DBS Offshore Wind

RWE Renewables UK Dogger Bank South (West) Limited

RWE Renewables UK Dogger Bank South (East) Limited

Dogger Bank South Offshore Wind Farms

Project Change Request 1 – Offshore and Intertidal Works

Document Date:	January 2025
Document Reference:	10.49
Revision Number:	01
Classification:	Unrestricted

RWE MASDAR

Company:	**RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited**	Asset:	**Development**
Project:	**Dogger Bank South Offshore Wind Farms**	Sub Project/Package	**Consents**
Document Title or Description:	Project Change Request 1 – Offshore and Intertidal Works		
Document Number:	005591517-01	Contractor Reference Number:	PC2340-RHD-OF-ZZ-RP-Z-0186

Rev No.	Date	Status/Reason for Issue	Author	Checked by	Approved by
01	January 2025	Issue to Examining Authority for acceptance into Examination	RHDHV	RWE	RWE

Contents

Tables

Appendices

Appendix C – Marine Mammal Report to Inform Appropriate Assessment (RIAA) Habitats Regulations Assessment (HRA) Update [document reference: 10.52]

Associated Documents

Appendix 8-3 - Marine Physical Processes Modelling Technical Report (Revision 2) [document reference: 7.8.8.3]

Appendix 11-3 - Underwater Noise Modelling Report (Revision 2) [document reference: 7.11.11.3]

Appendix 11-4 – iPCoD Modelling (Revision 2) [document reference: 7.11.11.4]

Glossary

Term	Definition
Accommodation Platform	An offshore platform (situated within either the DBS East or DBS West Array Area) that would provide accommodation and mess facilities for staff when carrying out activities for the Projects.
Array Areas	The DBS East and DBS West offshore Array Areas, where the wind turbines, offshore platforms and array cables would be located. The Array Areas do not include the Offshore Export Cable Corridor or the Inter-Platform Cable Corridor within which no wind turbines are proposed. Each area is referred to separately as an Array Area.
Array cables	Offshore cables which link the wind turbines to the Offshore Converter Platform(s).
Beach	A deposit of non-cohesive sediment (e.g. sand, gravel) situated on the interface between dry land and the sea (or other large expanse of water) and actively 'worked' by present-day hydrodynamic processes (i.e. waves, tides and currents) and sometimes by winds.
Collector Platforms (CPs)	Receive the AC power generated by the wind turbines through the array cables, collect it and transform the voltage for onward transmission to the Offshore Converter Platforms (OCPs).
Collision	The act or process of colliding (crashing) between two moving objects.
Concurrent	Installation of monopiles or pin piles happening at the same time at the DBS Projects.
Current	Flow of water generated by a variety of forcing mechanisms (e.g. waves, tides, wind).
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Project (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 value, or sensitivity, of the receptor or resource in accordance with defined significance criteria.
EIA Regulations	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

Term	Definition
Electrical Switching Platform (ESP)	The Electrical Switching Platform (ESP), if required would be located either within one of the Array Areas (alongside an Offshore Converter Platform (OCP)) or the Export Cable Platform Search Area.
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 (ES).
Environmental Statement (ES)	A document reporting the findings of the EIA and produced in accordance with the EIA Directive as transposed into UK law by the EIA Regulations.
Export Cable Platform Search Area	The Export Cable Platform Search Area is located mid-way along the Offshore Export Cable Corridor and is the area of search for the Electrical Switching Platform (ESP).
Habitats Regulations	Conservation of Habitats and Species Regulations 2017 and Conservation of Offshore Marine Habitats and Species Regulations 2017.
Habitats Regulations Assessment (HRA)	The process that determines whether or not a plan or project may have an adverse effect on the integrity of a European Site or European Offshore Marine Site.
Health	State of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.
Horizontal Directional Drill (HDD)	HDD is a trenchless technique to bring the offshore cables ashore at the landfall and can be used for crossing other obstacles such as roads, railways and watercourses onshore.
Impact	Used to describe a change resulting from an activity via the Projects, i.e. increased suspended sediments / increased noise.
Inter-Platform Cable Corridor	The area where Inter-Platform Cables would route between platforms within the DBS East and DBS West Array Areas, should both Projects be constructed.
Inter-Platform Cables	Buried offshore cables which link offshore platforms.
Intertidal	Area on a shore that lies between Mean High Water Springs (MHWS) and Mean Low Water Springs (MLWS).

Term	Definition
Intertidal zone	The intertidal zone (between MHWS and MLWS) of the Projects, separated from the rest of the Landfall Zone by a series of beach cliffs.
Landfall	The point on the coastline at which the Offshore Export Cables are brought onshore, connecting to the onshore cables at the Transition Joint Bay (TJB) above mean high water.
Landfall Zone	The generic term applied to the entire landfall area between Mean Low Water Spring (MLWS) and the Transition Joint Bays (TJBs) inclusive of all construction works, including the landfall compounds, Onshore Export Cable Corridor and intertidal working area including the Offshore Export Cables.
Mean High Water Springs (MHWS)	MHWS is the average of the heights of two successive high waters during a 24 hour period.
Mean Sea Level (MSL)	The average level of the sea surface over a defined period (usually a year or longer), taking account of all tidal effects and surge events.
Movement	A single trip (i.e. the arrival or departure from site) for the transfer of employees or delivery of goods.
Nearshore	The zone which extends from the swash zone to the position marking the start of the offshore zone (~20m).
Offshore Converter Platforms (OCPs)	The OCPs are fixed structures located within the Array Areas that collect the AC power generated by the wind turbines and convert the power to DC, before transmission through the Offshore Export Cables to the Project's Onshore Grid Connection Points.
Offshore Development Area	The Offshore Development Area for ES encompasses both the DBS East and West Array Areas, the Inter-Platform Cable Corridor, the Offshore Export Cable Corridor, plus the associated Construction Buffer Zones.
Offshore Export Cable Corridor	This is the area which will contain the Offshore Export Cables between the Offshore Converter Platforms and Transition Joint Bays at the landfall.
Offshore Export Cables	The cables which would bring electricity from the offshore platforms to the Transition Joint Bays (TJBs).
Offshore platforms	Collective term which refers to all potential offshore platforms found within the Projects' Offshore Development Area (i.e. OCPs, CPs, ESP and Accommodation Platform).

Term	Definition
Onshore Export Cable Corridor	This is the area which includes cable trenches, haul roads, spoil storage areas, and limits of deviation for micro-siting. For assessment purposes, the cable corridor does not include the Onshore Converter Stations, Transition Joint Bays or temporary access routes; but includes Temporary Construction Compounds (purely for the cable route).
Order Limits	The limits within which the Projects may be carried.
Population health	The health outcomes of a group of individuals, including the distribution of such outcomes within the group.
Primary Surveillance Radar (PSR)	A radar system that measures the bearing and distance of targets using the detected reflections of radio signals.
Project Change Request 1	The proposed changes to the DCO application for the Projects set out in Project Change Request 1 - Offshore & Intertidal Works [document reference 10.49].
Project Change Request 2	The proposed changes to the DCO application for the Projects set out in Project Change Request 2- Onshore Substation Zone [document reference 10.53].
Projects' Design (or Rochdale) Envelope	A concept that ensures the EIA is based on assessing the realistic worst case scenario where flexibility or a range of options is sought as part of the consent application.
Receptor	A distinct part of the environment on which effects could occur and can be the subject of specific assessments. Examples of Receptors include species (or groups) of animals, plants, people (often categorised further such as 'residential' or those using areas for amenity or recreation), watercourses etc.
Safety zones	Legislated under the Energy Act 2004, safety zones are rolling buffer areas which protect construction activities by preventing unauthorised vessels from entering their boundary.
Sand	Sediment particles, mainly of quartz with a diameter of between 0.063mm and 2mm. Sand is generally classified as fine, medium or coarse.
Sand wave	Bedforms with wavelengths of 10 to 100m, with amplitudes of 1 to 10m.

Term	Definition
Scour protection	Protective materials to avoid sediment erosion from the base of the wind turbine foundations and offshore substation platform foundations due to water flow.
Sediment	Particulate matter derived from rock, minerals or bioclastic matter.
Sediment transport	The movement of a mass of sediment by the forces of currents and waves.
Setting	The NPPF identifies setting as that which encompasses an asset's surroundings in which it is experienced. The extent of setting is not fixed and can contribute both positively and negatively to the heritage significance of an asset.
Special Area of Conservation (SAC)	Strictly protected sites designated pursuant to Article 3 of the Habitats Directive (via the Habitats Regulations) for habitats listed on Annex I and species listed on Annex II of the Directive
Targeted consultation	Period of consultation carried out after the statutory consultation which focused on those directly impacted by changes adopted as a result of the statutory consultation (15th November to 16th December 2024).
The Applicants	The Applicants for the Projects are RWE Renewables UK Dogger Bank South (East) Limited and RWE Renewables UK Dogger Bank South (West) Limited. The Applicants are themselves jointly owned by the RWE Group of companies (51% stake) and Masdar (49% stake).
The Projects	DBS East and DBS West (collectively referred to as the Dogger Bank South Offshore Wind Farms).
Transition Joint Bay (TJB)	The Transition Joint Bay (TJB) is an underground structure at the landfall that houses the joints between the Offshore Export Cables and the Onshore Export Cables.
Trenching	Open cut method for cable or duct installation.
Wind turbine	Power generating device that is driven by the kinetic energy of the wind.

