The Great Grid Upgrade

Eastern Green Link 5 (EGL 5)

Preliminary Environmental Information Report

Volume 2
Part 3
Appendix 18.E In-principle MEEB Strategy

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18.E. In-principal MEEB Strategy

18.E.1 Introduction

Background

18.E.1.1 This In-Principle Benthic Measures of Equivalent Environmental Benefit (MEEB) Strategy has been prepared in support of a Development Consent Order (DCO) application by National Grid Electricity Transmission (NGET) (a division of National Grid plc), herein the 'Applicant' to the Planning Inspectorate for Eastern Green Link 5 (EGL 5), herein the 'Project'.

18.E.1.2 The Project is being jointly developed by NGET and Scottish Hydro Electric Transmission Ltd (SHE-T), who are operating and known as Scottish and Southern Electricity Networks Transmission (SSEN Transmission). The Project comprises a 2 gigawatt (GW) High Voltage Direct Current (HVDC) link between Anderby Creek, Lincolnshire in England and Peterhead, Aberdeenshire.

18.E.1.3 A DCO is being sought for the English components of the Project for which NGET is the sole Applicant, as the Transmission Operator in England and Wales. A Deemed Marine Licence (DML) is being sought for the English Offshore Scheme, and in accordance with the United Nations Convention on the Laws of the Sea (UNCLOS) and Section 81 of the Marine and Coastal Access Act 2009 (MCAA), cable installation beyond 12 nautical miles (NM) is exempt from requiring a Marine Licence. Therefore, the Applicant intends to structure the DML to reflect the licensable activities within and outside 12 NM. Whilst a licence is only required for cable burial within 12 NM, other activities including the installation of external cable protection remains a licensable activity both inside and outside 12 NM. Notwithstanding whether an activity is licensable, all activities associated with the English Offshore Scheme has been considered within the assessments accompanying the application for Development Consent.

18.E.1.4 The following definitions are relevant to this report:

- "English Onshore Scheme" – All components of EGL 5 between the electricity transmission connection point in England and the Mean Low Water Springs (MLWS) in England.
- "English Offshore Scheme" – All components of EGL 5 within the English marine environment up to the Mean High-Water Springs (MHWS) in England.
- "the Project" – is the term used to refer all elements of EGL 5 which are the subject of the Development Consent Order (DCO) Application i.e., the English Onshore Scheme and the English Offshore Scheme. More specifically, the Project comprises the 'Authorised' development and 'Associated' development for EGL 5 that will be subject to an application for Development Consent.
- "draft Order Limits" - The anticipated maximum area in which the construction and operation of the Project may take place. The draft Order Limits cover the entire area within which development could take place comprised of both temporary and permanent components of the Project.

18.E.1.5 The English Offshore Scheme is sited within the English marine environment, through inshore and offshore waters, and up to MHWS in England. The most northerly elements of the English Offshore Scheme would be located at the boundary of English Waters and Scottish Waters, and the most southerly elements would be located at MHWS at Anderby Creek.

In-Principle MEEB Approach

18.E.1.6 The Applicant has undertaken a Marine Conservation Zone (MCZ) Screening Assessment, which is presented in **Volume 2, Appendix 18.C: Marine Conservation Zone Assessment Screening** and a MCZ Stage 1 Assessment, which is presented in **Volume 2, Appendix 18.D: Marine Conservation Zone Stage 1 Assessment.**

18.E.1.7 The MCZ assessment screening process identified a single site within the draft Order Limits – Holderness Offshore MCZ - that in the absence of mitigation measures, the identified impact pathways for the Project are capable of affecting (other than insignificantly) either the protected features of the MCZ or the ecological or geomorphological processes on which the protected features are dependent. The draft Order Limits cover an area of 4.924 km^2 within the Holderness Offshore MCZ.

18.E.1.8 The draft Order Limits have been developed through extensive route selection and evaluation work, considering environmental, engineering, and socio-economic constraints. Where possible, mitigation has been applied as per the mitigation hierarchy (Regulation 14(2) Infrastructure Planning (EIA) Regulations 2017, Ref 18.E.1) of avoid, mitigate, restore, or rehabilitate, then compensate.

18.E.1.9 Initially several options were considered with respect to routeing in proximity to the Holderness Offshore MCZ. A decision was made in December 2025 to take the shortest feasible distance through the Holderness Offshore MCZ, with the EGL 5 cable route crossing the southeast corner of the MCZ. Due to the presence of other infrastructure, including EGL 3 and EGL 4, it is not possible to avoid the MCZ. Further details on specific impacts are provided in the **Volume 2, Appendix 18.D: Marine Conservation Zone Stage 1 Assessment.**

18.E.1.10 The impacts potentially arising from the English Offshore Scheme under the worst-case scenario (WCS) were assessed against the conservation objectives for the Holderness Offshore MCZ. **Volume 2, Appendix 18.D: Marine Conservation Zone Stage 1 Assessment** concludes that the construction, operation or decommissioning of the English Offshore Scheme will not hinder the achievement of the conservation objectives, alone or in-combination with other plans, projects or activities, and a Stage 2 MCZ Assessment is not required.

18.E.1.11 Nonetheless, noting the advice received for EGL 4 from the statutory nature conservation bodies (SNCBs), and without seeking to pre-judge the final decision by the Secretary of State (SoS), the Applicant has prepared an ‘in-principle’ MEEB plan to support the MCZ Assessment. This approach is in keeping with precedent from recently consented offshore energy projects such as the Sheringham and Dudgeon Extension Projects (SEP & DEP – see Ref 18.E.2) and follows the requirements of the Overarching National Policy Statement (NPS) for Energy (EN-1). This strategy has been developed to demonstrate the feasibility of potential measures and provide confidence to the SoS that MEEB are available if the SoS is unable to agree with the Applicant’s conclusions.

18.E.1.12 As part of the process of developing the 'without prejudice' MEEB case, the Applicant has identified a 'shortlist' of possible compensation options based on the existing Project design, recent DCO decisions which have been consented based on protected sites derogation and compensation / MEEB, and stakeholder feedback received to date (including across other developments which the Applicant is seeking consent for such as EGL 4).

Purpose of this Document

18.E.1.13 This document introduces the MEEB options that the Applicant considers to be potentially appropriate to offset the Project's benthic impacts on the Holderness Offshore MCZ should derogation under the MCAA (Ref 18.E.3) be required. The 'in-principle' MEEB case relates specifically to permanent habitat loss associated with external cable protection within the Holderness Offshore MCZ.

18.E.1.14 Measures that are being considered by the Project are:

- Designation of a new Marine Protected Area(s) (MPA) and / or extension of existing MPA(s); and
- Habitat restoration.

18.E.1.15 These options have been shortlisted following an appraisal of a long list of MEEB options collated by the Applicant. The Applicant has undertaken a detailed literature review and consequently has undertaken a Red, Amber, Green (RAG) constraints assessment to determine which options are most appropriate to consider in more detail. While the RAG assessment has helped the Applicant assess the potential suitability of options, the options considered most favourable have been selected based on available evidence due to the limited number of viable MEEB available.

18.E.1.16 This document supports the Project's Preliminary Environmental Information Report (PEIR). Its purpose is to present progress on proposed MEEB, gather stakeholder feedback on processes, data, and assumptions used to determine these measures, and identify any additional factors to consider ahead of a formal submission of the application for Development Consent. This document also presents a strategy for delivering benthic compensation as the Project progresses including a timeframe for delivery and consideration of adaptive measures.

