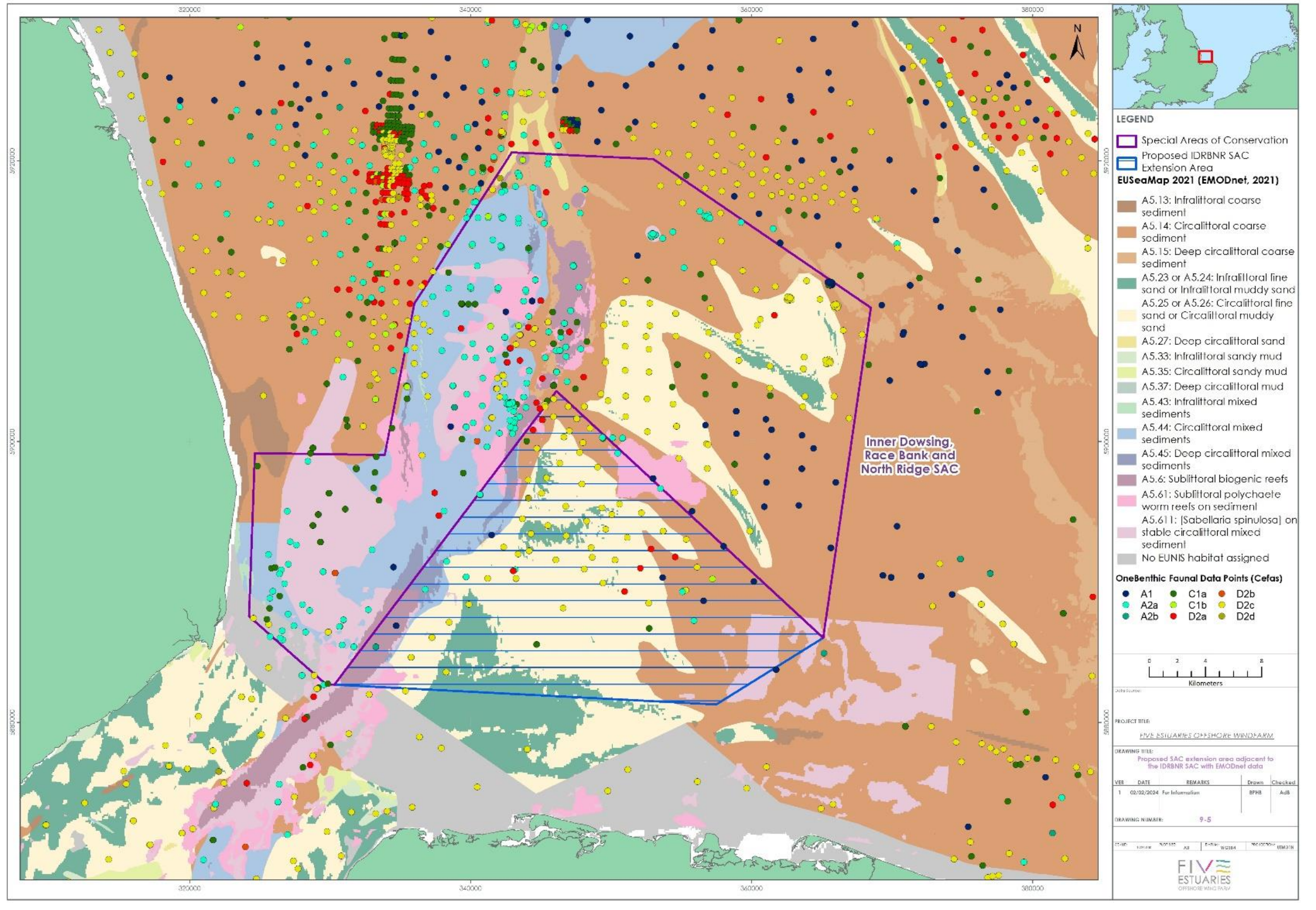
FIVE ESTUARIES


320000
340000
360000
380000
5920000
5900000
5880000
N
Inner Dowsing, Race Bank and North Ridge SAC
LEGEND
Special Areas of Conservation
Proposed IDRBNR SAC Extension Area
EUSeaMap 2021 (EMODnet, 2021)
A5.13: Infralittoral coarse sediment
A5.14: Circalittoral coarse sediment
A5.15: Deep circalittoral coarse sediment
A5.23 or A5.24: Infralittoral fine sand or Infralittoral muddy sand
A5.25 or A5.26: Circalittoral fine sand or Circalittoral muddy sand
A5.27: Deep circalittoral sand
A5.33: Infralittoral sandy mud
A5.35: Circalittoral sandy mud
A5.37: Deep circalittoral mud
A5.43: Infralittoral mixed sediments
A5.44: Circalittoral mixed sediments
A5.45: Deep circalittoral mixed sediments
A5.6: Sublittoral biogenic reefs
A5.61: Sublittoral polychaete worm reefs on sediment
A5.611: [Sabellaria spinulosa] on stable circalittoral mixed sediment
No EUNIS habitat assigned
OneBenthic Faunal Data Points (Cefas)
A1
A2a
A2b
C1a
C1b
D2a
D2b
D2c
D2d
0
2
4
8
Kilometers
PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM
DRAWING TITLE:
Proposed SAC extension area adjacent to the IDRBNR SAC with EMODnet data
VER
DATE
REMARKS
Drawn
Checked
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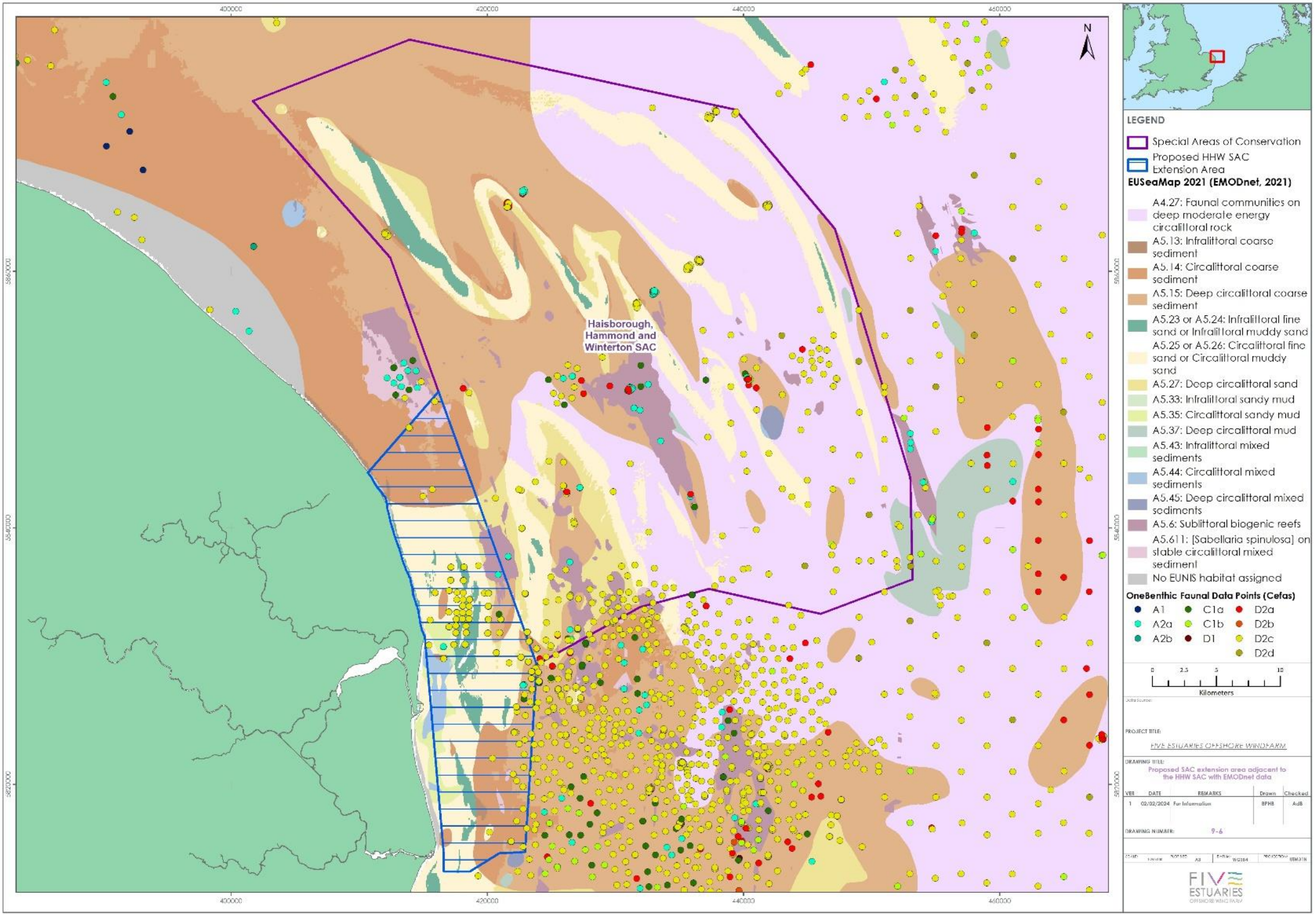
02/02/2024
For Information
BPHB
AdB
DRAWING NUMBER:
9-5
FIVE ESTUARIES
OFFSHORE WIND FARM