Acronyms

Acronym	Definition
AEoI	Adverse Effect on Site Integrity
CCS	Carbon Capture and Storage
DBS	Dogger Bank South
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
ES	Environmental Statement
ESP	Electrical Switching Platform
ESO	Electricity System Operator
ExA	Examining Authority
GBS	Gravity Based Structure
HDD	Horizontal Directional Drilling
HND	Holistic Network Design
HRA	Habitats Regulations Assessment
LAT	Lowest Astronomical Tide
MHWS	Mean High Water Springs
MOD	Ministry of Defence
MSL	Mean Sea Level
NESO	National Energy System Operator
NSR(s)	Noise Sensitive Receptor(s)
O&M	Operation and Maintenance

Acronym	Definition
OCP(s)	Offshore Convertor Platform(s)
PSR	Primary Surveillance Radar
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SNS	Southern North Sea
TJB	Transition Joint Bay
TTS	Temporary Threshold Shift
UXO	Unexploded Ordnance
WER	Water Environment Regulations

1 Introduction

1. The Development Consent Order (DCO) application for Dogger Bank South (DBS) East and DBS West (collectively referred to as the 'Projects') was accepted by the Secretary of State for examination on 10th July 2024.

2. The Applicants for the Projects are RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited. The Applicants are themselves jointly owned by the RWE Group of companies (51% stake) and Masdar (49% stake).

3. The Applicants have been engaging with Interested Parties to seek to resolve concerns or comments during the pre-examination period. This engagement, in combination with continuing design work, has resulted in the Applicants deciding to seek a small number of changes to their application within the Offshore and Intertidal works areas. These changes are collectively referred to as 'Project Change Request 1'. The acceptability of any change is to be determined by the Examining Authority (ExA). The proposed changes taken alone or together would not materially change the nature of the Projects. It should be noted that a proposed change to the Projects' Onshore Substation Zone has also been submitted to the ExA for acceptance concurrently alongside the proposed changes within the Offshore and Intertidal works areas, see **Project Change Request 2 - Onshore Substation Zone** [document reference: 10.53] for further information.

4. An initial **Change Notification Letter** [PDA-012] for Project Change Request 1 was issued at the pre-examination procedural deadline notifying the ExA of the proposed changes Offshore and Intertidal works areas and the reasoning behind each decision. The **Change Notification Letter** [PDA-012] also included a summary of the environmental assessment update and expected conclusions, details of the proposed consultation and timetable for submission of any materials, and a proposed list of stakeholders for targeted consultation. This list of stakeholders was supplemented by a list of additional stakeholders to include in targeted non-statutory consultation in the ExA's Rule 17 letter dated 7th November [PD-007]. The targeted non-statutory consultation period began on the 15th November 2024, when a precursor to this document and its associated appendices were issued to all identified consultees for comment. The consultation period ran to the 16th December 2024, at which point all responses were reviewed by the Applicants, with updates to the documents made as necessary (see section 5.6 which details the stakeholder comments received and the Applicants' responses to each).

5. The proposed changes do not affect the Order Limits and are limited to reducing the scope of activities within the works as described in the **Draft DCO (Revision 4)** [document reference: 3.1]. No additional land outside of the Order Limits is required for the proposed changes and no upgrades of the powers sought over the plots as shown on the Land Plans (**Land Plans (Onshore) (Revision 3)**) [document reference: 2.7] are required for this change. The changes therefore do not require the inclusion of "additional land" as defined in the Infrastructure Planning (Compulsory Acquisition) Regulations 2010 and so those Regulations are not engaged.

6. Given that the proposed changes represent a net reduction of a number of project parameters with no increases in likely significant effects on the environment, the proposed changes do not introduce any new or different significant environmental effects that would trigger The Infrastructure Planning (Environmental Impact Assessment) Regulations (2017) (referred to as 'The EIA Regulations 2017')). This position received no dissent within the feedback received from consultees.

7. This document provides a comprehensive update to the environmental assessment summary presented in the initial **Change Notification Letter** [PDA-012] and the non-statutory consultation undertaken on Project Change Request 1 to inform the ExA of the changes proposed for acceptance.

2 Purpose of this Document

8. The purpose of this document is to provide an update to each environmental topic assessed in the Environmental Statement (ES) and Report to Inform Appropriate Assessment (RIAA) that may be affected by the proposed offshore and intertidal changes, and to determine if any changes to these assessments would occur. In doing so, this document allows a clear understanding of the implications of the proposed changes on the environment to be developed, such that an informed decision can be made by the ExA on whether the proposed changes should be accepted into the DBS DCO Examination.

9. The original ES chapters and RIAA represent point in time documents of the Projects' design as of June 2024. As any updated assessments due to the proposed changes are presented comprehensively within this report and its accompanying appendices, no updates to the original ES chapters are required.

10. The ES and RIAA are separate documents underpinned by their own distinct legislative regimes (the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (the 'EIA Regulations') for the ES and the Conservation of Habitats and Species Regulations 2017 (2017 No. 1012), The Conservation of Offshore Marine Habitats and Species Regulations 2017 (2017 No. 1013) and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (2019 No. 579 for the RIAA). However, both regimes have been considered within this report to ensure any potential updates resulting from the proposed changes have been captured in a single document.

11. The Applicants have considered all the changes proposed within this document in relation to its Environmental Impact Assessment (EIA) in section 4. This is to ensure that the environmental impacts of the proposed changes have been appropriately assessed, and to satisfy the requirements of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (the 'EIA Regulations'). Changes to the worst case scenarios assessed for relevant topics in the RIAA and any potential changes to the Adverse Effect on Site Integrity (AEoI) conclusions are also detailed in section 4 where relevant.

3 Description of the Proposed Changes

3.1 Rationale for Proposed Changes

12. Following the submission of the ES with the DCO application in June 2024, a small number of updates to the Projects' Design Envelope are proposed for implementation following stakeholder engagement and new information becoming available to the Applicants. **Table 3-1** details the parameters proposed for change following submission of the ES, the reasoning for the change, and the ES topics screened in / screened out for further consideration in this report. The description of the Proposed Change is unchanged from the **Change Notification Letter** [PDA-012].

13. In summary, the design changes proposed are as follows:

- Change 1: Removal of Gravity Based Structure (GBS) foundations;
- Change 2: Removal of Electrical Switching Platform (ESP) from the Projects' Design Envelope;
- Change 3: Reduction in number of offshore platforms in the Projects' Design Envelope, from eight to three within the Array Areas, including reductions in associated seabed preparation and scour protection;
- Change 4: Reduction of cabling within the Array Areas, plus associated seabed preparation and cable protection; and
- Change 5: Removal of the short trenchless crossing at landfall.

14. The following topics are determined to not be affected by any of the proposed changes detailed in **Table 3-1**, and as such have not been considered further in this report:

- Offshore Ornithology;
- Geology and Land Quality;
- Land Use;
- Onshore Archaeology and Cultural Heritage;
- Traffic and Transport;
- Air Quality;
- Socio-Economics; and
- Climate Change.