Consultation

18.E.1.17 Whilst there has not been any Project specific stakeholder engagement related to MEEB, where appropriate, advice received by the Applicant for EGL 4 has been considered during the development of this MEEB Strategy. This is considered appropriate due to the broadly parallel routes EGL 4, and the Project take through the MCZ and the overall similarities in project design and associated impacts on the features of the MCZ. The advice received on EGL 4 is the most-up-to-date advice which SNCBs agreed is the appropriate approach for the Project to adopt, demonstrating collaboration and minimising stakeholder pressure by reducing the need for repetition of engagement.

18.E.1.18 Following receipt of comments in response to the publication of the PEIR (and associated documents), the Applicant will undertake Project specific consultation with stakeholders on the measures outlined herein.

18.E.2 Holderness Offshore Marine Conservation Zone

Overview

18.E.2.1 The Holderness Offshore MCZ is located approximately 11 km offshore at its closest, from the Holderness coast in the Southern North Sea region. The MCZ boundary is partly delineated to the west by the 6 NM territorial seas limit and overlaps with part of the western area of the Southern North Sea Special Area Conservation (SAC) (Ref 18.E.4). The site ranges from depths of just over 5 m to 50 m and covers an area of 1,176 km^2.

18.E.2.2 The site is designated under Section 116 of the MCAA with the following broadscale sediment habitats, species of conservation importance and feature of geological interest listed as Protected Features:

- Subtidal coarse sediment (A5.1);
- Subtidal sand (A5.2);
- Subtidal mixed sediments (A5.4);
- Ocean quahog (*Arctica islandica*); and
- North Sea glacial tunnel valleys (hereafter referred to as “Inner Silver Pit”).

18.E.2.3 Further information on the conservation objectives for the Holderness Offshore MCZ are set out within Volu**me 2, Appendix 18.C: Marine Conservation Zone Assessment Screening** and **Volume 2, Appendix 18.D: Marine Conservation Zone Stage 1 Assessment**.

Summary of Potential Impact

18.E.2.4 The initial MCZ screening assessment (**Volume 2, Appendix 18.C: Marine Conservation Zone Assessment Screening**) identified a pathway between the Protected Features of the Holderness Offshore MCZ, and the following four impacts related to the Project:

- Temporary habitat loss / seabed disturbance;
- Permanent habitat loss;
- Water flow (tidal current) changes, including sediment transport considerations; and
- Temporary increase and deposition of suspended sediments.

18.E.2.5 These impacts would potentially arise because of activities associated with pre-construction and construction activities, operation, and decommissioning. Based on the advice received from SNCBs on the PEIR for the EGL 3 and EGL 4 Projects, and in keeping with precedent set by other energy projects concerning impacts hindering conservation objectives for MCZs, specifically those with subtidal sedimentary features, this ‘in principle’ MEEB strategy focuses on compensating for the WCS permanent habitat loss. No potential requirement for MEEB was identified for other impacts and so these are not considered further.

18.E.2.6 The worst-case footprint for permanent habitat loss is presented in **Table 18.E.1.** The Applicant would endeavour to minimise the requirement for external cable protection (rock or other forms of protection) within the MCZ, however, it is not possible to exclude the use of external cable protection through this area due to the known ground conditions.

18.E.2.7 The WCS impact area is calculated based on the maximum potential need for external cable protection at infrastructure crossings, and the need for protection in areas where insufficient cable burial has been assessed as higher risk.

Table 18.E.1 Summary of footprint for WCS permanent habitat loss

Impact	Construction	Operation	Decommissioning
Permanent habitat loss.	76,800 m^2 (0.0768 km^2)	To be confirmed.	Would be the same as the construction plus operation footprint.

18.E.2.8 While the Applicant maintains that the WCS impacts to the Holderness Offshore MCZ would not hinder achievement of conservation objectives for any of the protected features, SNCBs and regulators may conclude the potential for hinderance of the conservation objectives.

18.E.3 MEEB Approach

Guidance

18.E.3.1 The Department for Environment, Food and Rural Affairs (DEFRA) and Natural England provide specific guidance on the delivery of compensation and MEEB. This guidance has been followed in developing the MEEB options for the Project.

18.E.3.2 DEFRA's compensation hierarchy, outlined in their draft best practice guidance (Ref 18.E.11) states that the following steps should be taken, with priority given to Step 1 with preference reducing towards Step 4 (subject to any advice received from stakeholders):

- **Step 1**: address same impact at same location.
- **Step 2**: same ecological function different location.
- **Step 3**: comparable ecological function same location and
- **Step 4**: comparable ecological function different location.

18.E.3.3 The Applicant was cognisant of this hierarchy when devising the long list and down-selecting to create the refined shortlist of the potential MEEB options.

18.E.3.4 The following factors should also be considered in order of priority when selecting measures:

- **Ecological effectiveness** - ecological effectiveness of measures takes account of the ecological outcomes to be achieved and the confidence that the measures would be effective. This should be the priority consideration when working through the hierarchy.

- **Local circumstances** - as far as possible, measures should take account of local circumstances where the risk is predicted to occur (see local circumstances header for further information) and
- **Proximity** - measures should be delivered as close as possible to the area affected by the plan or project.

18.E.3.5 Note that DEFRA guidance (Ref 18.E.11) also states that for MCZs, measures that benefit a different qualifying feature (or features) should consider equivalent environmental benefit. Measures should replicate the ecological structure or function of the feature or features at risk and the location of MEEB should not take priority over the ecological outcomes that might be secured. This approach allows for a degree of flexibility and rationality when considering potential options.

18.E.3.6 Each of the factors outlined in DEFRA guidance (Ref 18.E.10, Ref 18.E.11) were accounted for when developing the scoring system for the Applicant's initial long list of MEEB options (see **Section Developing and Refining Compensation Measures**).

18.E.3.7 In addition to DEFRA guidance, the Applicant has also consulted Natural England guidance on the appraisal of 'in principle' compensation (and MEEB) measures (Ref 18.E.12). The compensation requirements set out in Natural England guidance have been considered when assessing the suitability of MEEB options to better understand where measures are well defined, and where the SoS might require more detail to ensure confidence that MEEB can be secured.

18.E.3.8 The long list options proposed as potential MEEB within this strategy were also developed with reference to the following guidance:

- Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (Ref 18.E.13); and

18.E.3.9 Benthic mitigation measures for the proposed Measure of Equivalent Environmental Benefit Assessment - informal advice (Ref 18.E.22).

18.E.3.10 The Applicant notes that the Statutory Instrument (SI) to make the environmental compensatory reforms for offshore wind (The Conservation of Habitats and Species (Offshore Wind) (Amendment etc.) Regulations 2026) was laid on 26 February 2026. This is part of a wider package of policy measures on environmental compensatory measures for offshore wind that was subject to consultation in 2025.

18.E.3.11 The SI reforms make it possible for developers to use a wider range of environmental compensatory measures and MEEB. In England and Wales, work is underway on starting to develop the measures, primarily through the Collaboration on Offshore Wind Strategic Compensation (COWSC) programme. Ministers will approve the new measures and further information on the process for new measures becoming available to developers will be published when the SI comes into force.

18.E.3.12 The SI will enable the user of wider compensatory measures to benefit the UK MPA network and updates the compensation hierarchy which will be made up of three tiers. Further information will be published in guidance from DEFRA using the compensation hierarchy and satisfying the compensation duty within the SI. The Applicant will continue to monitor updates and ensure that it is adhering to latest best practices.