400000
420000
440000
460000
5860000
5840000
5820000
N
Haisborough, Hammond and Winterton SAC
LEGEND
Special Areas of Conservation
Proposed HHW SAC Extension Area
EUSeaMap 2021 (EMODnet, 2021)
A4.27: Faunal communities on deep moderate energy circalittoral rock
A5.13: Infralittoral coarse sediment
A5.14: Circalittoral coarse sediment
A5.15: Deep circalittoral coarse sediment
A5.23 or A5.24: Infralittoral fine sand or Infralittoral muddy sand
A5.25 or A5.26: Circalittoral fine sand or Circalittoral muddy sand
A5.27: Deep circalittoral sand
A5.33: Infralittoral sandy mud
A5.35: Circalittoral sandy mud
A5.37: Deep circalittoral mud
A5.43: Infralittoral mixed sediments
A5.44: Circalittoral mixed sediments
A5.45: Deep circalittoral mixed sediments
A5.6: Sublittoral biogenic reefs
A5.611: [Sabellaria spinulosa] on stable circalittoral mixed sediment
No EUNIS habitat assigned
OneBenthic Faunal Data Points (Cefas)
A1
A2a
A2b
C1a
C1b
D1
D2a
D2b
D2c
D2d
0
2.5
5
10
Kilometers
PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM
DRAWING TITLE:
Proposed SAC extension area adjacent to the HHW SAC with EMODnet data
VER
DATE
REMARKS
Drawn
Checked
1
02/02/2024
For Information
BPHB
AdB
DRAWING NUMBER:
9-6
FIVE ESTUARIES

## 6.3 REVIEW OF OTHER USERS

### IDRBNR SAC EXTENSION AREA

#### FISHING

6.3.1 A 'Commercial fisheries activity review within the IDRBNR SAC and extension area', has been carried out (Nima, 2024) and conclude that the IDRBNR SAC and proposed extension area is utilised by UK fishing vessels using potting gears. Data indicates the potential for potting activity throughout the SAC and proposed extension area, with larger vessels active further offshore in the northern and eastern portions of the SAC and smaller vessels active inshore. Within the SAC some areas of reef are closed to static gear as a result of implementation of an MMO byelaw from 2022 onwards.

6.3.2 Data indicates the potential presence of beam trawlers targeting brown shrimp in the nearshore portion of the SAC, inside of the 6 nm limit. Data indicates the potential for other fishing gear types to be deployed within the SAC and extension area, though not with high frequency.

#### OTHER SEABED USERS

6.3.3 Figure  presents the range of activities currently within the proposed IDRBNR SAC extension area. These include:

- Race Bank Offshore Wind Farm subsea cables (operational) and associated designated disposal area
- Lincs Offshore Wind Farm subsea cables (operational)
- Aggregate dredging area 481/2 (active)
- Provisional aggregates area 2103

6.3.4 These uses represent an existing pressure on the proposed extension area, as shown in JNCC's Advice on Operations for the site.  For example, sandbank habitat is considered sensitive to changes in suspended solids and smothering and siltation rates, as well as abrasion / disturbance on the seabed surface and the habitat structural changes, all of which would result from the activities listed.

### HHW SAC EXTENSION AREA

#### FISHING

6.3.5 The HHW SAC and proposed extension area is utilised by UK fishing vessels using potting gears. Data indicates the potential for potting activity throughout the SAC and proposed extension area though across more spatially limited areas than within the IDRBNR SAC (Nima, 2024).

6.3.6 Within the HHW SAC, data indicates the potential presence of smaller inshore beam trawlers targeting brown shrimp, and netting vessels seasonally targeting bass and herring, in the nearshore portion of the SAC, inside of the 6 nm limit (Nima, 2024).

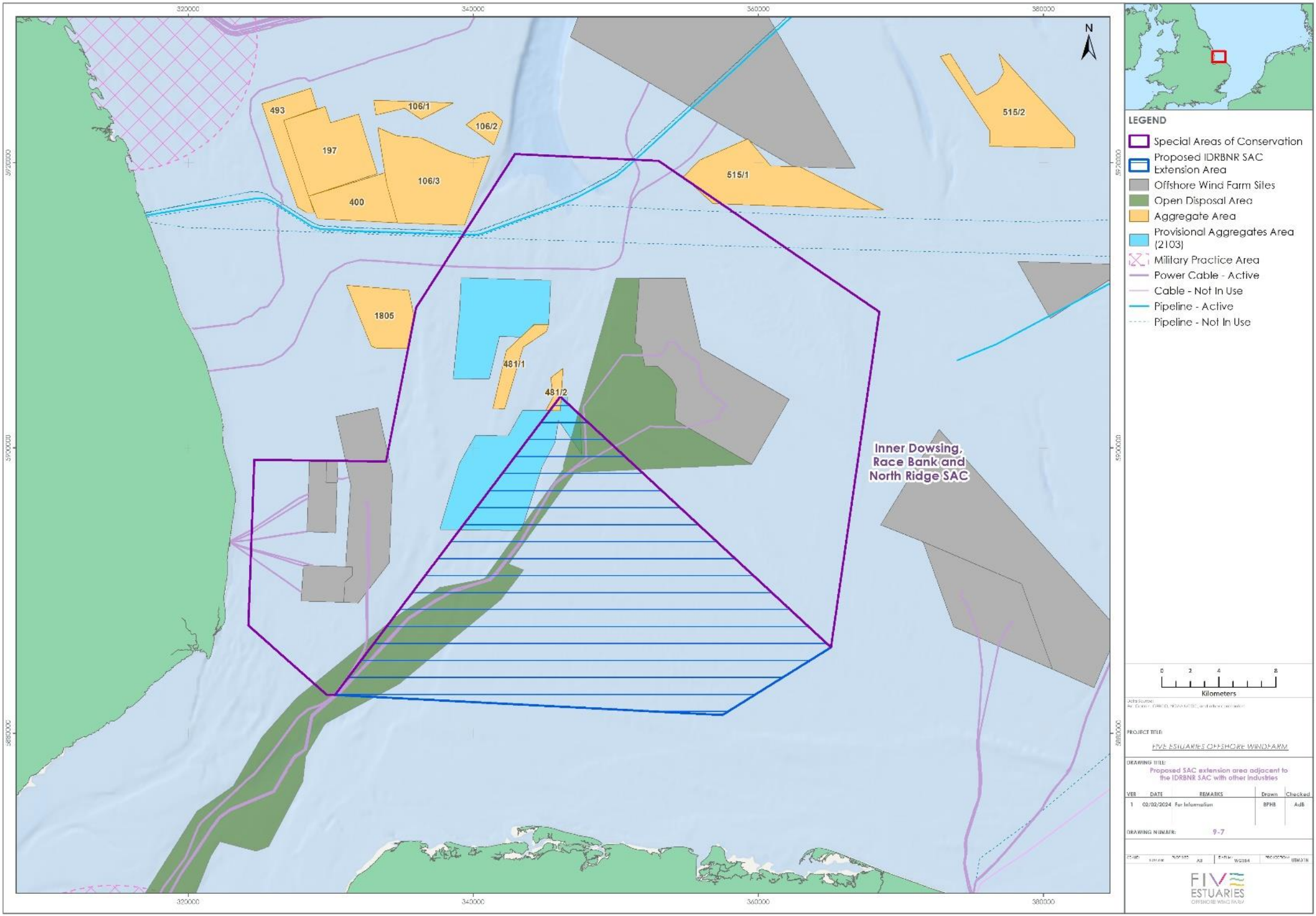
6.3.7 Data indicates the presence of demersal and beam trawl activity by larger vessels targeting sole, plaice and other demersal species, with landings and spatial data indicating that this activity is focused offshore and in the far south-eastern portion of the SAC (Nima, 2024).

## OTHER SEABED USERS

6.3.8 Figure 6.6 presents the range of activities currently within the proposed HHW SAC extension area. These include:

- Aggregate dredging area 511 (active)
- Subsea power cable (active)

6.3.9 Both uses represent an existing pressure on the proposed extension area, as shown in JNCC's Advice on Operations for the site and discussed above.