Table 3-1 Description of Amendments to the Proposed Development

Change	Design Change / Parameter	Reason for Change	Environmental Topic(s) Screened In	Environmental Topic(s) Screened Out
Change 1: Removal of GBS foundations	Gravity Based Structure (GBS) foundations	This change is being made following the decision prior to submission to remove GBS foundations from the Array Areas, only retaining GBS as an option for the ESP should it be located on the Export Cable Corridor, and the post-submission decision to remove the ESP from the Projects' Design Envelope (as described in Change 2 below). These changes taken together have allowed GBS to be removed entirely from the Projects' Design Envelope, and therefore also removed as a worst case from the physical process modelling. The removal of GBS foundations from the Projects' design envelope will result in a reduction of habitat loss associated with the Projects, whilst a wider update to the physical process modelling will provide a demonstration of the reduction of impacts to physical processes across the Offshore Development Area. This change would require amendments to the **Draft DCO (Revision 3)** [AS-120 and AS-121] requirements and Deemed Marine Licences 3 and 4 in the **Draft DCO (Revision 3)** [AS-120 and AS-121].	Marine Physical Environment Benthic and Intertidal Ecology Fish and Shellfish Ecology Marine Mammals Commercial Fisheries Offshore Archaeology and Cultural Heritage	Offshore Ornithology Commercial Fisheries Shipping and Navigation Aviation and Radar Infrastructure and Other Users All onshore topics (ES Chapters 18 -30)
Change 2: Removal of the Electrical Switching Platform (ESP) from the Projects' Design Envelope	ESP	Following changes to the National Grid Electricity System Operator's (ESO)[1] Holistic Network Design (HND) made in early 2024 the Projects will connect to the national grid radial connections (see **Appendix 4-1 Ofgem and National Grid Electricity System Operator HND Statements** [APP-069] of the DCO Application). Hence, an ESP is no longer required for connections with other projects. As such, the ESP (previously located either along the Projects' Offshore Export Cable Corridor or within one of the Array Areas) has been removed from the Projects' Design Envelope. This change would yield benefits in terms of reducing noise impacts on seal populations, whilst also reducing noise impacts on spawning herring, and reducing shipping and navigational risks. The removal of the ESP is captured in the updated physical process and underwater noise modelling. This change would require an amendment of the **Draft DCO (Revision 3)** [AS-120 and AS-121] requirements and works descriptions, along with amendments to Deemed Marine Licences 3 and 4 in the **Draft DCO (Revision 3)** [AS-120 and AS-121], and updates to the offshore works plans.	Marine Physical Environment Benthic and Intertidal Ecology Fish and Shellfish Ecology Marine Mammals Commercial Fisheries Shipping and Navigation Aviation and Radar Infrastructure and Other Users Offshore Archaeology and Cultural Heritage	Offshore Ornithology All onshore topics (ES Chapters 18 -30)
Change 3: Reduction in number of offshore platforms in the Projects' Design Envelope, plus associated scour protection	Offshore platforms	This change involves a reduction in number of offshore platforms in the Projects' Design Envelope from eight to three and is being made following stakeholder feedback received during the pre-submission phase of the Projects requesting the number of offshore platforms to be reduced in the Projects Design Envelope and following design evolution of the Projects and HND, which has removed the need for four of the Offshore Convertor Platforms (OCPs) (two per Project), plus the ESP (as described in Change 2 above). This change will result in reductions of noise impacts on harbour porpoise populations within the southern North Sea Special Area of Conservation (SAC) and marine mammal populations found across the southern North Sea more generally. In addition, noise effects on spawning herring will be reduced, as will seabed habitat loss and disturbance. The reduction in number of offshore platforms will also reduce	Marine Physical Environment Benthic and Intertidal Ecology Fish and Shellfish Ecology Marine Mammals Commercial Fisheries Shipping and Navigation Aviation and Radar	Offshore Ornithology All onshore topics (ES Chapters 18 -30)

[1] As of October 1st 2024, this organisation has been re-named the National Energy System Operator (NESO) and no longer forms part of the National Grid structure.

Change	Design Change / Parameter	Reason for Change	Environmental Topic(s) Screened In	Environmental Topic(s) Screened Out
		interactions with commercial fisheries and reduce shipping and navigational risks. Reductions of habitat losses within and outwith the Dogger Bank SAC will also arise. This change would require amendments to the **Draft DCO (Revision 3)** [AS-120 and AS-121] requirements and Deemed Marine Licences 3 and 4 in the **Draft DCO (Revision 3)** [AS-120 and AS-121].	Infrastructure and Other Users Offshore Archaeology and Cultural Heritage	
Change 4: Reduction of cabling within the Array Areas, plus associated seabed preparation and cable protection	Cabling within the Array Areas	This change involves a net reduction in cabling within the Array Areas brought about through a reduction in the lengths of inter-platform cabling required for the Projects (due to the removal of five platforms in line with stakeholder feedback (as noted in the row above)) and a smaller increase in the inter-array cabling. The array cabling length increase is required due to array cable layout constraints leading to a re-evaluation of the lengths included as part of the DCO application. The net reductions in cabling within the Array Areas would have an additional benefit of reducing the need for associated seabed preparation for cable installation and cable protection. The environmental benefits would include quantifiable reductions of impacts on the Dogger Bank SAC and associated reductions in the need for compensation (due to reduced needs for scour and cable protection), whilst also further reducing burial / sandwave impacts in the SAC. This change would require an amendment of the requirements, in addition to amendments to Deemed Marine Licences 1, 2, 3, 4 and 5 in the **Draft DCO (Revision 3)** [AS-120 and AS-121].	Marine Physical Environment Benthic and Intertidal Ecology Fish and Shellfish Ecology Marine Mammals Commercial Fisheries Shipping and Navigation Infrastructure and Other Users Offshore Archaeology and Cultural Heritage	Offshore Ornithology Aviation and Radar All onshore topics (ES Chapters 18 -30)
Change 5: Removal of the short trenchless crossing at landfall	Landfall	This change involves the removal of the short trenchless crossing at landfall from the proposed works, avoiding the need for exit pits in the intertidal area. Ongoing stakeholder engagement before and since submission has identified that this option caused concerns for stakeholders principally due to potential impacts on coastal processes and the secondary effects that may occur via this pathway. Since submission of the DCO application, additional engineering studies have been undertaken which have concluded that this option can be removed from the Projects' Design Envelope. The removal of this aspect would reduce potential temporary construction noise, visual and tourism and recreational impacts in the intertidal zone. It should be highlighted that the emergency access route along the beach would remain as part of the Projects. This change would require an amendment of the **Draft DCO (Revision 3)** [AS-120 and AS-121] requirements and the works descriptions, in addition to amendments to Deemed Marine Licences 3 and 4 in the **Draft DCO (Revision 3)** [AS-120 and AS-121] and updates to the **Works Plan (Offshore) (Revision 3)** [PDA-002].	Marine Physical Environment Benthic and Intertidal Ecology Fish and Shellfish Ecology Commercial Fisheries Infrastructure and Other Users Offshore Archaeology and Cultural Heritage Terrestrial Ecology and Ornithology Flood Risk and Hydrology Landscape and Visual Impacts Noise Human Health Tourism and Recreation	Marine Mammals Offshore Ornithology Shipping and Navigation Aviation and Radar Geology and Land Quality Land Use Onshore Archaeology and Cultural Heritage Traffic and Transport Air Quality Socio-Economics Climate Change

3.2 Proposed Changes in Projects' Parameters

15. **Table 3-2** details how the proposed changes to parameters would differ from those assessed in the Applicants' DCO application. The subsequent changes to parameters that stem from the proposed changes (e.g. total area of seabed disturbance, volume of disturbed sediment, area of habitat loss etc.) are detailed by topic in section 4 of this report.

Table 3-2 Proposed Changes to the Projects Parameters

Proposed Change	Original Value Assessed			Proposed Updated Value		
	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Together	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Together
GBS foundations	GBS foundations for all offshore platforms within the Offshore Development Area modelled in the site-specific marine physical processes modelling. One GBS foundation for the ESP within the Offshore Export Cable Corridor.	GBS foundations for all offshore platforms within the Offshore Development Area modelled in the site-specific marine physical processes modelling. One GBS foundation for the ESP within the Offshore Export Cable Corridor.	GBS foundations for all offshore platforms within the Offshore Development Area modelled in the site-specific marine physical processes modelling. One GBS foundation for the ESP within the Offshore Export Cable Corridor.	Monopile foundations for all offshore platforms within the Offshore Development Area modelled in the site-specific marine physical processes modelling. No foundations remaining in the Offshore Export Cable Corridor following removal of the ESP and no GBS foundations remaining in the design envelope.	Monopile foundations for all offshore platforms within the Offshore Development Area modelled in the site-specific marine physical processes modelling. No foundations remaining in the Offshore Export Cable Corridor following removal of the ESP and no GBS foundations remaining in the design envelope.	Monopile foundations for all offshore platforms within the Offshore Development Area modelled in the site-specific marine physical processes modelling. No foundations remaining in the Offshore Export Cable Corridor following removal of the ESP and no GBS foundations remaining in the design envelope.
ESP	One ESP located either within the Array Area or the Offshore Export Cable Corridor.	One ESP located either within the Array Area or the Offshore Export Cable Corridor.	One ESP located either within either Array Area or the Offshore Export Cable Corridor.	No ESP within the Offshore Development Area.	No ESP within the Offshore Development Area.	No ESP within the Offshore Development Area.
Offshore platforms	Up to four offshore platforms • One Offshore Converter Platform • Up to two Collector Platforms OCPs • Up to one Accommodation Platform • One ESP within the Array Area or the Offshore Export Cable Corridor.	Up to four offshore platforms • One Offshore Converter Platform • Up to two Collector Platforms OCPs • Up to one Accommodation Platform • One ESP within the Array Area or the Offshore Export Cable Corridor.	Up to eight offshore platforms • Up to six electrical platforms (Three in each Array Area) • Up to one Accommodation Platform in either DBS East or DBS West • Up to one ESP within either Array Area or the Offshore Export Cable Corridor.	Up to two offshore platforms • One OCP • Up to one Accommodation Platform	Up to two offshore platforms • One OCP • Up to one Accommodation Platform	Up to three offshore platforms • Two OCPs (One in each Array Area) • Up to one Accommodation Platform in either Array Area
Cabling within the Array Areas	Total cabling within the Array Area – 440km • Array Cable Length – 325km	Total cabling within the Array Area – 454km • Array Cable Length – 325km	Total cabling within the Array Areas – 992km • Array Cable Length – 650km	Total cabling within the Array Area – 373km • Array Cable Length – 350km	Total cabling within the Array Area – 373km • Array Cable Length – 350km	Total cabling within the Array Area – 861km • Array Cable Length – 700km