18.E.3.13 The Marine Recovery Fund (MRF) was formally launched on 17 December 2025 (The Marine Recovery Funds Regulations 2025), which allows offshore wind projects and associated enabling infrastructure (such as the EGL 5 Project) to access a government-managed fund which will deliver strategic projects to support potentially more effective environmental outcomes (than individual projects delivered by single developers). Per Section 290 of the Energy Act 2023, Subsection (2) defines "offshore wind electricity infrastructure", which includes offshore transmission infrastructure used for the conveyance of electricity generated from offshore wind (for example, a "bootstrap" cable). These are cables in the UK marine area that convey electricity from a mixture of sources, including offshore wind-generated electricity.

18.E.3.14 Of relevance for potential MEEB for EGL 5, the MRF includes the designation of new MPAs and / or extension of existing MPAs. At present, MPA designation and / or extension is the only benthic habitat measure within the Library of Strategic Compensation Measures (LoSCM) relevant to projects requiring compensatory measures under the Habitats Regulations, and MEEB under the MCAA. The development of the LoSCM is led by the DEFRA, in collaboration with other stakeholders.

18.E.3.15 All measures in the LoSCM are:

- Suitable to compensate for specific adverse effects on MPAs; and
- Approved by the Secretary of State for DEFRA.

18.E.3.16 The interim guidance (Ref 18.E.15) from Department of Energy Security and Net Zero (DESNZ) confirms the eligibility of projects requiring MEEB to offset impacts within MCZs:

“Applicants must continue to apply the mitigation hierarchy for their projects. Where it is determined that the hierarchy has been exhausted, applicants may present a derogation case under the appropriate legislation. If the derogation case is agreed, compensatory measures and / or measures of equivalent environmental benefit are likely to be required under Regulation 68 of the Conservation of Habitats and Species Regulations 2017, Regulation 36 of the Conservation of Offshore Marine Habitats and Species Regulations 2017 (the Habitats Regulations), or S.126 of the Marine and Coastal Access Act 2009. Where this guidance refers to the term “compensation” or “compensation measures”, this should be understood to mean both compensation under the Habitats Regulations and measures of equivalent environmental benefit under the Marine and Coastal Access Act 2009.”

18.E.4 Delivery Mechanisms

Overview

18.E.4.1 The Project has considered three delivery options for MEEB; project led, collaborative and / or strategic measures to ensure that MEEB is delivered in the most effective way that maximises the ecological benefit of the measure.

- **Project led measures:** These are Project alone options tailored to address the ecological impacts of EGL 5. They focus on mitigating the precise effects of the Project, such as habitat restoration or creation, aimed at offsetting local environmental damage.
- **Collaborative measures:** Such options would involve working with one or more developers either multilaterally or facilitated through an industry body, to implement compensation strategies that benefit a broader ecological area or species. They aim to address cumulative impacts across multiple projects or regions, often through shared funding or joint efforts and theoretically have a wider delivery scope than project alone delivery.
- **Strategic measures:** These are long-term, large-scale initiatives aimed at improving overall ecological resilience at a regional or national level. They are led by other stakeholders, such as government and industry bodies. They focus on achieving broader conservation goals that wouldn't be deliverable by a single project and are often planned and implemented over extended periods, potentially beyond the life of a single project.

Strategic MEEB Delivery

18.E.4.2 A key challenge in delivering MEEB is to ensure that measures are secure and robust in the eyes of SNCBs. The Marine Recovery Funds Regulations 2025 came into force on 17 December 2025, providing the certainty required for the Applicant to rely on this mechanism for strategic delivery of MEEB should this option be progressed by the Applicant.

Developing and Refining Compensation Measures

Method

18.E.4.3 To illustrate the progress in the development of potential MEEB options to stakeholders at PEIR stage, this strategy outlines the current status of long list and shortlisted options that are being appraised by the Applicant.

18.E.4.4 It is understood that MEEB should seek to successfully re-establish the contribution, or contributions made by adversely affected features of the Holderness Offshore MCZ to achieve the MPA network objectives. A literature review has been undertaken to determine a long list of MEEB options for Holderness Offshore MCZ. This has included a detailed assessment of publicly available information for other projects that have developed MEEB delivery plans for benthic habitats, and the appraisal of guidance documents.

18.E.4.5 Further details on the longlist process and refinement to shortlist are provided below.

Long list

18.E.4.6 The preliminary stages of identifying suitable MEEB options to offset potential impacts on the Holderness Offshore MCZ involved the creation of a long list. The aim of the long list was to identify all possible options to deliver MEEB for impacts potentially resulting from the Project. The Applicant acknowledges that not all options in the long list are ecologically or technically feasible, but believes it is important to cast a wide net and gather stakeholder opinions on numerous options to identify the most suitable avenues for successful delivery.

18.E.4.7 The literature review focussed on identifying measures that could either remove existing impacts within the MCZ or improve the features already present within the site. The compilation of the long list also involved reviewing DCO documentation for other energy projects potentially requiring MEEB (such as the Norfolk Offshore Wind Farm (OWF) Projects (Vanguard and Boreas), and SEP and DEP) in the North Sea region, as well as through appraisal of publications by the Offshore Wind Industry Council (OWIC)'s Strategic Compensation Studies workstream. Following the development of the long list, each option was appraised in line with DEFRA guidance (Ref 18.E.10 and Ref 18.E.11).

18.E.4.8 The long list options were comparatively assessed, scored and ranked to provide clarity on their suitability to offset potential Project-related impacts within the Holderness Offshore MCZ (see **Annex A**). Notwithstanding the scoring undertaken, due to limited viable options, the Applicant has also assessed MEEB options on an individual basis using available evidence and stakeholder feedback as part of the finalisation of the short-list.

18.E.4.9 Presented in **Table 18.E.2** is the long list of MEEB options and rationale for the advancement of measure to the shortlist or elimination from further consideration.

Shortlist

18.E.4.10 Viable MEEB options have been developed considering the latest advice and guidance on MCAA derogation, available supporting evidence from other energy projects and publicly available information, timescale of implementation, and experiences of other projects in the North Sea who have developed 'without prejudice' MCAA derogation cases.

18.E.4.11 From the long list of options considered by the Project, two possible MEEB options are under consideration for further development based upon the evidence provided in **Table 18.E.1**.

18.E.4.12 These are:

- Designation of new MPA(s) and / or extension of existing MPA(s).
- Habitat restoration - planting of Native oyster (*Ostrea edulis*) or Horse mussel (*Modiolus modiolus*) beds.

18.E.4.13 The shortlisted options for MEEB are discussed in further detail in Section 18.E.5**.**

Table 18.E.2 Long list of measures to deliver measures of equivalent environmental benefit for Holderness Offshore MCZ

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
1. Removal of marine debris (including fishing equipment) within the MCZ.	Project-led.	Removal of marine debris including fishing equipment from the MCZ would likely reduce the impacts on the designated features.	**Excluded** Recent advice from SNCBs (Ref 18.E.16) states that they do not consider the removal of anthropogenic marine debris to offer adequate compensation for loss of benthic habitats within MPAs as MEEB. Furthermore, the Applicant cannot be confident that the quantity of marine debris within the MCZ would meet the MEEB quantum requirements for the Project. Research by OWIC (2025) suggests that there is a very limited quantity of debris within the Holderness Offshore MCZ (Ref 18.E.17). Furthermore, this measure does not relate to the conservation objectives for the MCZ, and marine debris is not listed as a pressure concern (Ref.18.E.12). Therefore, this option will not be considered further.
2. Removal of redundant infrastructure within the MCZ (e.g., cables, rock protection, Oil & Gas infrastructure, redundant pipelines, scour protection, pipeline protection).	Project-led.	Removal of redundant infrastructure, including Oil & Gas (O&G) infrastructure, pipelines, cables and rock protection within the MCZ would likely reduce the impacts on the designated features.	**Excluded** Offshore Petroleum Regulator for Environment and Decommissioning's (OPRED) position as outlined in OPRED (Ref 18.E.18) is that this measure is not suitable for the removal of O&G infrastructure due to numerous challenges associated with liability, health and safety and legal concerns. As such, this measure can only be investigated further in relation to telecoms and electricity cable infrastructure. The removal of pipeline protection without the removal of the associated pipelines is not considered suitable due to the increased vulnerability of oil & gas pipelines that remain in-situ following the removal of protection.