320000
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106/1
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515/2
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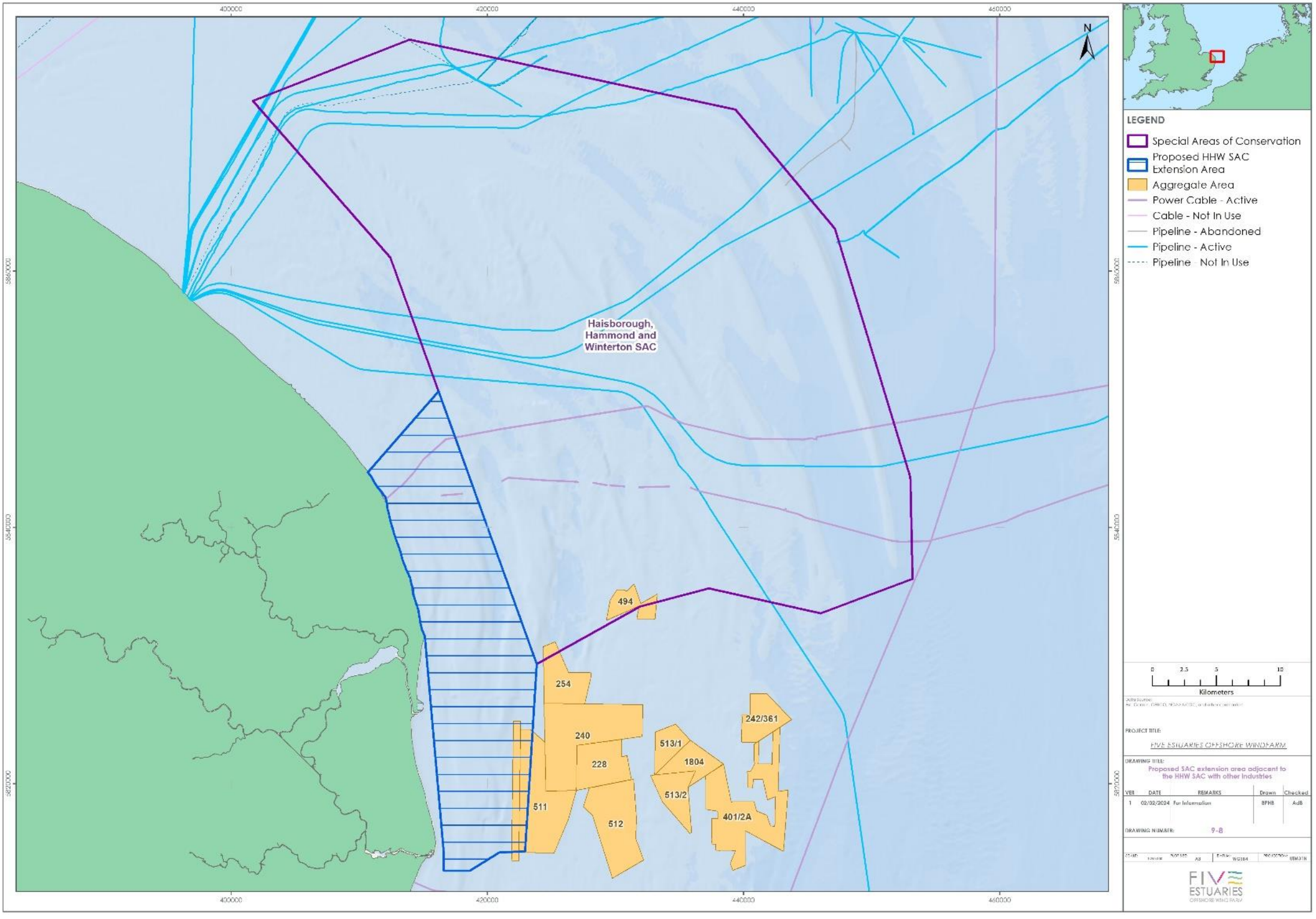
1805
481/1
481/2
Inner Dowsing, Race Bank and North Ridge SAC
LEGEND
Special Areas of Conservation
Proposed IDRBNR SAC Extension Area
Offshore Wind Farm Sites
Open Disposal Area
Aggregate Area
Provisional Aggregates Area (2103)
Military Practice Area
Power Cable - Active
Cable - Not In Use
Pipeline - Active
Pipeline - Not In Use
0 2 4 8
Kilometers
PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM
DRAWING TITLE:
Proposed SAC extension area adjacent to the IDRBNR SAC with other industries
VER DATE REMARKS Drawn Checked
1 02/02/2024 For Information BPHB AdB
DRAWING NUMBER: 9-7
FIVE ESTUARIES


400000
420000
440000
460000
5860000
5840000
5820000
N
Haisborough, Hammond and Winterton SAC
494
254
240
228
511
512
513/1
1804
513/2
242/361
401/2A
LEGEND
Special Areas of Conservation
Proposed HHW SAC Extension Area
Aggregate Area
Power Cable - Active
Cable - Not In Use
Pipeline - Abandoned
Pipeline - Active
Pipeline - Not In Use
0
2.5
5
10
Kilometers
PROJECT TITLE:
FIVE ESTUARIES OFFSHORE WINDFARM
DRAWING TITLE:
Proposed SAC extension area adjacent to the HHW SAC with other Industries
VER
DATE
REMARKS
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Checked
1
02/02/2024
For Information
BPHB
AdB
DRAWING NUMBER:
9-8
FIVE ESTUARIES
OFFSHORE WIND FARM

6.3.10 An extension to an SAC and/or designation of Annex 1 sandbank habitat outside the boundary of the SAC would be protected by law following implementation. However, the designation process would have to be delivered by Defra in consultation with Natural England and the JNCC. As outlined above and below, there are, however, specific elements where the Applicant could provide support and assistance to the process in a form determined by the DCO decision, in order to assist in the timely delivery of the required compensation for the Project. As detailed within Table 5.1, consultation undertaken with Defra in relation to the delivery of this measure states that as a project alone measure it is less likely to be deliverable and therefore this measure is considered more viable as a strategic measure, where it would be providing compensation for multiple projects.

6.3.11 Figure 6.7 sets out the process of designating an offshore SAC in UK waters.

6.3.12 The Applicant currently considers that an extension to the IDRBNR SAC or the HHW SAC sites is a feasible measure, but as stated, it is outside their control to deliver. The Applicant also recognises that this has the potential to be a complex and lengthy process; however, the measure does provide like for like compensation and is supported by Natural England in that it has ecological merit.

6.3.13 The precise size and location of the extension would be approved by the SoS, in consultation with the MMO, Natural England, JNCC and Defra and would depend on the conclusions of the Appropriate Assessment regarding the area of any adverse effect, the final permanent footprint of impact cable protection required due to adverse ground conditions, as well as confirmation of an appropriate scale of extension. However, at the scale and locations proposed, it is noted that these extensions would provide adequate compensation for multiple projects.

6.3.14 Accepting that the ultimate delivery of the proposed SAC extension(s) as a compensation measure is beyond the control of the Project, the Applicant is exploring the possibility of working with other developers to explore how this measure could be delivered collaboratively. As noted previously, the Applicant has signed an MoU with ODOW and is exploring similar MoUs and Cooperation Agreements with other developers, and these agreements will serve as a platform to secure collaboration on strategic measures and associated cost sharing exercises where possible and appropriate.

6.3.15 The Applicant will continue to collaborate with other developers who could require benthic compensation for sandbank features through the development of MoU and Cooperation Agreements and through engagement with the Offshore Wind Industry Council (OWIC) Offshore Wind Evidence and Change (OWEC) Strategic Compensation Project.

## DELIVERY TIMEFRAME

6.3.16 The expectation for this measure is that an extension area would be designated via Defra and would be available to the Project as part of a strategic compensation package, in the timescales relevant to the Project, if required. It is foreseeable that therefore the measure becomes available through a mechanism that is not currently known (expected to be late Summer/early Autumn 2024) and/ or is assisted through the OWEC Strategic Compensation Project, either under Work Package 3 (habitat creation/ restoration) or Work Package 5 (delivery mechanism development).

6.3.17 Once an area is notified as a pSAC, it is treated as if it has been formally designated or classified, consequently it is considered that it would be sufficient for the extension area to reach pSAC status to be considered as constituting compensation.

6.3.18 Promoting an extension to the IDRBNR SAC and/or the HHW SAC is considered to have significant advantages over identifying a new site for designation elsewhere, given that they could be brought forward on a shorter timescale. The SACs have clear areas for potential extensions where the Annex I sandbank habitat extends beyond the existing site boundaries (Figure 6.1 and Figure 6.3).

6.3.19 An indicative timeline for the proposed creation works in relation to the Project's delivery programme is provided in Table 6.2. The timeline is based on the presumption that consent for the Project will be granted in quarter 2 or 3 of 2025, with pre-construction surveys within the Offshore ECC anticipated to take place in late 2027, 2028 and 2029 and the installation of the export cables expected to commence in 2030.

6.3.20 Figure 6.7 illustrates the likely stages required for the formal designation of the SAC extension. This figure is based on UK guidelines produced to show the pre-Brexit Offshore SAC Designation Process and has been updated to include the requirements of The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019.