Proposed Change	Original Value Assessed			Proposed Updated Value		
	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Together	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Together
	• Inter-Platform Cable Length - 115km	• Inter-Platform Cable Length - 129km	• Inter-Platform Cable Length - 342km	• Inter-Platform Cable Length - 23km	• Inter-Platform Cable Length - 23km	• Inter-Platform Cable Length - 161km.[2]
Landfall	Either a 'short' trenchless crossing with up to three intertidal trenchless crossing exit pits, or a 'long' trenchless crossing option with three subtidal exit pits. A 'short' trenchless crossing would require a pontoon, support vessels and offshore cable extents within the intertidal zone.	Either a 'short' trenchless crossing with up to three intertidal exit pits, or a 'long' trenchless crossing option with three subtidal exit pits. A 'short' trenchless crossing would require a pontoon, support vessels and offshore cable extents within the intertidal zone.	Either a 'short' trenchless crossing with up to six intertidal exit pits, or a 'long' trenchless crossing option with three subtidal exit pits. A 'short' trenchless crossing would require a pontoon, support vessels and offshore cable extents within the intertidal zone.	A 'long' trenchless crossing with up to three subtidal exit pits. No associated pontoon, support vessel or offshore cable extents within the intertidal zone.	A 'long' trenchless crossing with up to three subtidal exit pits. No associated pontoon, support vessel or offshore cable extents within the intertidal zone.	A 'long' trenchless crossing with up to six subtidal exit pits. No associated pontoon, support vessel or offshore cable extents within the intertidal zone.

[2] The inter-platform cable route for DBS East and DBS West combined consists of three separate 40km Inter-Platform Cables running in parallel (with +15% contingency added), with a minimum separation distance of 50m.

4 Topic Updates

16. **Table 4-1** details each topic for which a change in Projects' Design Envelope (i.e. worst case scenarios) has occurred as a result of the proposed changes, and where any resulting updates are provided in this document or relevant appendices. It should be noted that all proposed changes result in a reduction to the parameters of the Projects which formed the basis of the Project Design Envelope in the ES.

17. The topic sections 4.1 to 4.15 include tables summarising how the Realistic Worst Case Scenario tables for each topic would be updated as a result of the proposed changes. Where tables are not provided it is because (whilst covered in the assessment) the parameters that have been updated were not specified within the Realistic Worst Case scenario table within the original ES Chapter.

18. For all topics where updates have been made, it should be noted that no changes to the sensitivity of the receptors assessed in the original assessments have resulted from the proposed change, only the potential magnitude of impacts and associated likely significant effects. Any potential changes to the magnitude of impacts and associated likely significant effects (and potential change to assessment conclusions) are detailed through section 4.1 to section 4.15 of this report.

19. As a result of the proposed changes, it was determined that the site-specific marine physical processes modelling and underwater noise modelling undertaken for the ES would no longer represent the worst case scenarios for the Projects, with previous presentation representing worse than worst cases. As such, the Applicants have included revised modelling for these topics alongside this report in **Appendix 8-3 Marine Physical Processes Modelling Technical Report (Revision 2)** [document reference: 7.8.8.3] and **Appendix 11-3 Underwater Noise Modelling Report (Revision 2)** [document reference: 7.11.11.3]. The updated modelling outputs have been used to inform potential changes in the topics detailed in **Table 4-1** where relevant.

20. All documents included alongside this report are intended to illustrate the impacts of the proposed changes for the purpose of this submission and are not intended to replace the equivalent documents that form part of the accepted DCO application.

Table 4-1 Environmental Topics Updated within this Environmental Assessment Update Document and Associated Sections / Associated Documents

Topic within Original ES / RIAA	Updates in Associated Sections / Associated Documents
Offshore Topics	
Marine Physical Environment	Section 4.1 **Appendix 8-3 - Marine Physical Processes Modelling Technical Report (Revision 2)** [document reference: 7.8.8.3]
Benthic and Intertidal Ecology	Section 4.2
Fish and Shellfish Ecology	Section 4.3 **Appendix A – Fish and Shellfish Ecology Environmental Statement Update** [document reference: 10.50] **Appendix 11-3 - Underwater Noise Modelling Report (Revision 2)** [document reference: 7.11.11.3]
Marine Mammals	Section 4.4 **Appendix B – Marine Mammal Environmental Statement Update** [document reference: 10.51] **Appendix C – Marine Mammal RIAA HRA Update** [document reference: 10.52] **Appendix 11-3 - Underwater Noise Modelling Report (Revision 2)** [document reference: 7.11.11.3] **Appendix 11-4 - iPCoD Modelling (Revision 2)** [document reference : 7.11.11.4]
Commercial Fisheries	Section 4.5
Shipping and Navigation	Section 4.6
Aviation and Radar	Section 4.7
Infrastructure and Other Users	Section 4.8
Offshore Archaeology and Cultural Heritage	Section 4.9
Onshore Topics	

Topic within Original ES / RIAA	Updates in Associated Sections / Associated Documents
Terrestrial Ecology and Ornithology	Section 4.10
Flood Risk and Hydrology	Section 4.11
Landscape and Visual Impacts	Section 4.12
Noise	Section 4.13
Human Health	Section 4.14
Tourism and Recreation	Section 4.15

4.1 Marine Physical Environment

21. **Table 4-2** presents the changes in the worst case parameters for each potential effect on the Marine Physical Environment assessed within the ES (**Chapter 8 Marine Physical Environment** [APP-080], a description of the change in relation to the previous worst case assessed within the ES chapter and whether the significance of effect has changed as a result of the proposed changes to the Projects' parameters.

22. **Appendix 8-3 - Marine Physical Processes Modelling Technical Report (Revision 2)** [document reference: 7.8.8.3] presents the updated marine physical processes modelling based upon the proposed changes to the Projects' Design Envelope (see section 3). The changes of relevance to **Appendix 8-3 - Marine Physical Processes Modelling Technical Report (Revision 2)** [document reference: 7.8.8.3] are the:

- Reduction in number of offshore platforms; and
- Removal of GBS foundations.

23. In summary, the proposed changes would reduce the worst case parameters assessed for **Chapter 8 Marine Physical Environment** [APP-080]. However, the extent of the reduction does not result in any changes to the outcomes of the original assessment presented within **Chapter 8 Marine Physical Environment** [APP-080].

Table 4-2 Changes to the Marine Physical Environment Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Changes in suspended sediment concentration and transport due to seabed preparation for foundation installation	Wind turbines No change. Offshore platforms Number of offshore platforms modelled across Offshore Development Area – Two Seabed preparation area for two monopile foundations including scour protection – 12,445m² Maximum volume of sediment disturbed due to seabed preparation (including scour protection) – 6,223m³	Wind turbines No change. Offshore platforms Number of offshore platforms modelled across Offshore Development Area – Two Seabed preparation area for two monopile foundations including scour protection – 12,445m² Maximum volume of sediment disturbed due to seabed preparation (including scour protection) – 6,223m³	Wind turbines No change. Offshore platforms Number of offshore platforms modelled across Offshore Development Area – Three Seabed preparation area for three monopile foundations including scour protection – 18,668m² Maximum volume of sediment disturbed due to seabed preparation (including scour protection) – 9,334m³	Worst case as per originally assessed other than reduction in number of platforms and reduction in associated area / volume of disturbed sediment. Number of offshore platforms modelled reduced from five[3] to two per Project in isolation, and from eight to three for the Projects' concurrently or sequentially.	No change, magnitude of impact remains low for near-field impacts and negligible for far-field impacts. Therefore, the residual significance of effect remains **negligible** as assessed in the ES.
Changes in suspended sediment concentration and transport due to drill arisings from foundations	Wind turbines No change. Offshore platforms Drill arisings from two monopile foundations = 1,407m³	Wind turbines No change. Offshore platforms Drill arisings from two monopile foundations = 1,407m³	Wind turbines No change. Offshore platforms Drill arisings from three monopile foundations = 2,111m³	Worst case as per originally assessed other than reduction in number of platforms and reduction in associated volume of drill arisings. Number of offshore platforms modelled reduced from five to two per Project in isolation, and from eight to three for the Projects' concurrently or sequentially.	No change, magnitude of impact remains low for near-field impacts and negligible for far-field impacts. Therefore, the residual significance of effect remains **negligible** as assessed in the ES.
Changes in suspended sediment concentration and transport due to array, inter-platform and Offshore Export Cable installation	Displaced sediment volume during array and inter-platform cable installation Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth)	Displaced sediment volume during array and inter-platform cable installation Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth)	Displaced sediment volume during array and inter-platform cable installation Array cable – 4,200,000m³ (700,000m length x 6m width x 1m depth) Inter-Platform Cables – 1,449,000m³ (161,000m length x 6m width x 1.5m depth)	Overall decrease in volume of suspended sediment from array and inter-platform cable installation due to large decrease in inter-platform cable lengths.	No change, magnitude of impact remains low for near-field impacts and negligible for far-field impacts. Therefore, the residual significance of effect remains **negligible** as assessed in the ES.