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
			The Applicant cannot be confident that the quantity of redundant infrastructure within the MCZ would meet the MEEB quantum requirements for the Project, and research undertaken by OWIC (2025) suggests that there is limited potential within the Holderness Offshore MCZ. Additionally, the majority of assets are sub-surface, and as such currently do not represent sources of habitat loss, and removal would be likely to result in disturbance of a similar magnitude to that exerted during installation. Therefore, this option will not be considered further.
3. Habitat recreation within the MCZ - use of dredged material to restore sublittoral sediment / Ocean quahog habitat damaged by fishing activity / lost to infrastructure.	Project-led.	Ocean quahog habitat primarily consists of sand and mud. Within the Holderness Offshore MCZ, there is degraded ocean quahog habitat as areas of sublittoral sand / coarse sediment / sublittoral mixed sediment have been impacted by bottom trawling. Habitat recreation within the Holderness Offshore MCZ, may be possible by depositing appropriate sediment types from other marine regions. This would need to be verified as suitable ocean quahog habitat using Particle Size Analysis (PSA). Ensuring optimal regions of habitat, through surveys, would likely increase fecundity and decrease mortality. As ocean quahog are extremely long-lived species, the monitoring of their recovery is challenging as species recovery at a	**Excluded** There is low confidence in the technical feasibility of this measure which is related to concerns surrounding restoring relatively fine sediment habitats in medium to high energy coastal regimes. This is not a proven measure in coastal locations, and as such confidence in this measure's success is low. Due to the potential mobility of substrate sediments used for restoration, this option may also be associated with a smothering risk for sessile benthic communities within the direct and indirect deposition footprint. Therefore, this option would not be considered further.

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
		population level may take decades or centuries.	
4. MPA designation and / or extension.	Strategic	The Applicant understands that this measure would be delivered by DEFRA with support from Join Nature Conservation Committee (JNCC) and Natural England. SNCBs would also be responsible for undertaking site selection and consultation with other sea users and public stakeholders. This measure would be secured through contributions to the MRF and the Project's DCO wording. Designating new MPAs and / or extending existing MPAs would protect designated features and would enhance the structure and function of the national site network (NSN).	**Shortlisted** Following the formal establishment of the MRF through the Marine Recovery Funds Regulations 2025, the Applicant has confidence in the efficacy and delivery mechanism for this measure. Though site selection work and public consultation have not been completed, and the designation process is likely to take several years, the inclusion of this measure within the LoSCM demonstrates central UK Government approval of this MEEB option. The Applicant received confirmation from DEFRA in August 2025 that the Project would be eligible for the MRF. Therefore, the Applicant will continue to develop this measure.
5. Fisheries management measures (spatial reduction or development of management mechanism) inside of the MCZ.	Collaborative	Implementing spatial reduction of bottom trawling would increase the protection of the designated features within the Holderness Offshore MCZ.	**Excluded** The Applicant has concerns over additionality in relation to this measure given the regulatory work already undertaken by the Marine Management Organisation (MMO) who manage fishing and non-licensable activities within the MCZ. The MMO have considered the impacts of bottom towed fisheries within designated sites and as such, fisheries management is not regarded to be suitable, (Ref 18.E.19). Therefore, this option is not considered further.

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
6. Removal of marine debris (including fishing equipment) outside of the MCZ.	Project-led.	Collecting marine debris within the wider North Sea area and beyond may help reduce the impacts of marine debris on the wider marine environment.	**Excluded** Recent advice from SNCBs (Ref 18.E.16) states that they do not consider the removal of anthropogenic marine debris to offer adequate compensation for loss of benthic habitats within MPAs as MEEB. It is possible that the Applicant could source a sufficient quantity of marine debris outside of the MCZ to meet the MEEB quantum requirements for the Project, though this remains unlikely. Furthermore, this measure does not relate to the conservation objectives for the MCZ, and marine debris is not listed as a pressure concern (Ref 18.E.6 and Ref 18.E.12). Therefore, this option is not considered further.
7. Marine debris awareness & engagement campaign (stakeholder engagement), amnesty gear collection.	Project-led.	Contributing to or creating a marine debris awareness and engagement campaign in collaboration with the Inshore Fisheries and Conservation Authorities (IFCAs), MMO and the fishing industry.	**Excluded** There is uncertainty around delivering this measure at the required extent for MEEB. This option would only be suitable as a supporting measure. The metric of success would be measured but by engagement, and long-term adjustment of behaviour, as well as volume of debris recycled / disposed of. It is the Applicant's understanding that Natural England does not support this approach. Therefore, this option is not considered further.

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
8. Removal of redundant infrastructure outside of the Holderness Offshore MCZ (e.g., cables, O&G infrastructure, redundant pipelines, scour protection, pipeline protection) but with an MCZ designated for similar features.	Project-led.	Removal of redundant infrastructure, including O&G infrastructure, pipelines, cables and rock protection outside of the Holderness Offshore MCZ but within an MCZ designated for similar features would likely reduce the impacts on the marine environment.	**Excluded** OPRED's position as outlined in OPRED (Ref 3.17.E.17), is that this measure is not suitable for the removal of O&G infrastructure due to numerous challenges associated with liability, health and safety and legal concerns. As such, this measure can only be investigated further in relation to telecoms and electricity cable infrastructure. The removal of pipeline protection without the removal of the associated pipelines is not considered suitable due to the increased vulnerability of O&G pipelines that remain in situ following the removal of protection. The Applicant cannot be confident that the quantity of redundant infrastructure within the MCZ would meet the MEEB quantum requirements for the Project, though there is likely to be a higher volume of infrastructure outside of the MCZ. However, the majority of subsea power and telecommunications cables are buried, and where this is the case, habitat loss is not a pressure. Where cables are protected by concrete mattresses or rock and habitat loss has occurred, removal of such protection would result in exposure of assets, presenting a snagging hazard. The removal of either exposed or buried cables would result in disturbance of a similar magnitude to that exerted during installation and in some instances, this could cause resuspension of pollutants, degrading surrounding habitats, and increasing the risk of debris being left behind as marine litter (Ref 18.E.20). Therefore, this option will not be considered further.