**Table 6.2: Project Indicative timeline for the extension of an SAC.**

| Year from consent | Indicative time based on current project timeline | Task | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Extension of an SAC** | | | | | | | | | | | | |
| Phase 1 | Q3 2024 | Agreement to include extension to an SAC on the list of approved MRF measures | | | | | | | | | | |
| | Q4 2024 / 2025 | Provision of assistance in the development of an Area of Search | | | | | | | | | | |
| | 2025 / Q1 2026 | Data gathering (dependent on whether sufficient survey data are already available) | | | | | | | | | | |
| Phase 2 | Early 2026 | Support to Defra in preparing the formal consultation | | | | | | | | | | |
| | Early 2026 | Ongoing support to NE, Defra (and JNCC as required) to progress agreement on extension boundary (including confirmation of extension size) | | | | | | | | | | |

| Year from consent | Indicative time based on current project timeline | Task | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q3 2026 | Extension boundary proposal submitted to UK Government (dSAC status) | | | | | | | | | | |
| | Q4 2026 / Q1 2027 | Consideration of proposal[8] | | | | | | | | | | |
| | Q2 2027 | Proposal accepted (pSAC status) and therefore **compensation delivered** | | | | | | | | | | |
| | 2027 / 2028 | Ongoing support to Defra to achieve full designation status including formal consultation | | | | | | | | | | |
| Phase 3 | 2028 onwards | Ongoing support to the management of the site, including site condition monitoring | | | | | | | | | | |

[8] The potential time lag between impact and compensation implementation may require other interim measures to be sought.

## Offshore SAC Designation Process

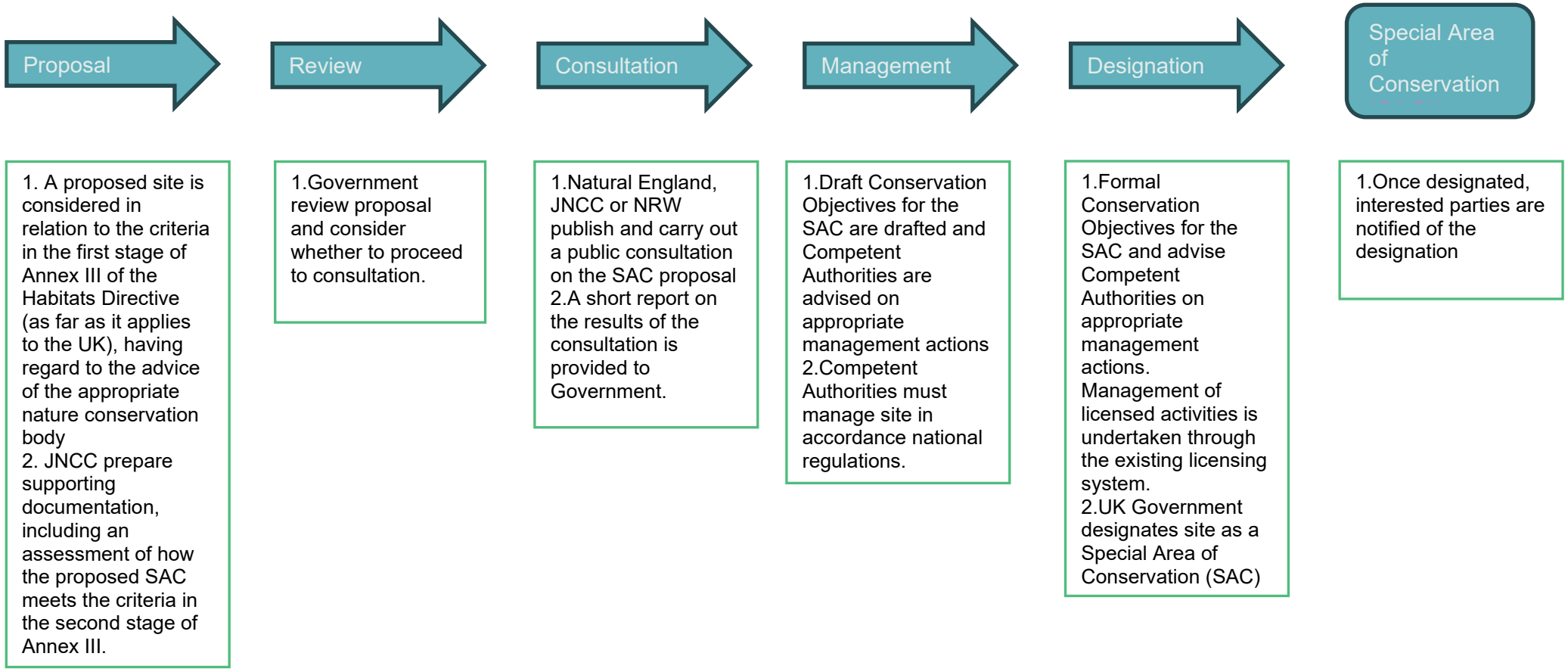


**Figure 6.7: Indicative offshore SAC designation process*.**

(*based on https://www.gov.uk/government/publications/changes-to-the-habitats-regulations-2017/changes-to-the-habitats-regulations-2017)

### MONITORING PLAN

6.3.21 Once designated the site extension would require monitoring with the aim of demonstrating how the extra protection delivered through this compensation measure is sufficiently offsetting impacts to aid understanding that management measures are working and maintaining the coherence of the designated site network.

6.3.22 It is currently unclear whether monitoring would be delivered by Defra and/or Natural England, and what role, if any, developers will play in defining and delivering the monitoring. Indicative proposals for post-designation monitoring of an extension area (in the scales proposed for either the IDRBNR SAC and HHW SAC) are detailed in Table 6.1. Monitoring, once a SAC extension is designated, could be aligned with the existing management of the SAC.

### ADAPTIVE MANAGEMENT

6.3.23 Once designated, the adaptive management of the extension could be aligned with the existing management measures that are already established for the SAC's.

6.3.24 In the event that an extension of an SAC does not proceed, the Project would implement an alternative measure, to be approved by the SoS.

### NEXT STEPS

- Continue to liaise through Collaboration on Offshore Wind Strategic Compensation (COWSC) in relation to how and when this measure is to be included within the Compensatory Library of Measures;
- Continue to collaborate with other developers who require benthic compensation for sandbank features and progress the MoU;
- Discuss and agree an appropriate funding mechanism/provision of resources with Defra and between relevant developers;
- Provide information/assistance in the development of Areas of Search for extension across other SACs with potential for extension to sandbank features within the southern North Sea SAC', including collating existing survey data to support areas selected;
- Ongoing support to, and engagement with, Defra as required.

## 6.4 ANTHROPOGENIC PRESSURE REMOVAL

### REDUNDANT INFRASTRUCTURE REMOVAL

#### OVERVIEW

6.4.1 This option refers to the removal of redundant infrastructure (i.e., a cable no longer in use) that is laid on sandbank habitat within a SAC designated for sandbanks in the region (although not limited to the M&LS SAC), or, if no suitable infrastructure is identified within a SAC, then at similar habitat within the region. As artificial features represent an existing pressure on the relevant designated sites hindering the development of Annex I habitats or impacting on the overall integrity of a site, the removal of existing out of service infrastructure could remove or reduce existing pressures, thereby providing a compensatory measure.

6.4.2 Natural England has advised that compensation measures which reduce/remove anthropogenic pressures that impact upon the favourable conservation status of the SAC features are likely to deliver the compensation requirements from an ecological perspective. This could include the removal of redundant infrastructure which would otherwise remain in situ. However, unless the anthropogenic infrastructure is surface laid, exposed, or protected at the surface, Natural England do not consider the removal, per se, to provide benefits to the affected site or feature and, therefore, to constitute compensation.

6.4.3 OPRED has highlighted the issues relating to the removal of redundant oil and gas infrastructure, specifically that this would reverse decisions made based on comparative assessments where the outcome of 'leave in-situ' has been reached after consideration of aspects such as safety, risk of technical failure, impact on the environment, impact on other users of the sea and economic factors. In addition, there is a lack of suitable in-situ surface laid infrastructure that could potentially be removed; the principle which governs pipeline decommissioning is that the end state is not a hazard to other marine users, the majority of pipelines are trenched and buried or rock protected where surface laid. In the event that in-situ pipelines become re-exposed and have significant free-spanning sections that could represent a risk to other marine users, then there is an obligation for the asset owner to either rock protect or remove these sections. This means that there is a lack of historic infrastructure available currently or that is likely to become available for removal in the future.

6.4.4 An exercise by OPRED indicates that there is only a single surface laid pipeline within an MPA, which is located West of Shetland and is rock protected. There are not known to be any surface laid, decommissioned pipelines within SACs in the southern North Sea (see OPRED COWSC EG4 Note). There would also be a need to transfer the oil and gas infrastructure to the Project, which would present significant procedural and liability issues on which there is currently no certainty whether this would be possible to achieve within the necessary timeframes, if at all. Furthermore, in recent years oil and gas infrastructure is being reinstated for carbon capture and storage projects. Due to these complexities, the removal of oil and gas infrastructure is not considered feasible as a compensation measure at this time and is not considered further within the Projects proposals.

6.4.5 The focus of this measure is on the removal of disused telecommunications 'telecom' cables. Table 6.3 presents an initial search of the SACs within the southern North Sea with protected sandbank features and any associated disused telecom cables.