[3] Modelling undertaken to inform this assessment assumed a total of five platforms may be present in an in-isolation scenario, comprising four platforms in the Array Areas and one in the Offshore Export Cable Corridor. However, only four platforms may be found across both the Array Areas and the Offshore Export Cable Corridor. Five platforms were modelled to ensure all potential locations of platforms were modelled so that a definite worst case scenario was assessed.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Maximum volume from seabed clearance – 377,663m³ Displaced sediment volume during export cable installation No change.	Maximum volume from seabed clearance – 377,663m³ Displaced sediment volume during export cable installation No change.	Maximum volume from seabed clearance – 871,763m³ Displaced sediment volume during export cable installation No change.		
Changes in suspended sediment concentration and transport due to cable installation at the landfall trenchless crossing (e.g. Horizontal Directional Drilling (HDD)) installation	No. of trenchless duct installations below LAT = 3 Trenchless crossing bore spacing = 100m Size of each exit pit (subtidal) – 26m length x 6m width x 2m depth Total volume of sediment excavated from exit pits = 936m³	No. of trenchless duct installations below LAT = 3 Trenchless crossing bore spacing = 100m Size of each exit pit (subtidal) – 26m length x 6m width x 2m depth Total volume of sediment excavated from exit pits = 936m³	No. of trenchless duct installations below LAT = 6 Trenchless crossing bore spacing = 100m Size of each exit pit (subtidal) – 26m length x 6m width x 2m depth Total volume of sediment excavated from exit pits = 1,872m³	The Applicants have removed the short trenchless crossing from the Projects' Design Envelope, thereby committing to a long trenchless crossing with a subtidal exit. In addition, the exit pit dimensions have been reduced from that assessed at ES.	No change, magnitude of impact remains negligible for near-field impacts and far-field impacts. Therefore, the residual significance of effect remains **negligible** as assessed in the ES.
Deterioration in water quality associated with the release of sediment bound contamination (directly linked to changes in suspended sediment concentrations in impacts, including changes in suspended sediment concentration and transport due to seabed preparation for foundation installation, and changes in suspended sediment concentration and transport due to cable installation at the landfall)	Parameters are the same as other construction impacts including changes in suspended sediment concentration and transport due to seabed preparation for foundation installation, and changes in suspended sediment concentration and transport due to trenchless crossing exit cable installation.				
Changes in seabed level due to seabed preparation for foundation installation	Parameters are the same as other construction impacts including changes in suspended sediment concentration and transport due to seabed preparation for foundation installation.				

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Changes to seabed level due to drill arisings from foundations	Parameters are the same as other construction impacts including changes in suspended sediment concentration and transport due to drill arisings from foundations.				
Changes to seabed level due to array, inter-platform and Offshore Export Cable installation	Parameters are the same as other construction impacts including changes in suspended sediment concentration and transport due to array, inter-platform and Offshore Export Cable installation.				
Changes to bedload sediment transport due to cable installation at the landfall	Parameters are the same as other construction impacts including changes in suspended sediment concentration and transport due to cable installation at the landfall.				
Indentations on the seabed due to installation vessels	<u>Jack-up vessels</u> Up to 6 jack-up installations at each wind turbine (100 small turbines, 6 installations, 4 legs per installation, individual leg footprint 275m²) = 660,000m² *(no change)* Vessel jack-up footprint for all offshore platforms (1,100m² combined leg area x five operations per offshore platform x two offshore platforms) = 11,000m² <u>Anchoring</u> Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 100 small turbines + two offshore platforms) – 236,640m² Maximum total impacted area by anchoring in the Offshore Export Cable Corridor – 22,061m² *(no change)* Note – 7km stretch along the Offshore Export Cable Corridor <10m Lowest Astronomical Tide (LAT), may require use of anchoring	<u>Jack-up vessels</u> Up to 6 jack-up installations at each wind turbine (100 small turbines, 6 installations, 4 legs per installation, individual leg footprint 275m²) = 660,000m² *(no change)* Vessel jack-up footprint for all offshore platforms (1,100m² combined leg area x five operations per offshore platform x two offshore platforms) = 11,000m² <u>Anchoring</u> Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 100 small turbines + two offshore platforms) – 236,640m² Maximum total impacted area by anchoring in the Offshore Export Cable Corridor – 22,061m² *(no change)* Note – 7km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring	<u>Jack-up vessels</u> Up to 6 jack-up installations at each wind turbine (200 small turbines, 6 installations, 4 legs per installation, individual leg footprint 1,100m²) = 1,320,000m² *(no change)* Vessel jack-up footprint for all offshore platforms (1,100m² combined leg area x five operations per offshore platform x three offshore platforms) – 16,500m² <u>Anchoring</u> Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 200 small turbines + three offshore platforms) – 470,960m² Maximum total impacted area by anchoring in the Offshore Export Cable Corridor – 44,122m² Note - 7km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring	Reduction in vessel jack-up footprint due to reduction in number of offshore platforms. Minor increase in total impacted area by anchoring in the Offshore Export Cable Corridor for both Projects from 44,091m² included within the ES to 44,122m².	No change, magnitude of impact remains low for near-field impacts and no change for far-field impacts. Therefore, the residual significance of effect remains **negligible** as assessed in the ES.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Operation and Maintenance					
Changes to the tidal regime due to the presence of infrastructure (wind turbine and offshore platform foundations)	Wind turbines No change. Offshore platforms Two monopile foundations	Wind turbines No change. Offshore platforms Two monopile foundations	Wind turbines No change. Offshore platforms Three monopile foundations	Number of offshore platforms modelled reduced from five to two per Project in isolation, and from eight to three for the Projects' concurrently or sequentially. GBS foundations removed from the Projects' physical processes modelling, modelling for platforms now based on monopile foundations.	No change, magnitude of impact remains low for near-field impacts and negligible for far-field impacts. Therefore, the residual significance of effect remains **negligible** as assessed in the ES.
Changes to the wave regime due to the presence of infrastructure (wind turbine and offshore platform foundations)	Parameters are the same as other operational impacts including changes to the tidal regime due to the presence of infrastructure (wind turbine and offshore platform foundations).				
Changes to water circulation (Flamborough Front) due to the presence of infrastructure (wind turbine and offshore platform foundations)	Parameters are the same as other operational impacts including changes to the tidal regime due to the presence of infrastructure (wind turbine and offshore platform foundations).				
Changes to bedload sediment transport and seabed morphology due to the presence of infrastructure (wind turbine and offshore platform foundations)	Parameters are the same as other operational impacts including changes to the tidal regime due to the presence of infrastructure (wind turbine and offshore platform foundations).				
Changes to bedload sediment transport and seabed morphology due to the presence of cable protection measures	Seabed footprint of cable protection Total footprint of array cable protection – 326,700m² Total footprint of inter-platform cable protection – 37,088m²	Seabed footprint of cable protection Total footprint of array cable protection – 326,700m² Total footprint of inter-platform cable protection – 37,088m²	Seabed footprint of cable protection Total footprint of array cable protection – 653,400m² Total footprint of inter-platform cable protection – 247,760m²	Overall reduction in cabling within the Array Areas, resulting in an overall reduction in cable protection measures and cable / pipeline crossings within the Array Areas.	No change, magnitude of impact remains low for near-field impacts and negligible for far-field impacts. Therefore, the residual significance of effect