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
9. Removal of aggregate extraction pressure outside of the Holderness Offshore MCZ.	Project-specific.	The removal of aggregate extraction pressure outside of the MCZ would likely increase the biodiversity of the wider marine environment and NSN.	**Excluded** As a licenced activity, it is beyond the Applicants ability to exert control over aggregate licence holders' extraction within approved areas. Management of extraction activities is managed by the MMO and should aggregate extraction result in unacceptable impacts, these would be addressed via the imposition of licence conditions. Additionally, extraction sites are monitored under the Regional Seabed Monitoring Programme (RSMP) to ensure that level of impact on the marine environment does not exceed the accepted environmental assessment and Habitats Regulation Assessment (HRA) outcomes, including on protected features. The Crown Estate also have seabed rights over aggregate resources and as such, aggregate licence holders are not considered to be owners of the areas in which they operate. Therefore, this option is not considered further.
10. Habitat restoration - Planting oyster (*Ostrea edulis*) beds within the MCZ (biogenic reef creation).	Project-led or Collaborative.	Native oyster bed restoration has the potential to provide important ecosystem service such as supporting fish populations, increasing biodiversity, and other beneficial impacts to the MCZ. This measure would provide enhanced value and function to the sedimentary features of the MCZ in the form of increased biodiversity.	**Excluded** Native oyster has a historical presence in North Sea, though not within Holderness Offshore MCZ. Environmental conditions within the MCZ such as depth range and current velocity are suboptimal for the establishment of oyster beds. This is supported by modelled data illustrating areas of oyster restoration potential within the European Native Oyster Restoration Handbook (Ref 18.E.21) which shows potential areas to the west of the MCZ within the Holderness Inshore MCZ boundary. Therefore, this option is not considered further.

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
11. Habitat restoration - Planting blue mussel (*Mytilus edulis*) beds within the MCZ (biogenic reef creation).	Project-led, Collaborative.	Blue mussel bed restoration has the potential to provide important ecosystem service such as supporting sediment stabilisation, nutrient cycling and water filtration, and other beneficial impacts to the MCZ. This measure would provide enhanced value and function to the sedimentary features of the MCZ in the form of increased biodiversity.	**Excluded** The techniques for blue mussel bed restoration exist but are deemed challenging. There is a lack of evidence surrounding the successful deployment of this method in the southern North Sea. There are no records of historical mussel beds within the MCZ resulting in lower ranking according to DEFRA guidance (Ref 18.E.10). Though *M. edulis* can be abundant in subtidal environments, it is not common. Additionally, habitat preference is for rocky substrate, though it can colonise mixed sediment. There is little to no evidence on the effectiveness of this measure within the MCZ. This is a less proven method than oyster bed restoration. Therefore, this option is not considered further.
12. Habitat restoration - Planting horse mussel (*Modiolus modiolus*) beds within the MCZ (biogenic reef creation).	Project-led, Collaborative.	Horse mussel bed restoration has the potential to provide important ecosystem service such habitat provision, increasing biodiversity, water filtration, carbon storage and other beneficial impacts to the MCZ. This measure would provide enhanced value and function to the sedimentary features of the MCZ in the form of increased biodiversity.	**Shortlisted** There is little to no evidence on the effectiveness of this measure within the MCZ. However, Horse mussel (*M. modiolus*) has historically been widespread in the North Sea (including in offshore areas) and can inhabit soft sediments as well as hard substrates. Reefs may form in soft substrates though formation process is long (several years). While there may be challenges associated with the delivery of this method (including development of novel hatchery methods), the potential ecological efficacy of this measure is high. As such, the Applicant will continue to investigate the potential delivery of this measure.

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
13. Control of marine invasive non-native species (MINNS) (e.g., *Crepidula fornicata*) within MCZ to remove competitor effects on vulnerable species.	Project-led.	A benthic survey would be undertaken followed by an implementation of controls or active removal of target species to minimise the spread of MINNS within the MCZ. Control measures most likely to include hand collection.	**Excluded** There are no publicly available records of non-native species within the site, though *C. fornicata* is commonly associated with habitats present within MCZ (mixed muddy sediments). There is uncertainty around delivering this measure at the required extent for MEEB. It is uncertain whether the necessary quantum would be available within the MCZ site boundary. Therefore, this option is not considered further.
14. Habitat restoration - Planting of Native oyster (*Ostrea edulis*) beds outside of the MCZ.	Project-led, Collaborative.	Native oyster bed restoration has the potential to provide important ecosystem service such as supporting fish populations, increasing biodiversity, and other beneficial impacts to the wider marine environment. This measure would provide enhanced value and function to the sedimentary features of the MCZ in the form of increased biodiversity.	**Shortlisted** Native oyster has a historical presence in North Sea, as such it is considered that habitat creation at the right site could deliver MEEB. A proven track record of successful oyster bed habitat creation programmes in the UK aligns with DEFRA guidance (Ref 18.E.10) which states that there should be "*confidence in the measure being entirely effective*". Deliverability is subject to identifying a suitable area that could support *O. edulis* and being able to protect such an area from commercial fishing pressure. Delivering oyster restoration within another MCZ may increase likelihood of success for this option. The Applicant will continue to consider the viability of this measure through engagement with experienced and specialist habitat restoration delivery partners, and desk-based site selection work.

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
15. Habitat restoration - Planting of blue mussel beds outside of the MCZ.	Project-led, Collaborative.	Blue mussel bed restoration has the potential to provide important ecosystem service such as supporting sediment stabilisation, nutrient cycling and water filtration, and other beneficial impacts to the wider marine environment. This measure would provide enhanced value and function to the sedimentary features of the MCZ in the form of increased biodiversity.	**Excluded** The techniques for blue mussel bed restoration exist but are deemed challenging. There is a lack of evidence surrounding the successful deployment of this method in the southern North Sea. There is evidence of the effectiveness of this option though not for the potentially impacted sedimentary features within the MCZ i.e. coarse and mixed sediment environments. Therefore, this option is not considered further.
16. Habitat restoration - Planting of Horse mussel beds outside of the MCZ.	Project-led, Collaborative.	Horse mussel bed restoration has the potential to provide important ecosystem service such habitat provision, increasing biodiversity, water filtration, carbon storage and other beneficial impacts to the wider marine environment. This measure would provide enhanced value and function to the sedimentary features of the MCZ in the form of increased biodiversity.	**Shortlisted** There is little to no evidence on the effectiveness of this measure within the MCZ though Horse mussel (*M. modiolus*) has historically been widespread in the North Sea (including in offshore areas) and can inhabit soft sediments as well as hard substrates. Reefs may form in soft substrates though formation process is long (several years). The Project will most likely have to utilise novel hatchery methods for mussels and develop a method for deployment. While there may be challenges associated with the delivery of this method, similar programmes are being utilised in offshore locations such as Dogger Bank which supports the ecological efficacy of this measure. As such, the Applicant will continue to consider the viability of this measure through engagement with experienced and specialist habitat restoration delivery partners, and desk-based site selection work.

Measure	Delivery Mechanism	Summary	Rationale for exclusion / development
17. Fisheries management measures (spatial reduction or development of management mechanism) outside of the MCZ.	Project-led.	Implementing spatial reduction of bottom trawling would likely increase biodiversity of the wider marine environment.	**Excluded** The Applicant has concerns over additionality in relation to this measure given the regulatory work already undertaken by the MMO and IFCAs who manage fishing and non-licensable activities in the North Sea. The MMO have considered the impacts of bottom towed fisheries within designated sites and as such, fisheries management is not regarded to be suitable (Ref 18.E.19). Therefore, this option is not considered further.
18. Seagrass restoration or establishment to act as a carbon sink outside of the MCZ.	Project-led, Collaborative.	The restoration of seagrass outside of the MCZ, would likely increase the amount of stored carbon within the marine environment. This measure would provide enhanced value and function to the sedimentary features of the MCZ in the form of increased biodiversity.	**Excluded** Whilst feasible, this option is not considered suitable due to its inability to deliver equivalent ecosystem functions i.e. seagrass restoration cannot provide analogous structure and function to the features of the MCZ. Therefore, this option is not considered further.