**Table 6.3: Summary of disused telecom cables within SAC's with protected sandbank features (note: at this stage it is not known if cables are surface laid).**

| SAC | Disused telecom cable review | Cable name | Cable owner | Length (m) and surface area ($m^2$) of cable intersecting with sandbank features (assuming 5cm cable diameter) |
|---|---|---|---|---|
| Margate and Longsands SAC | No disused telecom cables within the SAC but there are cables that cross undesignated sandbanks to the east of the SAC but not in great lengths | Not considered further at this stage as outside existing SACs | n/a | n/a |
| Hainsborough, Hammond and Winterton SAC | Disused telecom cable that runs through several protected sandbank features within the SAC | UK – Germany 5 | British Telecom (BT) | 25,462.1 m<br>3,999.6 $m^2$ |
| Inner Dowsing, Race Bank and North Ridge SAC | No disused telecom cables within the SAC but there are cables that cross undesignated sandbanks near the Norfolk coastline | Not considered further at this stage as outside existing SACs | n/a | n/a |
| North Norfolk Sandbanks and Saturn Reef SAC | There is disused telecom cable that runs through the sandbank feature within the SAC | Stratos | BT / BAE Systems Inc. | 58,240 m<br>9,147 $m^2$ |

6.4.6 If the SoS concludes AEoI from the potential presence of cable protection material, and the Defra strategic compensation is not adequately progressed the Applicant would commence detailed engagement with infrastructure owners and relevant stakeholders to determine if any of these candidates for removal are suitable and to identify mechanisms for transfer of ownership and liability. However, only initial engagement is being progressed at the application stage.

6.4.7 Based on agreements between other projects, out of service asset owners and attendance at COWSC Working Group 4 (infrastructure removal), it is understood that it is likely to be less complicated to agree mechanisms for liability and transfer compared to oil and gas infrastructure as subsea cables are not obligated by the same decommissioning regulations and that cable owners are generally supportive of this as a potential measure. It is noted that Natural England's preference is that infrastructure should be surface laid in order to provide an opportunity for compensation. The Project's view is that in mobile and dynamic environments such as sandbanks these assets are likely to be exposed and reburied at different points in time and therefore their removal where present in sandbank features would prevent any re-exposure in the future, removing the potential for future impact on the feature in question.

### VALUE AND FUNCTION

6.4.8 This measure would demonstrate that any sandbank habitat loss within the M&LS SAC is offset, or compensated for, by 'reinstating' or 'cleaning' an area (freeing up a previously lost area) of sandbanks within the region. While this is outwith the boundary of the M&LS SAC it would maintain the ecological coherence of the sandbank network in the region. The reinstated habitat would also be considered to be of high environmental value to other species of conservation importance.

### OBJECTIVE AND SCALE

6.4.9 On the basis that this would be a direct like-for-like replacement of equivalent habitat, a 1:1 ratio is considered appropriate.

6.4.10 It is noted by the Applicant that, should the SoS determine that compensation is required and that this should, in part, or wholly be in the form of removal of redundant infrastructure, the SoS may also set the scale of compensation. In the case of Hornsea Three, for example, the SoS inserted a condition within the DCO which dictated that a spatial scale of 41.8 ha was required within the NNSSR SAC.

6.4.11 Hornsea Three received consent with the condition stating that the project must subject an area of 41.8 ha to removal of marine debris. This scale was determined to provide compensation for the worst-case scenario of the loss of up to 418,404m$^2$ (approximately equivalent to 41.80ha) of habitat within the NNSSR SAC due to cable protection (BEIS, 2020). This represents a 1:1 ratio of effect to compensation.

6.4.12 When determining the ratio to be applied, consideration needs to be given to the area of the features affected by cable protection material and the corresponding compensation realised from removal of redundant infrastructure. It should be noted that, based on the evidence provided, it is possible that overcompensation would be an option based on the volumes of cables within sandbank features.

### SPATIAL SCALE

6.4.13 Section 2 details the worst-case quantum of effect from cable protection within the M&LS SAC. Using the 1:1 ratio, the amount of disused cable that would need to be recovered to comfortably offset the area affected would be 5,400 $m^2$. Using a 2:1 ratio, the amount to be recovered would be 10,800 $m^2$.

6.4.14 As detailed within Table 6.3, there is enough redundant infrastructure ($m^2$) intersecting with sandbank features that is potentially available for removal at both the 1:1 and 2:1 ratio. For example, there is, potentially, up to 13,146.6 $m^2$ of possible surface area from cables in both the HHW SAC and NNSSR SAC

### DELIVERY PROCESS

6.4.15 As an initial step in the process of removing redundant infrastructure, the Applicant will identify candidate materials and determine the feasibility of removal. Following subsequent consultation with relevant stakeholders, including Natural England, removal can then be undertaken.

6.4.16 The overall process is likely to require seven steps as described below.

- Step 1: The Applicant will determine the suitable infrastructure for removal and will progress to contact the owners to determine the legal requirements or restrictions on its removal. The aim is to obtain agreement from owners on the removal of disused infrastructure;
- Step 2: A feasibility study would be required to determine the practicalities of how the removal of the candidate infrastructure could be safely achieved including typical equipment used. This will also include an assessment of likely consents and costs associated with removal. And an indication of whether the cables are likely to be buried deeply or not using available datasets.
- Step 3: Liaison with regulators and SNCBs would be undertaken to determine which candidate infrastructure can be removed, and removal methodologies adopted that will incur minimal environmental disturbance. Any habitat disturbance effects would also be investigated in the instance that a structure has been colonised. Engagement with seabed users/owners would also be required;
- Step 4: A geophysical survey of the infrastructure identified for removal would be undertaken to assess its condition, the level of surface exposure and determine the habitat it currently provides; and
- Step 5: A detailed description of best practice and operational challenges during cable recovery operations, potential consequences of poorly clearing the cables and associated risks will be produced. In addition, based on available data a more detailed list of cable types, cable materials and any other installation information which may assist the clearance work will be undertaken;
- Step 6: Infrastructure would be removed; and
- Step 7: Monitoring of the seabed following removal to understand ecological recovery.

6.4.17 Natural England is supportive of the consideration of removing surface laid infrastructure from the M&LS SAC or wider Marine Protected Area network, although they suggest that there is currently no evidence that telecoms cables are causing significant anthropogenic impact to the Annex I sandbank features within the National Sites Network and therefore that their removal would reduce this.

6.4.18 The final form and process of any removal would need to be agreed in consultation with Natural England. Once the method for removal has been agreed, a further marine licence would be required for the removal works.

### DELIVERY TIMEFRAME

6.4.19 It is currently anticipated that this compensatory measure, where it is shown to be feasible, could be progressed in terms of detailed design prior to the installation of any cable protection material, with the removal then progressed as quickly as possible thereafter.

6.4.20 Table 6.4 provides an indicative delivery timeline. The timeline is based on the presumption that consent for the Project will be granted in quarter 2 or 3 of 2025, with pre-construction surveys within the Offshore ECC are anticipated to take place in late 2027, 2028 and 2029 and the installation of the export cables is expected to commence in 2030.

### MONITORING PLAN

6.4.21 Should this compensatory option ultimately be chosen, it is anticipated that a full monitoring plan will be produced post consent. The plan will be shared with and agreed by the regulators. However, an indication of the monitoring currently considered is provided below.

6.4.22 Once a cable has been identified and agreement reached with the asset owner that it can potentially be removed, a high-level environmental assessment will be conducted to check the potential for an ecological impact due to the removal of cable. Should this determine that the impact is more costly than the potential benefit from the cable removal, an alternative cable will be considered and assessed.

6.4.23 Following the completion of the high-level assessment to determine that removal is an environmentally sensible option, the cable route will initially be surveyed to determine the extent of the cable that is exposed and the amount that is buried. This will help inform the removal strategy, as well as provide information on monitoring locations.

6.4.24 Overall, its envisaged three short sections of the cable route will be monitored. Wherever possible, monitoring locations should be selected from locations that interact with, or are immediately adjacent to a sandbank or large sandwave feature. Monitoring site selection will depend on the results of the initial survey:

- If the majority of the cable is not buried, two locations along the surface cable route and one section of cable which is buried will be selected for monitoring; or
- If the majority of the cable is buried, two locations along the buried cable route and one surface sections will be selected for monitoring.

6.4.25 The type of monitoring required will be informed by the high-level environmental assessment, however it is currently considered that there is unlikely to be a requirement for surveys to be carried out for:

- Sediment type – its not expected that removal of surface or buried cable would measurably alter the sediment characteristics of the immediate areas;
- Contamination – it is not expected that there would be sufficient levels of contaminants within the sediments to require a survey of the sediment chemistry of the disturbed sediments for the buried sections; or

- Biological composition – It is not expected that the removal of surface or buried cables would measurably alter the biological community present, even in the immediate area.

6.4.26 At present, it is considered that monitoring will focus on bathymetry only, at each of the three monitoring sites. The bathymetry survey is likely to be conducted:

- Shortly before the cable removal, ideally no more than a couple of months prior to cable removal;
- Shortly after the removal of cables, ideally no more than a couple of months following cable removal; and
- A final survey between one to three years following cable removal. The actual time gap will depend on the relative dynamic nature of the area selected. A shorter time is acceptable for a higher energy site, whereas a longer gap is likely preferable for a lower energy site.