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Total footprint of export cable protection – 1,000,282m²	Total area footprint of export cable protection – 788,941m²	Total footprint of export cable protection – 1,789,222m²		remains **negligible** as assessed in the ES.
	Estimated number of array / inter-platform cable pipeline / cable crossings – 21	Estimated number of array / inter-platform cable pipeline / cable crossings – 21	Estimated number of array / inter-platform cable pipeline / cable crossings – 53		
	Total footprint of pipeline / cable crossing material (array cables and Inter-Platform Cables) – 55,200m²	Total footprint of pipeline / cable crossing material (array cables and Inter-Platform Cables) – 55,200m²	Total footprint of pipeline / cable crossing material (array cables and Inter-Platform Cables) – 177,700m²		
	Total number of cable crossing for export cable – 24 *(no change)*	Total number of cable crossing for export cable – 24 *(no change)*	Total number of cable crossing for export cable – 48 *(no change)*		
	Total footprint of pipeline / cable crossing material (export cables) – 147,133m² *(no change)*	Total footprint of pipeline / cable crossing material (export cables) – 147,133m² *(no change)*	Total footprint of pipeline / cable crossing material (export cables) – 294,267m² *(no change)*		
Cable repairs and reburial	**Maximum estimated volume of displaced sediment during maintenance activities in the Array Areas – 1,666,500m³**	**Maximum estimated volume of displaced sediment during maintenance activities in the Array Areas – 1,666,500m³**	**Maximum estimated volume of displaced sediment during maintenance activities in the Array Areas – 3,345,000m³**	Overall reduction in cabling within the Array Areas, resulting in an overall reduction in volume of displaced sediment from cable burial and repair activities.	No change, magnitude of impact remains negligible for near-field and far-field impacts. Therefore, the residual significance of effect remains **negligible** as assessed in the ES.
	Volume of displaced sediment from array cable repairs over Projects lifetime – 108,000m³ (Nine events x 12,000m³ per event)	Volume of displaced sediment from array cable repairs over Projects lifetime – 108,000m³ (Nine events x 12,000m³ per event)	Volume of displaced sediment from array cable repairs over Projects lifetime – 204,000m³ (17 events x 12,000m³ per event)	Jack-up vessel footprint assumes a maximum penetration depth of 5m.	
	Volume of displaced sediment from inter-platform cable repairs - over Projects lifetime – 24,000m³ (Two events x 12,000m³ per event)	Volume of displaced sediment from inter-platform cable repairs - over Projects lifetime – 24,000m³ (Two events x 12,000m³ per event)	Volume of displaced sediment from inter-platform cable repairs - over Projects lifetime – 72,000m³ (Six events x 12,000m³ per event)	Cable repairs assume a maximum depth of 2m. The cable is buried 0.5-1.5m but repairs also account for potential additional mobile sand coverage.	
	Volume of displaced sediment from jacking-up activities over Projects lifetime – 1,534,500m³ (51,150m³ per year x 30 year lifespan)	Volume of displaced sediment from jacking-up activities over Projects lifetime – 1,534,500m3 (51,150m³ per year x 30 year lifespan)	Volume of displaced sediment from jacking-up activities over Projects lifetime – 3,069,000m³ (102,300m³ per year x 30 year lifespan)	Additional information regarding the volume of displaced sediment with regards to cable repairs and reburial has been included following a comment made by Natural England in their Relevant Representation [RR-039].	
	Maximum estimated volume of displaced sediment during maintenance activities in the Offshore Export Cable Corridor – 84,000m³	**Maximum estimated volume of displaced sediment during maintenance activities in the Offshore Export Cable Corridor – 60,000m³**	**Maximum estimated volume of displaced sediment during maintenance activities in the Offshore Export Cable Corridor – 144,000m³**		
	Volume of displaced sediment from export cable repairs over Projects	Volume of displaced sediment from export cable repairs over Projects	Volume of displaced sediment from export cable repairs - over Projects		

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	lifetime – 84,000m³ (seven events x 12,000m³ per event)	lifetime – 60,000m³ (Five events x 12,000m³ per event)	lifetime – 144,000m³ (12 events x 12,000m³ per event)		
Deterioration in water quality associated with the release of sediment bound contamination (directly linked to changes in suspended sediment concentrations in cable repairs and reburial)	Parameters are the same as other operational impacts including cable repairs and reburial.				
Loss of seabed area due to the footprint foundations	Parameters are the same as other operational impacts including changes in seabed level due to seabed preparation for foundation installation.				
Indentations on the seabed due to installation vessels	<u>Array Area</u> Area of seabed disturbance from jacking-up activities over Projects' lifetime – 306,900m² (10,230m² per year x 30 year lifespan)	<u>Array Area</u> Area of seabed disturbance from jacking-up activities over Projects' lifetime – 306,900m² (10,230m² per year x 30 year lifespan)	<u>Array Areas and Inter-Platform Cable Corridor</u> Area of seabed disturbance from jacking-up activities over Projects' lifetime – 613,800m² (20,460m² per year x 30 year lifespan)	Reduction in vessel jack-up footprint due to reduction in number of offshore platforms.	No change, magnitude of impact remains low for near-field impacts and no change for far-field impacts. Therefore, the residual significance of effect remains **negligible** as assessed in the ES.

4.2 Benthic and Intertidal Ecology

24. **Table 4-3** presents the changes in the worst case parameters for each potential effect on Benthic and Intertidal Ecology assessed within **Chapter 9 Benthic and Intertidal Ecology** [APP-085] and **RIAA Habitats Regulations Assessment (HRA) Part 2 of 4 – Annex I Offshore Habitats and Annex II Migratory Fish (Revision 3)** [AS-051 and AS-052], a description of the change in relation to the previous worst case assessed in the ES chapter and whether the significance of effect has changed as a result of the proposed changes in the Projects' parameters.

25. The EIA undertaken in **Chapter 9 Benthic and Intertidal Ecology** [APP-085] included the operation and maintenance (O&M) impacts of:

- Temporary physical disturbance;
- Increased suspended sediment concentrations;
- Interactions of Electromagnetic Field; and
- Colonisation of introduced substrate.

26. However, the proposed changes to the Projects' Design Envelope do not change the worst case parameters assessed within the ES chapter for these impacts and therefore have not been discussed further within **Table 4-3**.

27. The **RIAA HRA Part 2 of 4 – Annex I Offshore Habitats and Annex II Migratory Fish (Revision 3)** [AS-051 and AS-052] included the assessment of potential effects on the Humber Estuary SAC resulting from the introduction of other substances (solid, liquid or gas). However, the proposed changes to the Projects' Design Envelope do not change the worst case parameters assessed within the RIAA for this potential effect and therefore has not been discussed further within **Table 4-3**.

28. In summary, the proposed changes would reduce the worst case parameters assessed for both Benthic and Intertidal Ecology and for Annex I Habitats. However, the extent of the reduction would not result in any changes to the original assessment presented within **Chapter 9 Benthic and Intertidal Ecology** [APP-085] or **RIAA HRA Part 2 of 4 – Annex I Offshore Habitats and Annex II Migratory Fish (Revision 3)** [AS-051 and AS-052].