18.E.5 Shortlisted Measures

Introduction

18.E.5.1 An overview of the shortlisted measures identified to be potentially suitable as MEEB for the Project is provided in Section below. Each of these measures will be subject to further appraisal by the Applicant and discussed with key stakeholders including JNCC and Natural England as the 'in principle' MEEB strategy develops.

MPA designation and / or extension Overview

18.E.5.2 This measure, which is included by DEFRA in the LoSCM and as such is centrally approved, will involve the designation of new, or extension of existing MPAs with the objective of maintaining the NSN for benthic habitats. This measure will be delivered by the MRF, established in December 2025. This MEEB option can only be delivered by DEFRA in consultation with other relevant stakeholders (including the MMO and JNCC) and is therefore a solely strategic measure.

18.E.5.3 DEFRA has committed (Ref 18.E.14) to designating new MPAs and / or extending existing MPAs in Secretary of State (SoS) waters to deliver sufficient strategic compensation to compensate for likely environmental effects of offshore wind (and associated transmission asset) development. Potential areas will be identified based upon ecological principles. DEFRA will follow the established legislative processes for the designation of MPAs and will also be responsible for liaising with stakeholders including sea users, the public, The Crown Estate and MMO ahead of the final designation process. It is understood that site selection for candidate MPAs is ongoing with public consultation expected in late 2026.

Measure of Success

18.E.5.4 This measure will be delivered by DEFRA with support from Natural England and JNCC. As such, the Applicant is confident of its success. However, it is not for the Applicant to determine the success of the measure. As with existing MPAs within the NSN, it will be the relevant SNCB's responsibility to monitor the new and / or extended MPAs to monitor success or identify the need for adaptive management.

18.E.5.5 Guidance on the MRF from DEFRA (Ref 18.E.15) states that:

'*The Marine Recovery Fund Operator (MRFO) aims to provide the Implementation and Monitoring Plan before you submit your DCO or other relevant consent application*'

'*There is a small possibility that you will not get an IMP from the MRFO before receiving your consent decision. If this happens, your consent conditions may require you to give the consenting authority the IMP before construction starts. You can agree a suitable date with the MRFO by which you will receive the IMP*'.

18.E.5.6 This is to provide clarity on compensation implementation, site management and monitoring before impacts occur. Once an agreement to access the MRF is reached, the MRFO will provide information on monitoring and measuring success to the Applicant who will be required to submit their own IMP to the DESNZ SoS.

Scale

18.E.5.7 It is expected that the total area of new and / or extended MPAs required to compensate for the predicted impacts of offshore wind projects (and associated transmission assets) will be small in comparison to the tranches of MPAs previously designated in SoS waters. However, it is understood that any new designations / extensions would be sufficient to account for predicted impacts for offshore wind projects up to and including Leasing Round 5, as well as applicable transmission infrastructure projects.

18.E.5.8 The Project responded to the DESNZ 'Call for Information' and completed the 'Benthic Strategic Compensation Questionnaire' with details regarding potential requirement for strategic compensation for benthic impacts to help inform the site selection and designation process being undertaken by DEFRA with support from JNCC and Natural England. This will help ensure that any site progressed to the designation stage provides sufficient compensation / MEEB quantum for the projects requiring this option.

18.E.5.9 The final "scale" in terms of payment into the MRF will be established based on the WCS for the Project, prior to any request to join the MRF is made. The required payment will be determined based on the funding criteria set out for the MRF at the time.

Site Selection

18.E.5.10 In all cases, MPA designations must be delivered by DEFRA and as such, site selection is beyond the control of the Applicant. New MPA designations and associated management will be funded by the offshore wind (and transmission) developers that successfully apply to use this measure through the MRF, though these contributors will not be participants in the site selection process.

Delivery Mechanism

18.E.5.11 This MEEB option can only be delivered strategically, and not on a project-led basis. Applicants are required to pay into the MRF to access MPA designations / extensions as a compensation measure. The final delivery of the measure is the responsibility of the MRF operator.

Monitoring and Adaptive Management

18.E.5.12 As per the DESNZ interim guidance on strategic compensation via the Marine Recovery Fund (DESNZ, 2025, Ref 18.E.15):

"*DESNZ Secretary of State would usually expect to see greater clarity and certainty regarding* the *compensation and the ongoing management and monitoring before works which give rise to the adverse effect for which compensation is required can commence. When the MRF is operational, this information would normally be provided by the MRF Operator to the applicant for submission to the DESNZ Secretary of State as a full Implementation and Monitoring Plan*."

"*It is recognised that the 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, 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. These plans would contain the following information:

- *High level explanation as to how designation of an MPA would compensate for effects on each relevant habitat and, where possible, ratios used.*
- *Implementation timetable and an explanation of the MPA designation process.*
- *Information on current monitoring, long term management and reporting of MPAs, and any differences for MPAs designated for compensation purposes.*
- *Information on how the effectiveness of the MPA designation would be maintained in terms of enforcement and adaptive management.*
- *Commitment to providing an updated IMP as the designation process continues and detail is resolved*."

18.E.5.13 The Project's DCO will indicate a requirement to provide a full implementation and monitoring plan (or analogous document suitable for MCAA derogation cases) as soon as this is available from DEFRA on completion of the MPA designation / extension programme.

18.E.5.14 Monitoring and adaptive management are beyond the Applicant's control, and it remains to be seen how projects would be required to contribute to the MRF regarding these issues. The Project will continue to monitor updates from DEFRA and DESNZ.

Next Steps

18.E.5.15 The Project will continue to engage with DEFRA, JNCC and Natural England and other key stakeholders regarding strategic compensation. The Applicant will keep up to date with progress and would contribute to any delivery groups and calls for information as required. Any updates on Project design refinements will be communicated to DESNZ to ensure that the Projects MEEB requirements are met by the designation of new MPAs and / or extension of existing MPAs.

18.E.5.16 Should this be the Applicant's preferred MEEB option, and MEEB be required, expression of interest forms will be completed in alignment with DEFRA guidance (Ref 18.E.23).

18.E.6 Habitat Restoration - Planting of Native Oyster (*Ostrea edulis*) or Horse mussel (*Modiolus modiolus*) Beds

Overview

18.E.6.1 The Native oyster has a historical presence in the North Sea, with vast oyster reefs being present at one time along European coastlines (Native Oyster Network & Environment Agency, 2020) (Ref 18.E.21). The extent of Horse mussel beds was also once vast in the UK (Marine Climate Change Impacts Partnership, 2018), Ref 18.E.24) though has been typically more restricted to northern latitudes than the Native oyster. Both species are known for forming dense aggregations in the form of 'beds' which over time act to stabilize the substrate and create reefs. The structural heterogeneity of these reefs provides numerous ecosystem services including increased biodiversity and food supply, a blue carbon sink and habitat for numerous faunal groups including commercial fish species. Reef aggregations can

also result in increased water quality, increased fish production, increased bivalve populations in the region and denitrification.

18.E.6.2 While extremely valuable from an ecological perspective, both species have declined dramatically in the North Sea in recent years, largely due to increased mobile bottom fishing impacts and climate change (Marine Climate Change Impacts Partnership, 2018, Ref 18.E.24).