6.4.27 Each of the survey locations will include two short sections of bathymetric survey:

- Approximately 100 m of along the cable routh itself. The width will depend on the depth of the cable selected and the kit chosen for the survey, but should ideally cover the width of the sandwave feature (if a sandwave feature is surveyed as opposed to a larger sandbank); and
- Approximately 100 m perpendicular to the line of the sandwave feature (or in the line of the tidal ellipse should a larger sandbank be surveyed), with approximately 50 m either side of the cable to be removed.

6.4.28 The envisaged monitoring outcomes will be determined based on the selected sites, sandbank features to targeted and removal technique, however it is currently envisaged that:

- Comparison of the pre and initial post removal survey should indicate at worst only minor indentation in the line of the cable hat has been removal; and
- Comparison of the initial post removal and the last survey should indicate that where a minor indentation was identified initially, that there is now no discernible difference along the line of the cable removal and the rest of the feature.

### ADAPTIVE MANAGEMENT

6.4.29 If removal of redundant telecoms cable that are laid on sandbank habitat within a SAC designated for sandbanks is unsuccessful within the identified areas. Adaptive management, if triggered, would be in the form of one of two alternatives:

- Searching alternative areas outside the SAC's identified for redundant infrastructure removal, to identify surface laid infrastructure that is deemed to be having a negative impact on ecologically important sandbank habitat; or
- Payment into a suitable strategic compensation measure.

### NEXT STEPS

- Continue to liaise with owners and operators to identify redundant infrastructure and assess habitat involved as comparable to potential sandbank loss in M&LS SAC. See Appendix A for a letter of no objection from BT, confirming that BT have been requested by VE to provide details of redundant infrastructure owned by BT. BT confirm that there are out-of-service telecommunications cables owned by BT within the VE Order Limits.

**Table 6.4. Project Indicative timelines for Removal of Infrastructure Pressures.**

| Year from consent | Indicative time based on current project timeline | Task | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Infrastructure Removal** | | | | | | | | | | | | |
| Phase 1 | 2024 | Engagement with relevant asset owners to determine potential for removal of redundant infrastructure and associated legal requirements | | | | | | | | | | |
| | Q4 2024 / 2025 | Feasibility study to determine the practicality of removal and consents required | | | | | | | | | | |
| | 2025 / Q1 2026 | Liaison with MMO and NE to agree infrastructure to be removed / ongoing discussions with asset owners | | | | | | | | | | |
| Phase 2 | 2026 / 2027 | Geophysical survey of the infrastructure to assess location, condition, level of exposure and habitat type | | | | | | | | | | |
| | 2027 / 2028 | Agreement of operating protocol and risk assessment | | | | | | | | | | |

| Year from consent | Indicative time based on current project timeline | Task | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2028 onwards | Infrastructure removal | | | | | | | | | | |
| Phase 3 | 2029 onwards | Ongoing monitoring of the seabed following removal to assess ecological recovery | | | | | | | | | | |

## 6.5 NON LIKE-FOR-LIKE COMPENSATION – SEAGRASS BED HABITAT CREATION/RESTORATION

### OVERVIEW

6.5.1 If 'like for like' benthic compensation cannot be provided, then the provision of 'non-like-for-like compensation' could be considered, as detailed within the relevant guidance (Defra, 2021). In terms of the new compensation hierarchy that is out for consultation (Defra, 2024), this measure can be classed as number 6: *"taking no account of local circumstances where the risk to the feature is predicted to occur, delivered at a distance to the area affected by the plan or project"*. One such approach would be the restoration or creation of habitat, that whilst not classified as the same as sandbank habitat, has a similar or identical ecological function. Seagrass beds are a sub-types of Annex I habitat "Sandbanks slightly covered by sea water all the time" (Ward et al., 2022).

6.5.2 Seagrass beds around the world have shown long term declines (Dunic et al., 2021), while in UK waters beds 85% since the 1920s (Hiscock et al., 2005), with 39% lost since the 1980s (Green et al., 2021). Factors affecting seagrass meadows contributing to the decline include wasting disease, pollution and physical disturbance (Green et al., 2021). Subsequently, UK recovery has been slow, although this is not limited to UK waters with similar patterns observed along the Atlantic coast of North America (Davison and Hughes, 1998).

6.5.3 As seagrass has declined in coverage, the appreciation for why these habitats are of importance has increased. As a result, restoration projects which support these important seagrass habitats are vital, with many projects resulting in a collaboration between Non-Governmental Organisations (NGOs), academia, statutory nature conservation bodies and local councils.

### VALUE AND FUNCTION

6.5.4 This measure will demonstrate that any sandbank habitat loss is offset, or compensated for, by the creation and/or restoration of subtidal seagrass beds within the region to compensate against any loss of the sandbank network. This is additional to the requirements of any existing site management and is considered to be technically deliverable before the effects of habitat loss is evident. Furthermore, it is expected to have a beneficial effect on other ecological facets such as providing habitat for fish species which in turn provide a food resource for local bird populations.

6.5.5 In the British Isles, two species of seagrass of the genus *Zostera* occur, common seagrass *Z. marina* and dwarf seagrass *Z. noltii*. *Z. marina* is the larger of the two British species and typically occurs in the shallow sublittoral down to about 4 m depth, in fully marine conditions and is the species associated with "Sandbanks which are slightly covered by sea water all the time"; *Z. noltii* is an intertidal plant found from mid- to low-tide mark, usually in poorly-draining muddy sediments.

6.5.6 Seagrass beds are one of the most productive of shallow, sedimentary habitats with the high level of primary production supporting a rich, resident fauna and the beds are used as refuge and nursery areas by many fish species (Davison and Hughes, 1998; Unsworth and Butterworth, 2021). This will have an indirect effect on birds as the beds provide suitable nursery habitat for important prey species such as sandeel, herring and sprat. The IDRBNR SAC is encompassed by the Greater Wash SPA which is classified for the protection of red-throated diver, common scoter, and little gull during the non-breeding season, and for breeding Sandwich tern, common tern and little tern.

6.5.7 Seagrass beds also stabilise sediment, inhibit erosion and encourage deposition of suspended material (Hiscock et al, 2005) and have a high potential to act as significant carbon sinks (Duarte et al., 2013).

6.5.8 Seagrass beds are protected by a variety of conservation legislation and policies being designated as Annex I feature under the EU Habitats Directive, protected features of Marine Protected Areas (including MCZ and Special Conservation Areas (SAC)). Seagrass beds (*Z. marina* and *Z. noltii*) are listed as a Priority Habitat derived from Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. They also have protection as a habitat in support of seahorses under the Wildlife and Countryside Act 1981. Seagrass beds also qualify as 'higher sensitivity' habitats in the Environment Agency guidance for undertaking Water Framework Directive (WFD) assessments in estuarine and coastal waters and represent a sub-element (along with saltmarsh) of the angiosperm Biological Quality Element (BQE), one of the five BQEs used to classify the ecological status of water bodies.

### OBJECTIVE AND SCALE

6.5.9 The primary objective in relation to the Project would be to undertake off-site creation or restoration of a seagrass, which provides a similar ecological feature to the sandbank feature that is potentially lost.

6.5.10 The overall objectives of the IDRBNR SAC are to ensure that the integrity of the site is maintained or restored as appropriate, and that the site contributes to achieving the Favourable Conservation Status of its 'qualifying features', by maintaining or restoring the structure and function (including typical species) of its qualifying natural habitats. Seagrass beds are considered to be a sub-type of Annex I habitat "Sandbanks slightly covered by sea water all the time" (Ward et al., 2022). Hence the creation of seagrass beds is likely to support typical species of the subtidal sandbanks feature such as burrowing invertebrates (due to the protection and stabilisation element) and help in the recovery and maintaining of site integrity in the face of any loss of Annex I habitat as part of the proposed development. Where habitat restoration and/or creation is undertaken the conservation objective would be to develop and maintain seagrass beds at favourable status.

6.5.11 Defined portions of the IDRBNR SAC have been identified as an area which provided high habitat suitability for seagrass beds (Ward *et al*., 2022) also presented in Figure 6.8 below.