Table 4-3 Changes to the Benthic and Intertidal Ecology Worst Case Scenario and Effect Significance / AEoI Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Impact 1 - Temporary physical disturbance and Impact 3 - Remobilisation of Contaminated Sediments	Array Area **Total Array Area assessed for ES – 427km²** (349km² for Array Area + 78km² Construction Buffer Zone) *(no change)* **Total area of disturbance within Array Areas – 9,671,083m²** **Total area of disturbance within Dogger Bank SAC – 13,962,783m²** Array and Inter-Platform Cables **Maximum area disturbed (trenching + sandwave levelling) – 8,392,500m²** Array cable trench area (350,000m x 20m boulder plough width) – 7,000,000m² Inter-platform cable trench area (23,000m x 20m disturbance width) – 460,000m² Maximum seabed area disturbed by sandwave levelling – 932,500m² Foundations and Vessel Impacts **Maximum area disturbed (foundations, platforms, vessel jack-up locations and anchoring) – 1,278,583m²** Seabed preparation area for 100 small turbine monopile foundations (including scour protection) – 358,498m² (*no change*) Seabed preparation area for two offshore platforms (monopile foundations), including scour protection – 12,445m²	Array Area **Total Array Area assessed for ES – 434km²** (355km² for Array Area + 79km² Construction Buffer Zone) *(no change)* **Total area of disturbance within Array Areas – 9,671,083m²** **Total area of disturbance within Dogger Bank SAC – 11,524,008m²** Array and Inter-Platform Cables **Maximum area disturbed (trenching + sandwave levelling) – 8,392,500m²** Array cable trench area (350,000m x 20m boulder plough width) – 7,000,000m² Inter-platform cable trench area (23,000m x 20m disturbance width) – 460,000m² Maximum seabed area disturbed by sandwave levelling – 932,500m² Foundations and Vessel Impacts **Maximum area disturbed (foundations, platforms, vessel jack-up locations and anchoring) – 1,278,583m²** Seabed preparation area for 100 small turbine monopile foundations (including scour protection) – 358,498m² (*no change*) Seabed preparation area for two offshore platforms (monopile foundations), including scour protection – 12,445m²	Array Areas **Total Array Areas assessed for ES – 1008km²** (874km² for Array Areas and Inter-Platform Cabling Area + 134km² Construction Buffer Zone) *(no change)* **Total area of disturbance within Array Areas – 21,915,594m²** **Total area of disturbance within Dogger Bank SAC – 28,421,143m²** Array and Inter-Platform Cables **Maximum area disturbed (trenching + sandwave levelling) – 19,372,500m²** Array cable trench area (700,000m x 20m boulder plough width) – 14,000,000m² Inter-platform cable trench area (161,000m x 20m disturbance width) – 3,220,000m² Maximum seabed area disturbed by sandwave levelling – 2,152,500m² Foundations and Vessel Impacts **Maximum area disturbed (foundations, platforms, vessel jack-up locations and anchoring) – 2,543,094m²** Seabed preparation area for 200 small turbine monopile foundations (including scour protection) – 716,966m² (*no change*) Seabed preparation area for three offshore platforms (monopile	Overall reduction in total area of disturbance within the Array Areas due to the overall reduction in cables within the Array Areas, leading to a reduction in required trenching, sandwave levelling, seabed preparation, jack-up footprint and anchoring. Total area of temporary disturbance within SAC reduced to 28.4km² from 31.4km² for both Projects together, an approximately 10% decrease in area.	Impact 1: No change, magnitude of impact remains negligible. Therefore, the residual significance of effect remains **minor adverse** as assessed in the ES. Impact 3: No change, magnitude of impact remains negligible. Therefore, the residual significance of effect remains **negligible** as assessed in the ES. Impact 1 & 3: No change, no potential AEoI on the Dogger Bank SAC, Humber Estuary SAC or Flamborough Head SAC as assessed in the RIAA.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Area of seabed contact for vessel jack-up assuming six jack-up locations per turbine (275m² per jack-up leg x four legs x six operations per turbine x 100 small turbines) - 660,000m² *(no change)* Area of seabed contact for vessel jack-up for all platforms in Array Areas (1,100m² combined leg area x five operations per platform x two offshore platforms) – 11,000m² Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 100 small turbines + two offshore platforms) – 236,640m²	Area of seabed contact for vessel jack-up – assuming six jack-up locations per turbine (275m² per jack-up leg x four legs x six operations per turbine x 100 small turbines) – 660,000m² *(no change)* Area of seabed contact for vessel jack-up for all platforms in Array Areas (1,100m² combined leg area x five operations per platform x two offshore platforms) – 11,000m² Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 100 small turbines + two offshore platforms) – 236,640m²	foundations), including scour protection – 18,668m² Area of seabed contact for vessel jack-up vessel jack-up assuming six jack-up locations per turbine (275m² per jack-up leg x four legs x six operations per turbine x 200 small turbines) – 1,320,000m² *(no change)* Area of seabed contact for vessel jack-up for all platforms in Array Areas (1,100m² combined leg area x five operations per platform x three offshore platforms) – 16,500m² Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 200 small turbines + three offshore platforms) – 470,960m²		
	Offshore Export Cable Corridor **Total temporary area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 19,814,871m²** Total offshore cable length per cable –188km Maximum number of cables required – Two Maximum offshore cable length for all cables – 376km Note – Assumes a worst case of a separate cable trench for each cable, spaced 50m apart. Maximum temporary disturbance area for cable installation – 7,510,800m² (based on 376,000m distance x 20m width of temporary disturbance)	Offshore Export Cable Corridor **Total temporary area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 16,976,296m²** Total offshore cable length per cable – 153km Maximum number of cables required – Two Maximum offshore cable length for all cables – 306km Note – Assumes a worst case of a separate cable trench for each cable, spaced 50m apart. Maximum temporary disturbance area for cable installation – 6,120,400m² (based on 306,000m distance x 20m width of temporary disturbance)	Offshore Export Cable Corridor **Total temporary area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 36,791,136m²** Total offshore cable length per cable – 188km for DBS East, 153km for DBS West. Maximum number of cables required – Four Maximum offshore cable length for all cables – 682km Note – Assumes a worst case of a separate cable trench for each cable, spaced 50m apart. Maximum temporary disturbance area for cable installation – 13,631,200m² (based on 682,000m distance x 20m width of temporary disturbance)	The removal of the ESP within the Offshore Export Cable Corridor removed the impacts of foundation disturbance and vessel jack-up, thereby reducing the total temporary area disturbed for export cable installation. No changes have occurred to other parameters. Minor increase in total impacted area by anchoring in the Offshore Export Cable Corridor for the Projects together from 44,091m² included within the ES to 44,122m².	No change, magnitude of impact remains negligible. Therefore, the residual significance of effect remains **minor adverse** as assessed in the ES. No change, no potential AEoI on the Dogger Bank SAC, Humber Estuary SAC or Flamborough Head SAC as assessed in the RIAA.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Maximum seabed area disturbed by sandwave levelling – 12,282,010m² Maximum total area impacted by anchoring – 22,061m² Note - 10km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring. Total temporary area disturbed for export cable installation within the Dogger Bank SAC (trenching, sandwave levelling and anchoring) – 4,291,700m² (No change)	Maximum seabed area disturbed by sandwave levelling – 10,833,835m² Maximum total area impacted by anchoring – 22,061m² Note - 10km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring. Total temporary area disturbed for export cable installation within the Dogger Bank SAC (trenching, sandwave levelling and anchoring) – 1,852,925m² (No change)	Maximum seabed area disturbed by sandwave levelling – 23,115,845m² Maximum total area impacted by anchoring – 44,122m² Note – 10km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring. Total temporary area disturbed for export cable installation within the Dogger Bank SAC (trenching, sandwave levelling and anchoring) – 6,505,549m²		
	<u>Trenchless Crossing (e.g. HDD)</u> **Total volume of sediment disturbed by subtidal exit pits – 936m³** No. of exit pits – 3 Size of each exit pit – 26m length x 6m width x 2m depth Volume of displaced sediment per exit pit – 312m³ Depth of cable – 1.5m	<u>Trenchless Crossing (e.g. HDD)</u> **Total volume of sediment disturbed by subtidal exit pits - 936m³** No. of exit pits – 3 Size of each exit pit – 26m length x 6m width x 2m depth Volume of displaced sediment per exit pit – 312m³ Depth of cable – 1.5m	<u>Trenchless Crossing (e.g. HDD)</u> **Total volume of sediment disturbed by subtidal exit pits – 1,872m³** No. of exit pits – 6 Size of each exit pit – 26m length x 6m width x 2m depth Volume of displaced sediment per exit pit – 312m³ Depth of cable – 1.5m	The Applicants have removed the short trenchless crossing from the Projects' Design Envelope, thereby committing to a long trenchless crossing with a subtidal exit. In addition, the exit pit dimensions have been reduced from that assessed within the ES.	No remaining potential for effect on the intertidal zone following the removal of the short trenchless crossing option.
Impact 2 - Increased suspended sediment concentrations (including sediment deposition and smothering)	**Total Displaced sediment during sandwave levelling (Array Cables, Inter-Platform Cables and Export Cables) – 33,499,463m³** Maximum volume of sandwave material to be dredged / relocated for Array Cables and Inter-Platform Cables – 377,663m³ Maximum volume of sandwave material to be dredged / relocated for Export Cables – 33,121,800m³	**Total Displaced sediment during sandwave levelling (Array Area, Inter-Platform Cables and Offshore Export Cables) - 29,680,562m³** Maximum volume of sandwave material to be dredged / relocated for Array Cables and Inter-Platform Cables – 377,663m³ Maximum volume of sandwave material to be dredged / relocated for Export Cables – 29,302,899m³	**Total Displaced sediment during sandwave levelling (Array Cables, Inter-Platform Cables and Export Cables) – 63,296,463m³** Maximum volume of sandwave material to be dredged / relocated for Array Cables and Inter-Platform Cables – 871,763m³ Maximum volume of sandwave material to be dredged / relocated for Export Cables – 62,424,700m³	Overall reduction in total volume of displaced sediment within the Array Areas due to the overall reduction in cables. Parameters for drill arisings from installation of monopile foundations for offshore platforms now included in worst case parameters. Total displaced sediment within the Dogger Bank SAC reduced to 18.9km³ from 20.3km³ for both Projects together, an approximately 7% decrease in volume.	No change, magnitude of impact remains negligible. Therefore, the residual significance of effect as assessed in the ES, remains **negligible** for DBS West in Isolation, and **minor adverse** for DBS East in Isolation or both Projects together as assessed in the ES. No change, no potential AEoI on the Dogger Bank SAC, Humber Estuary SAC or