18.E.6.3 Due to a reduction in extent for both Native oyster and Horse mussel, there is scope to provide numerous ecosystem services, and increased biodiversity to offset potential impacts of the Project by delivering restoration as MEEB. Whilst this option is not a like-for-like measure, it will deliver comparable ecological functions at either the same or a different location. The Project notes the recent precedent set by SEP & DEP which is required to deliver MEEB to account for impacts from external cable protection in an area of designated subtidal mixed sediment in the Cromer Shoal Chalk Beds (CSCB) MCZ. One of the options proposed by SEP & DEP is the planting of Native oyster beds within CSCB MCZ. While the SoS acknowledged that this option is not like-for-like, it was recognised that restoring a historic feature would provide considerable ecological value by increasing biodiversity, providing nursery grounds for fish, and providing numerous ecosystem goods and services (Ref 18.E.2).

18.E.6.4 To date, there have been more successful examples of oyster restoration in the North Sea than Horse mussel restoration and as such, there is higher confidence in the former option. Additionally, Horse mussels are more susceptible than Native oysters to the impacts of climate change, with the North Sea representing its most southerly extent. This is likely to mean that there is less potentially suitable habitat available for restoration opportunities. However, Horse mussel restoration remains under consideration, with the Applicant aware of a project currently working to restore Horse mussel beds on the Dogger Bank.

18.E.6.5 Oyster or mussel bed recovery can be achieved by firstly identifying a suitable location for restoration. This will initially involve a desk-based process which would examine environmental and habitat data alongside constraint data (e.g., location of existing infrastructure, high intensity fishing areas, pollution) to determine the locations of potentially suitable sites. The Applicant may enter a partnership with a specialist in this field to gain insight into what conditions (temperature, salinity, substrate, site size.) are likely to result in a successful restoration project. Restoration is recommended in areas known to have supported Native oyster or Horse mussel populations historically; this will guide the site selection process.

18.E.6.6 Following the identification of a suitable site, a survey campaign will be undertaken to ground-truth site conditions and to identify any potential threats to the measure, e.g., the presence of INNS. Baseline surveys will help determine site suitability and whether the required substrate is present. If the suitable substrate is lacking, restoration efforts will need to improve availability of suitable substrates, but if the site is recruitment limited (i.e., not connected to a regional network population), then restoration methods to increase the breeding population will need to be applied.

Measure of Success

18.E.6.7 Following the deployment of suitable substrate (cultch) and / or oysters or mussels, a monitoring programme will be implemented to assess the success of this measure. The key metrics used to determine success will follow those outlined in the European Native Oyster Habitat Restoration Monitoring Handbook (Native Oyster Network & Environment Agency, 2020) (Ref 18.E.21). These metrics are also considered to be suitable for Horse mussels, though confirmation of this will be sought from restoration specialists. Success criteria that are likely to be considered are:

- Survival;
- Density;
- Shell cover;
- Temperature;
- Salinity;
- Bed area; and
- Size frequency.

Scale

18.E.6.8 The Applicant understands there to be sufficient opportunities for delivering this measure at a sufficient scale to offset benthic impacts arising because of the Project. There is legal precedent for a 1:1 ratio based on the Hornsea Three benthic compensation (Ref 18.E.25), though it is noted that SEP & DEP committed to the provision of this measure at a compensation ratio of greater than 5:1. Therefore the Applicant considers this would be a matter for the SoS to determine. However, the Applicant notes that if required, this MEEB could deliver on a greater than 1:1 ratio.

Site Selection

18.E.6.9 It is likely that a larger oyster or mussel restoration scheme will have a higher success rate if the habitat is able to become established at scale. To maximise the likelihood that any oyster or mussel bed that is created is self-sustaining with long term viability, it is proposed that this measure is delivered in partnership with other oyster bed habitat creation plans under development. The identification of a site with sufficient scale, and the correct ecological conditions will be developed alongside a specialist partner either on a project alone, or collaborative basis with another developer.

18.E.6.10 Whether delivered by the Applicant alone or in collaboration, the site selection will include robust consideration of the key biotic and abiotic factors that influence Native oyster and Horse mussel settlement and functioning.

Delivery Mechanism

18.E.6.11 Habitat restoration may be delivered on a Project led basis with input from a specialist restoration partner with a proven record of delivering such projects, or collaboratively with another project delivering MEEB.

18.E.6.12 If MEEB progresses on a collaborative basis, a commercial agreement will be sought which will define the scale of the measure, apportionment of benefits, monitoring and maintenance responsibilities, funding. There are numerous benefits of collaborating to deliver MEEB which include an ability to deliver a restoration scheme at a larger scale, and enhanced delivery timescales associated with working alongside another developer in a more advanced planning stage than the Applicant.

Monitoring and Adaptive Management

18.E.6.13 Monitoring of the restoration scheme will be in line with those outlined in the European Native Oyster Habitat Restoration Monitoring Handbook (Ref 18.E.21). Success criteria will align with those outlined in **paragraph 18.E.6.7**.

18.E.6.14 Details surrounding success criteria, monitoring programme and adaptive management measures will be outlined by the Applicant in a MEEB IMP which will be developed with oversight from a targeted Steering Group post-consent.

Next Steps

18.E.6.15 Alongside seeking to progress collaborative options with other developers, the Project will engage with restoration specialists with a proven track record of delivering functioning Native oyster, or Horse mussel beds.

18.E.6.16 In addition to the engagement with potential collaborative and delivery partners, the Applicant will undertake an initial desktop site selection exercise and continue to interrogate the viability of Horse mussel restoration where confidence in delivery is presently reduced compared to that of Native oyster.

18.E.7 Conclusion / Summary

18.E.7.1 A Stage 1 MCZ Assessment has been completed for the Project which could not rule out benthic impacts for Holderness Offshore MCZ due to the potential requirement for external cable protection within this site. Though there is potential for permanent habitat loss under the Project design's WCS, this was not concluded to hinder the conservation objectives for the MCZ due to the limited scale of predicted impact.

18.E.7.2 Nonetheless, based on other energy projects in the North Sea that have been required to present a MEEB case as part of a DCO application, and based on consultation advice received for EGL 4 (as a sister project to the Project), the Applicant has prepared an 'in principle' MEEB strategy. This document outlines which measures identified by the Applicant are considered suitable for delivering MEEB for features of the Holderness Offshore MCZ.

18.E.7.3 The Applicant has undertaken an extensive literature review to compile a long list of potentially suitable options that could be progressed as MEEB on an 'in principle' basis.

18.E.7.4 Each of these options has been assessed in accordance with industry guidance and using publicly available information from other projects' DCO documentation. From a long list of options, two have been identified as having higher merit to successfully offset Project impacts. The two options considered to represent the most suitable MEEB for the Project are:

- MPA designation and / or extension; and
- Habitat restoration – planting of Native oyster or Horse mussel beds.

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Annex A – Comparative Assessment

Comparative Assessment and Scoring Methodology

Following the identification of the long list MEEB options, each long list measure was interrogated using a comparative assessment approach to determine its suitability to offset project-related impacts within the Holderness Offshore MCZ. The comparative assessment followed a logical process assessing each of the 18 design options against six criteria. For each assessment criteria, 'matters to be considered' were developed with reference to the European Commission (Ref 18.E.13) guidance and the conservation objectives for the MCZ. Each criterion and individual matter to be considered was then scored on a one to three scale, three being the highest best outcome with the highest confidence. The single exception to this was the 'Hierarchy of measure (location / specificity)' criteria which was scored from one to four to reflect the DEFRA hierarchy scores (Ref 18.E.10). **Annex Table A-1** presents the 'matters to be considered' that were used in the assessment.