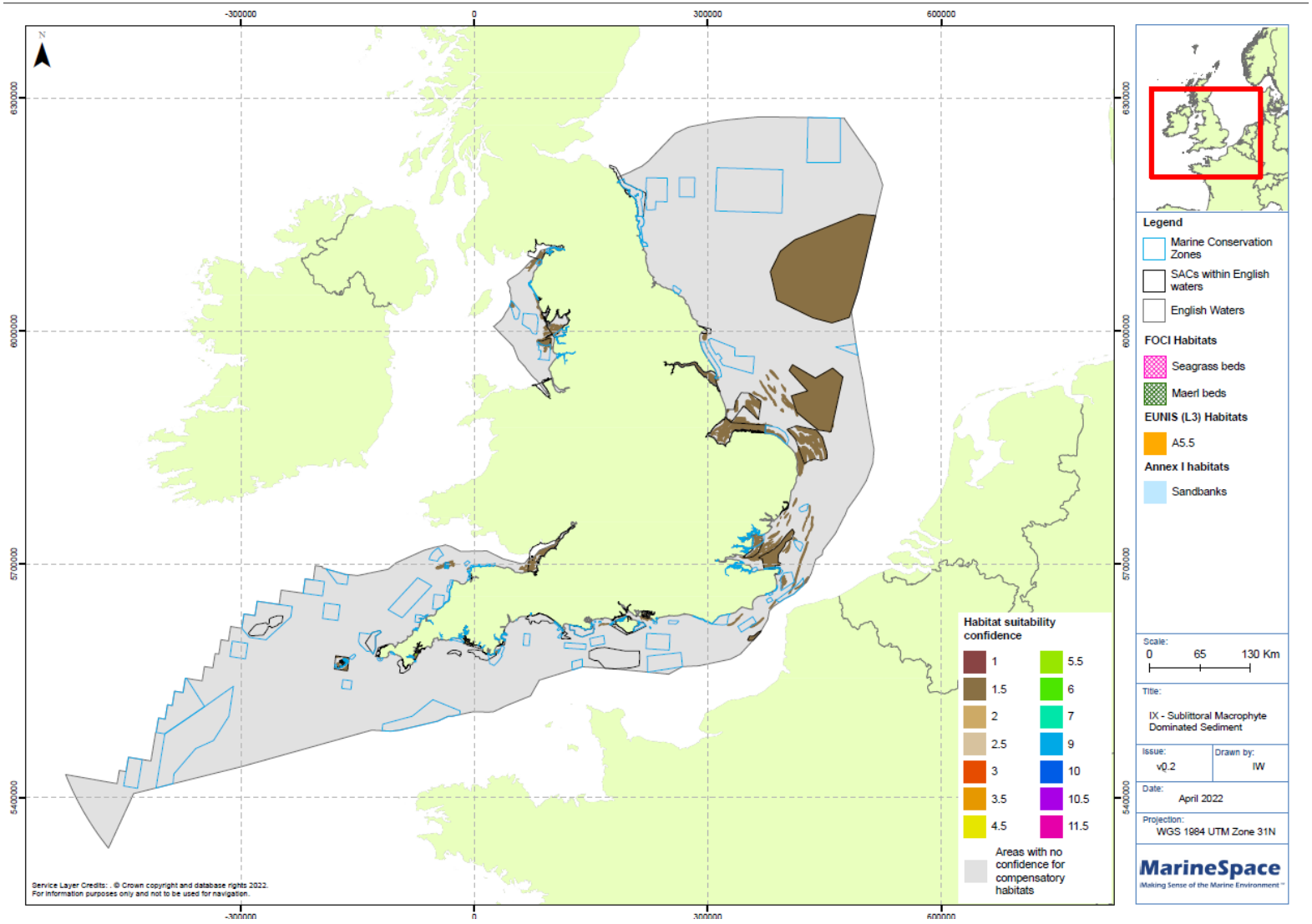


**Figure 6.8: Spatial assessment for sublittoral macrophyte benthic compensatory habitat for offshore wind farm impacts (Ward et al., 2022).**

6.5.12 Further consultation would be required to determine and agree appropriate scales and ratios required to determine how much seagrass habitat creation / restoration would be acceptable as compensation. As per the guidance (Defra, 2021), the agreed ratios are likely to be higher, particularly in circumstances where the compensation is lower on the compensation hierarchy (i.e., comparable ecological function, different location and not like-for-like).

6.5.13 As detailed in Table 5.1, Natural England advised that subtidal seagrass is not known to be present within the IDRBNR SAC and historic evidence suggests that subtidal seagrass has never been found east of the Solent. Therefore, it is Natural England's view that this proposal should only be included as a very small part (<10%) of a package of compensation measures and should demonstrate additionality to any ongoing restoration programmes.

6.5.14 Part of the delivery including aims, objectives and scale would be agreed through the BCSG at the post-consent phase and secured through BIMP, if this was a measure that the Project wanted to take further. This would include key strategies and activities, expected outcomes, and risks and challenges in relation to both ecological and societal goals.

### DELIVERY PROCESS

6.5.15 A typical project outline is provided in the Seagrass Restoration Handbook UK and Ireland (Gamble et al., 2021), which recommends the following steps when conducting seagrass restoration:

- Stage 1 - Feasibility and pre-project planning:
  - Review relevant strategies and carry out site options review;
  - Plan and begin engagement with regulator stakeholders and partners; and
  - Conduct feasibility study – prior to any physical undertaking the feasibility of the project should be assessed to determine whether successful creation/restoration is achievable at the proposed restoration location.
- Stage 2 – Project design:
  - Define restoration goals and objectives;
  - Conduct baseline surveys;
  - Design restoration plan and monitoring; and
  - Engage with stakeholders.
- Stage 3 – Pre-restoration/creation tasks:
  - Apply for permissions and licensing; and
  - Collect seagrass seeds/hoots/processing.
- Stage 4 – Start restoration/creation:
  - Seagrass seed or shoot deployment; and
  - Ongoing monitoring.

6.5.16 A feasibility study would be undertaken to inform site selection and restoration/creation methodology most likely to result in a successful restoration/creation programme. Factors that will be considered prior to restoration efforts being initiated to ensure the viability of seagrass restoration include looking for sites that:

- Have historical evidence that the area has previously supported seagrass habitat;
- Are sheltered from wave action;
- Have suitable topographical and hydro-morphological conditions including sedimentation rates;
- Have sufficient nutrients and available light; and
- Have good water quality.

6.5.17 One approach to identifying suitable sites could be to adopt a model developed in relation to habitat restoration within the Plymouth Sound and Estuaries and Solent Maritime SACs which utilises a Species Distribution Model (SDM) developed to investigate environmental characteristics of locations with existing seagrass beds and used to predict the suitability of other areas for restoration (Early et al., 2022).

6.5.18 Following site selection field visits, data collection and small-scale pilot studies should be undertaken to inform on local site conditions and to determine suitability of existing seagrass beds for restoration or site suitability for bed creation and determining the appropriate methodologies to adopt for the sites selected. Examples of intertidal and subtidal methodologies are given below.

6.5.19 In recent years, a number of seagrass restoration projects have been undertaken in the UK with a number of projects currently underway. Restoration trials are ongoing at sites in the Essex Estuaries SAC with the aim of identifying the most successful and efficient planting method for Z. noltii, to enhance the natural recovery of intertidal beds in the Stour, Orwell, and Blackwater estuaries (Project Seagrass). This has involved the successful transplantation of sediment cores with viable seagrass within an existing bed to aid its expansion, while it is planned to employ this methodology to transplant cores away from the "donor meadow" to sites where seagrass has significantly declined or is now absent.

6.5.20 Ørsted and Yorkshire Wildlife Trust have teamed up to develop a seagrass restoration project as part of Ørsted's Hornsea Project Four offshore wind farm, in the Humber Estuary. The restoration efforts form part of a resilience measure to the compensation put forward for the kittiwake feature of the Flamborough and Filey Coast SPA. The measure is expected to provide habitat enhancement for key prey fish species for the birds of interest. It is proposed that a total of 30 ha is restored as part of this project.

6.5.21 Other Projects on the east coast include the ReMEDIES Save Our Seabed project in the Essex Estuaries SAC, between Jaywick to Shoerbury.

6.5.22 A restoration project is underway aimed to restore 8ha of subtidal seagrass beds split equally between the Plymouth Sound Estuaries SAC and the Solent Maritime SAC. The work has involved the transplanting of small hessian bags of seedlings cultivated from seed-bearing shoots picked by divers (Nolan, 2020). The aim is to grow tens of thousands of seedlings over the next three years in this way (Nolan, 2020). The Ocean Conservation Trust (OCT) are monitoring the restoration site in Plymouth Sound, where over 18,000 seeds and seedling bags were transplanted by hand, to determine growth rates and overall success.

6.5.23 Other UK examples include the Seagrass Ocean Rescue project in Wales, which included Project Seagrass Sky Ocean Rescue, University of Swansea, World Wide Fund for Nature (WWF) and Pembrokeshire Coastal Forum. Several other seagrass restoration and management projects have a similar collaborative approach in Europe, with ZORRO (ZOsteRa RestOration) project in Sweden and the NOVAGRASS project in Denmark involving several universities, consultancies and government organisations.

6.5.24 The creation of a subtidal bed is not deemed suitable within the M&LS SAC as there is no evidence of seagrass beds occurring historically, therefore alternative subtidal sites are to be investigated, particularly to the west along the Lincolnshire coast. Guidance and potential collaboration with delivery partners could be sought from groups currently undertaking subtidal projects as detailed above.

6.5.25 In the instance where the development of subtidal beds is not possible, emphasis could be shifted to potential intertidal sites within the wider region of the southern North Sea with the aim of expanding current projects. Projects currently underway in the east coast of England include the ReMEDIES Save Our Seabed project in the Essex Estuaries Special Area of Conservation between Jaywick to Shoerbury that aims to reduce the negative impact of recreational boating activities, such as mooring and anchoring on current seagrass meadows - Essex Wildlife Trust is working with Natural England and other ReMEDIES partners to develop and deliver this project. If the Project were to collaborate with any Project partners, it would be made clear that the work would be additional to the work being currently undertaken.