Annex Table A-1 Comparative assessment criteria

Matter to be Considered	Description
Hierarchy of measure (location / specificity).	Does the measure target the impacted feature(s) at the same location, or is the focus of the measure a different feature and / or different location?
Confidence in effectiveness.	Is there confidence that the measure would be effective at delivering the required compensation at the proposed location?
Technical feasibility.	Does the technology / policy / legislative framework for delivery of this option exist, is the methodology matured? Is the measure designed according to the best scientific knowledge, and is it targeted to the impacted feature? Is there confidence in the delivery if this option?
Scale / extent.	Can the measure be feasibly delivered at the extent (e.g., at the necessary size / area / duration) needed to deliver the required compensation?
Timescale to implementation.	Are the timescales for implementation suitable and proportionate to the anticipated ecological impacts? Do timescales ensure the continuity of the NSN?
Cost considerations.	Does the measure include any aspects likely to result in particularly high costs or that would be prohibitively expensive?

Annex Table A-2 provides the definitions used to determine the score / rank for each assessment category for the long list MEEB options. For each design option the matter to be considered has been scored using the ranking, with green corresponding to 'high' score, amber corresponding to a 'medium' score, and 'red' to a low score. The use of a red, amber, green ('RAG') scoring system allowed for a visual assessment as well as a quantitative one to aid in clarity of the individual outcomes.

Annex Table A-2 Comparative assessment scoring system

Ranking / score	Definition
3	• High confidence in effectiveness, approach proven by other projects. • The measure can be delivered at large scale to deliver full compensation; ecological function will be re-instated rapidly so a ratio of 1:1 is appropriate. • The measure can deliver compensation before ecological impacts occur. • Costs associated with the measure are relatively low and • Easy option to implement and technically feasible. The technology, policy and / or legislative framework exists and is of high scientific quality and targeted to the impacted feature.
2	• Some confidence in effectiveness, similar approaches proven by other projects in different environments. • The measure can be delivered at the required extent, but no excess gains expected. Ratios of > 1:1 will be required. • The measure will be operational by the time impacts occur, but compensation will not be fully delivered. • Costs associated with this measure are substantial and • There are challenges associated with implementation. The technology, policy and / or legislative framework exists but substantial revisions are needed.
1	• Low confidence in effectiveness, unproven by other projects. • The measure cannot be realised at the required extent. • There is little confidence in the measure being in place before impacts occur. • Costs associated with this measure are extreme and • Technical delivery is not feasible.
Hierarchy of measure (location / specificity)	
4	Addresses the same impact at the same location.
3	Addresses same ecological function at different location.
2	Addresses comparable ecological function at the same location.
1	Addresses comparable ecological function at different location.

Note that the scoring system has been used as an indicative tool to highlight potential risks and challenges associated with individual measures and delivery mechanisms. It has been used to identify measures with good viability and distinguish areas where more information is required to build confidence and understanding surrounding how measures may be delivered on a project led or strategic basis.

Following the scoring of each category for all the long list options, the options were ranked to investigate which measures scored most highly. Using the scores that had not been subject to any transformation resulted in six ranks. To introduce more sensitivity to the scoring process, alternative scoring methods were employed to determine if they changed the overall ranking of the MEEB options being assessed. These included square and cubic scoring which introduced a higher degree of sensitivity in the scoring process **Annex Table A-3** shows the conversion of ranking used.

For the evaluation of the MEEB long list measures, square scoring was used as it showed more sensitivity than linear scoring. Cubic scoring and square scoring were identical in sensitivity and resulted in the same ranking of options i.e. 13 rank positions each under respective treatments.

Annex Table A-3 Conversion of ranking to criteria score

RankingLinearSquareCubic1111224833927441664552512 5

Square and cubic scoring allowed for a degree of nuance to be determined between the options and therefore square scoring was used to determine the highest scoring option. The suitability of alternative scoring treatments was tested by examining how options ranked when scored using linear, square, or cubic ranking with the objective of increasing score granularity. When no weighting was applied to the scores (linear), the results were sorted into six ranks i.e. three options came first, two options came second, two options came third and four options came fourth fifth, and sixth respectively. When square weighting was applied, the granularity of the results increased, with 11 score ranks emerging. Cubic weighting resulted in 12 ranks and offered no additional clarity between MEEB options. The scores under each scoring treatment are shown in **Annex Table A-4.**

Under all scoring mechanisms, Option 4 (MPA designation and / or extension) scored the highest, with variability observed between other high ranking options according to the scoring treatment. Planting of mussel beds within the MCZ, removal of marine debris (including fishing equipment) outside of the MCZ, planting oyster (*Ostrea edulis*) beds within the MCZ and control of MINNS and planting of horse mussel beds at an alternative location were ranked as the lowest and least preferable options. The low ranking of these options is largely attributable to the low level of confidence in effectiveness and a lack of technical feasibility for the methodologies in the proposed locations.

Annex Table A-4 Comparative assessment scores under scoring treatments (square ranking applied for highest sensitivity)

Option	Linear Score	Linear Ranking	Square Score	Square Ranking	Cubic Score	Cubic Ranking
Removal of marine debris (including fishing equipment) within the MCZ.	12	4	32	4	102	3
Removal of redundant infrastructure within the MCZ (e.g., cables, rock protection, scour protection, pipeline protection).	12	4	30	6	90	4

Option	Linear Score	Linear Ranking	Square Score	Square Ranking	Cubic Score	Cubic Ranking
Habitat recreation within the MCZ - use of dredged material to restore sublittoral sediment / Ocean quahog habitat damaged by fishing activity / lost to infrastructure.	12	4	30	6	90	4
MPA designation and / or extension.	17	1	51	1	161	1
Fisheries management measures (spatial reduction or development of management mechanism) inside of the MCZ.	13	3	35	2	109	2
Removal of marine debris (including fishing equipment) outside of the MCZ.	10	6	22	11	58	11
Marine debris awareness & engagement campaign (stakeholder engagement), amnesty gear collection.	12	4	30	6	84	6
Removal of redundant infrastructure outside of the Holderness Offshore MCZ (e.g., cables, O&G infrastructure, redundant pipelines, scour protection, pipeline protection) but with an MCZ designated for similar features.	13	3	29	7	67	9
Removal of aggregate extraction pressure outside of the Holderness Offshore MCZ.	12	4	26	9	60	10
Planting oyster (*Ostrea edulis*) beds within the MCZ (biogenic reef creation).	12	4	26	9	60	10
Planting blue mussel (*Mytilus edulis*) beds within the MCZ (biogenic reef creation).	14	2	34	3	86	5
Planting Horse mussel (*Modiolus modiolus*) beds within the MCZ (biogenic reef creation).	11	5	23	10	53	12
Control of marine invasive non-native species (MINNS) (e.g., *C. fornicata*) within MCZ to remove	13	3	31	5	79	7

Option	Linear Score	Linear Ranking	Square Score	Square Ranking	Cubic Score	Cubic Ranking
competitor effects on vulnerable species.						
Planting of native oyster (*Ostrea edulis*) beds outside of the MCZ.	12	4	26	9	60	10
Planting of blue mussel beds outside of the MCZ.	12	4	26	9	60	10
Planting of Horse mussel beds outside of the MCZ.	12	4	28	8	72	8
Fisheries management measures (spatial reduction or development of management mechanism) outside of the MCZ.	12	4	28	8	72	8
Seagrass restoration or establishment to act as a carbon sink outside of the MCZ.	12	4	32	4	102	3

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