### DELIVERY TIMEFRAME

6.5.26 The programme of delivery to create or restore seagrass beds would be agreed within the post-consent BIMP document with associated work starting before the commencement of cable installation works. The BIMP would be developed and finalised in consultation with members of the BCSG and seagrass restoration experts.

6.5.27 It is anticipated that implementation of this measure would follow a phased approach. An indicative timeline for the delivery of the compensation measure is provided in Table 6.5 below. It is anticipated that the Applicant will continue to develop and refine the implementation plan through consultation with stakeholders, regulators and seagrass restoration practitioners.

6.5.28 The timeline (Table 6.5) is based on the presumption that consent for the Project will be granted in quarter 2 or 3 of 2025, with the Contract for Differences (CfD) to be awarded in Q3 2026 and the Final Investment Decision (FID) for the Project to be taken in Q2 of 2027. Pre-construction surveys within the Offshore ECC are anticipated to take place in late 2027, 2028 and 2029 and the installation of the export cables is expected to commence in 2030.

**Table 6.5 Indicative timeline for creating a seagrass bed.**

| Year from consent | Indicative time based on current project timeline | Task | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project milestones** | | | | | | | | | | | | |
| **Seabed restoration works** | | | | | | | | | | | | |
| Phase 1 | 2024 onwards | Conduct feasibility study and identify areas suitable for seagrass restoration | | | | | | | | | | |
| | 2024 onwards | Liaise with stakeholders, regulators and restoration experts to develop restoration strategy. | | | | | | | | | | |
| | 2025 | Identify potential project delivery partners. | | | | | | | | | | |
| | 2024 onwards | Draft restoration strategy including objectives, targets, proposed restoration area and deployment methods | | | | | | | | | | |
| Phase 2 | Q1 2026 | Set up BCSG | | | | | | | | | | |
| | Q1 to Q4 2026 | Develop and finalise BIMP including project objectives, targets, deployment methods and | | | | | | | | | | |

| Year from consent | Indicative time based on current project timeline | Task | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | monitoring and reporting protocols. | | | | | | | | | | |
| | Q1 2027 | Submit BIMP to SoS for approval | | | | | | | | | | |
| | 2026 | Plan and conduct baseline survey. Analyse data and identify suitable sites for seagrass restoration within the area of search. | | | | | | | | | | |
| | Q3/Q4 2026 | Secure / pre-order seagrass seeds/shoots | | | | | | | | | | |
| Phase 3 | Q2/Q3 2027 | Deploy seagrass seeds/shoots. Optimal timing and deployment strategy to be determined. | | | | | | | | | | |
| Phase 4 | 2028 to 2033 | Ongoing monitoring as detailed within the monitoring programme | | | | | | | | | | |
| | 2028-2033 | Determine need of re-seeding based on monitoring data | | | | | | | | | | |
| **Licensing and regulation** | | | | | | | | | | | | |

| Year from consent | Indicative time based on current project timeline | Task | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2024 onwards | Liaison with licensing and permitting authorities to develop byelaw to protect created seagrass bed | | | | | | | | | | |
| | 2026 | Obtain Marine Licence from the MMO | | | | | | | | | | |

## MONITORING PLAN

6.5.29 Should this compensatory option ultimately be chosen, it is anticipated that a full monitoring plan will be produced post consent. The plan will be shared with and agreed by the regulators. However, an indication of the monitoring currently considered is provided below.

6.5.30 Once a suitable site has been identified for seagrass bed creation/ restoration, a high-level environmental assessment will be conducted to check the potential for an ecological impact due to the proposed restoration or creation works. Should this determine that the impact is more costly than the potential benefit from the seagrass bed creation/ restoration, an alternative location will be considered and assessed.

6.5.31 Following the completion of the high-level assessment to determine that seagrass bed creation/ restoration is an environmentally sensible option, the creation/ restoration site will initially be surveyed. Where restoration is considered, this survey will include an assessment of the current location of any existing seagrass beds, plus an indication of seagrass density within any current areas. The survey will also include identification of other sensitive or important habitats or species present in the selected area, which should be avoided during the creation/ restoration works. Should the seagrass bed creation be chosen, the survey will just concentrate on the sensitive or important habitats or species present.

6.5.32 This initial survey will help inform the seagrass bed creation/ restoration strategy, as well as provide information on subsequent monitoring locations. The style of survey will be dependant on if an intertidal, or subtidal site is chosen.

6.5.33 It is envisaged that, as part of the works, creation or restoration areas will be selected and the seagrass planting, seeding or a combination of the two will be completed within the selected area. As such, monitoring is not likely to be required shortly following the completion of the works, as it should be known which areas were created/ restored.

6.5.34 Post monitoring is likely to be required one, and three years following completion of the creation/ restoration works completing. Monitoring should also include areas where there were initially seagrass beds (where this ws initially the case) to provide some indication of the trend in seagrass outside of restoration areas. This may indicate if there are naturally declining bed extents or seagrass densities within existing beds. Post creation/ restoration monitoring in areas of active restoration should record:

- Extent of seagrass bed;
- Density of seagrass, as an average per $m^2$. Dependant on the patchiness of the seagrass beds, these separate patches of seagrass may need to be individually recorded;
- Presence and/ or prevalence of seagrass ‘wasting disease’; and
- Any associated sensitive or important habitats or species.

6.5.35 The envisaged monitoring outcomes will be determined based on the selected sites, creation or restoration option selected and the method of seagrass propagation or establishment, as well as the intertidal or subtidal nature of the site. However, it is currently envisaged that:

- Whilst it is expected that there is likely to be varying degrees of success in seagrass establishment, the project will be successful should seagrass extent and density increased between monitoring events.

6.5.36 A range of establishment success criteria will be developed during the creation/ restoration planning phase.

### ADAPTIVE MANAGEMENT

6.5.37 In the event that the creation of subtidal seagrass beds is unsuccessful or not retained, consideration would be given to whether remedial measures (i.e. re-seeding of seagrass) could be effective to maintain the seagrass bed or whether an alternative compensation measure should be progressed.

6.5.38 Should the re-seeding of a subtidal seagrass be deemed inappropriate adaptive management or unsuccessful, the following alternatives would be considered:

- Removal of redundant infrastructure removal that is deemed to be having a negative impact on ecologically important sandbank habitat; or
- Payment into a suitable strategic compensation measure.

# 7 CONCLUSIONS

7.1.1 Whilst the Applicant considers that, with the mitigation proposed, a conclusion of no AEoI can be drawn for the impacts of the Project to the M&LS SAC, in cognisance the conclusions for other offshore windfarms, the Applicant has developed a series of options for compensatory measures to support a “without prejudice” derogation case for benthic effects to the M&LS SAC arising from the use of cable protection on the Annex I “Sandbanks covered by seawater at all times” feature.

7.1.2 Following the development of a long-list of compensation measures, a short-listing process was undertaken; considering, amongst other factors, the ecological benefits of the measure, the feasibility of implementation and the similarity between the proposed measure and the impacted feature. The measures proposed are:

- Extension of an SAC;
- Anthropogenic pressure removal:
- Redundant infrastructure removal.
- Seagrass bed habitat creation/restoration.

7.1.3 For each of these measures, information on the value and function, objective and scale, the delivery process and timeframe, a monitoring plan and details of any adaptive management which could be undertaken if required and the next steps for the continued development of the measure has been provided.

7.1.4 Following recent developments on strategic compensation and the probable availability of SAC extension as a compensation measure for Round 4 and extension projects, the Applicants preference is the contribution to the delivery of proportionate strategic compensation, if required, through the available strategic mechanism. However, this it out of the Applicant’s control. The Applicant is eager to continue work with Defra and Natural England on this measure as the measure progresses.

7.1.5 The Applicant will continue to engage with the relevant stakeholders regarding the without-prejudice benthic compensation measures within this document.

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## APPENDIX A - BT LETTER OF NO OBJECTION FOR SUBSEA CABLE REMOVAL

[redacted]
Case Manager
National Infrastructure Planning
Temple Quay House
2 The Square
Bristol

28th February 2025

**Re: Five Estuaries Offshore Wind Farm Project – Deadline 7**

Dear [redacted]

We have been requested by the Applicant (Five Estuaries Offshore Wind Farm Ltd) to provide details of redundant infrastructure owned by BT and the potential for these to be removed by the Applicant as a means of providing benthic compensation.

We can confirm that there are out-of-service telecommunications cables owned by BT within the Five Estuaries work area. Subject to further detailed discussion (and notwithstanding any planning consents or marine licences required to be obtained by the Applicant), there is no reason in principle why a signed agreement could not be reached to allow the Applicant remove redundant infrastructure owned by BT, should this be required as a compensation measure.

Yours sincerely,

[redacted]

[redacted]
Subsea (Commercial Agreements), Network Delivery Professional Networks

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