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Maximum volume of displaced sediment during cable trenching – 5,691,000m³ Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth) Export cables – 3,384,000m³ (376,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 35,789m³** Drill arisings from 57 large wind turbines = 34,382m³ *(no change)* Drill arisings from two offshore platform monopile foundations = 1,407m³	**Maximum volume of displaced sediment during cable trenching – 5,061,000m³** Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth) Export cable – 2,754,000m³ (306,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 35,789m³** Drill arisings from 57 large wind turbines = 34,382m³ *(no change)* Drill arisings from two offshore platform monopile foundations = 1,407m³	**Maximum volume of displaced sediment during cable trenching – 11,787,000m³** Array cable – 4,200,000m³ (700,000m length x 6m width x 1m depth) Inter-Platform Cables – 1,449,000m³ (161,000m length x 6m width x 1.5m depth) Export cable – 6,138,000m³ (682,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 70,271m³** Drill arisings from 113 large wind turbines = 68,160m³ *(no change)* Drill arisings from three monopile foundations = 2,111m³		Flamborough Head SAC as assessed in the RIAA.
Impact 4 - Underwater noise and vibration	See worst case parameters table presented in **Table 4-5**.			Reduction in underwater noise changes following the removal of the ESP and reduction in Offshore Platform number from eight to three.	No change, magnitude of impact remains low. Therefore, the residual significance of effect remains **negligible** as assessed in the ES.
Operation and Maintenance					
Impact 1 - Temporary physical disturbance	No change in worst case parameters.				No change, the residual significance of effect assessed in the ES is **minor adverse**.
Impact 2 - Increased suspended sediment concentrations (including sediment	No change in worst case parameters				No change, the residual significance of effect assessed in the ES is **minor adverse**.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
deposition and smothering)					
Impact 5 - Permanent habitat loss	Array Area **Total area of habitat loss within the Array Area (foundations, scour protection, cable protection and cable crossings) – 739,252m²** Total worst case turbine foundation area, including scour protection – 311,725m² (100 small turbines x 3,117m² total protection per turbine) *(no change)* Total worst case offshore platforms foundation area, including scour protection– 10,822m² Total area of array and inter-platform cable protection – 362,625m² (326,700m² array cable protection + 35,925m² inter-platform cable protection) Estimated number of array/inter-platform cable pipeline/cable crossings - 21 Total area of pipeline / cable crossing material (array + inter–platform cables) –54,080m² Offshore Export Cable Corridor **Total area of habitat loss within the Offshore Export Cable Corridor – 1,147,415m²** Total area of export cable protection – 1,000,282m² *(no change)* Estimated number Offshore Export Cable Corridor pipeline/cable crossings - 24 Total area of pipeline / cable crossing material – 147,133m²	Array Area **Total area of habitat loss within the Array Area (foundations, scour protection, cable protection and cable crossings) – 739,252m²** Total worst case turbine foundation area, including scour protection - 311,725m² (100 small turbines x 3,117m² total protection per turbine) *(no change)* Total worst case offshore platforms foundation area, including scour protection – 10,822m² Total area of array and inter-platform cable protection – 362,625m² (326,700m² array cable protection + 35,925m² inter-platform cable protection) Estimated number of array/inter-platform cable pipeline/cable crossings - 21 Total area of pipeline / cable crossing material (array + inter–platform cables) – 54,080m² Offshore Export Cable Corridor **Total area of habitat loss within the Offshore Export Cable Corridor – 936,074m²** Total area of export cable protection – 788,941m² Estimated number Offshore Export Cable Corridor pipeline/cable crossings - 24 Total area of pipeline / cable crossing material – 147,133m²	Array Areas **Total area of habitat loss within the Array Areas (foundations, scour protection, cable protection and cable crossings) – 1,715,882m²** Total worst case turbine foundation area, including scour protection – 623,449m² (200 small turbines x 3,117m² total protection per turbine) *(no change)* Total worst case offshore platforms foundation area, including scour protection – 16,233m² Total area of array and inter-platform cable protection – 901,160m² (653,400m² array cable protection + 247,760m² inter-platform cable protection) Estimated number of array/inter-platform cable pipeline/cable crossings - 53 Total area of pipeline / cable crossing material (array + inter–platform cables) – 175,040m² Offshore Export Cable Corridor **Total area of habitat loss within the Offshore Export Cable Corridor – 2,083,489m²** Total area of export cable protection – 1,789,222m² Estimated number Offshore Export Cable Corridor pipeline/cable crossings - 48 Total area of pipeline / cable crossing material – 294,267m²	Overall reduction in permanent habitat loss within the Array Areas due to the reduction in number of offshore platforms and reduction in cabling within the Array Areas, leading to a reduction in platform foundation area, scour protection, cable protection and number of cable / pipeline crossings. Removal of the ESP from the Projects' Design Envelope removed the requirement for scour protection in the Offshore Export Cable Corridor and thereby reduced the total area of habitat loss within the Offshore Export Cable Corridor. Maximum potential area of habitat loss within the Dogger Bank SAC boundary reduced to 1.9km² from 2.3km² for both Projects together, an approximately 17% decrease in area.	No change, magnitude of impact remains negligible. Therefore, the residual significance of effect remains **minor adverse** as assessed in the ES. No change, potential for AEoI on the Dogger Bank SAC remains as assessed in the RIAA.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Dogger Bank SAC **Total area of habitat loss within the Dogger Bank SAC - 875,172m²** Total area of habitat loss within the Array Area (foundations, scour protection, cable protection and cable crossings) – 739,252m² Total area of habitat loss within the Dogger Bank SAC in relation to the Offshore Export Cable Corridor – 135,920m² *(No change)*	Dogger Bank SAC **Total area of habitat loss within the Dogger Bank SAC - 790,081m²** Total area of habitat loss within the Array Area (foundations, scour protection, cable protection and cable crossings) – 739,252m² Total area of habitat loss within the Dogger Bank SAC in relation to the Offshore Export Cable Corridor – 50,829m² *(No change)*	Dogger Bank SAC **Total area of habitat loss within the Dogger Bank SAC - 1,916,586m²** Total area of habitat loss within the Array Areas (foundations, scour protection, cable protection and cable crossings) – 1,715,882m² Total area of habitat loss within the Dogger Bank SAC in relation to the Offshore Export Cable Corridor – 200,704m² *(No change)*		
Impact 6 - Interactions of Electromagnetic Field (EMF) (including potential cumulative EMF effects)	No change in worst case parameters, original assessment based on minimum cable burial depth which remains unchanged.				No change, the residual significance of effect assessed in the ES is **negligible**.
Impact 7 -Colonisation of introduced substrate, including non-native species	No change in worst case parameters, original assessment based on maximum number of operations and maintenance vessels on site at any one time, which remains unchanged.				No change, the residual significance of effect assessed in the ES is **minor adverse**.

4.3 Fish and Shellfish Ecology

29. **Table 4-4** presents the changes in the worst case parameters for potential effects on Fish and Shellfish Ecology assessed within the ES (**Chapter 10 Fish and Shellfish Ecology** [APP-091]), a description of the change in relation to the previous worst case assessed in the ES chapter and whether the significance of effect has changed as a result of the proposed changes in the Projects' parameters.

30. The EIA undertaken in **Chapter 10 Fish and Shellfish Ecology** [APP-091] included the construction and O&M impacts of:

- Reduced fishing pressure within the Array Areas and increased fishing pressure outside of the Array Areas (construction only);
- Temporary habitat disturbance and direct damage (O&M only);
- Increase in local suspended sediment concentrations and sediment settlement (O&M only); and
- Release of sequestered contaminants following sediment disturbance (O&M only).

31. However, the proposed changes to the Projects' Design Envelope do not change the worst case parameters assessed within the ES chapter for these impacts and therefore have not been discussed further within **Table 4-4**.

32. In addition, the assessment of impact on fish and shellfish species as a result of noise and vibration was based on pile driving in the Array Areas and Offshore Export Cable Corridor. As a result of the proposed change of removing the ESP from the Projects' Design Envelope, in order to understand the impacts of the proposed change, the underwater noise modelling has been amended to remove piling in the Offshore Export Cable Corridor (**Appendix 11-3 - Underwater Noise Modelling Report (Revision 2)** [document reference: 7.11.11.3]).

33. Further discussion of the impacts affected by the proposed changes, primarily the proposed removal of the ESP in the Offshore Export Cable Corridor and reduction in number of offshore platforms reducing the potential area of effect for underwater noise changes, are presented within **Appendix A – Fish and Shellfish Ecology Environmental Statement Update** [document reference: 10.50].

34. It should be noted that the proposed changes would not result in any changes to the worst case parameters for Annex II Migratory Fish Species assessed in the **RIAA HRA - Part 2 of 4 – Annex I Offshore Habitats and Annex II Migratory Fish (Revision 3)** [AS-051 and AS-052], with this assessment being focused on underwater noise and vibration impacts to hearing sensitive species due to Unexploded Ordnance (UXO) clearance.

35. In summary, the proposed changes would reduce the worst case parameters assessed in **Chapter 10 Fish and Shellfish Ecology** [APP-091]. However, the extent of the reduction would not result in any changes to the original assessment presented within **Chapter 10 Fish and Shellfish Ecology** [APP-091].

Table 4-4 Changes to the Fish and Shellfish Ecology Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Impact 1: Temporary habitat disturbance and direct damage	Array Area **Total Array Area assessed for ES – 427km²** (349km² for Array Area + 78km² Construction Buffer Zone) *(no change)* **Total area of disturbance within Array Areas – 9,671,083m²** Array and Inter-Platform Cables **Maximum area disturbed (trenching + sandwave levelling) – 8,392,500m²** Array cable trench area (350,000m x 20m boulder plough width) – 7,000,000m² Inter-platform cable trench area (23,000m x 20m disturbance width) – 460,000m² Maximum seabed area disturbed by sandwave levelling – 932,500m² Foundations and Vessel Impacts **Maximum area disturbed (foundations, platforms, vessel jack-up locations and anchoring) – 1,278,583m²** Seabed preparation area for 100 small turbine monopile foundations (including scour protection) – 358,498m² *(no change)* Seabed preparation area for two offshore platforms (monopile foundations), including scour protection – 12,445m² Area of seabed contact for vessel jack-up assuming six jack-up locations per turbine (275m² per jack-up leg x	Array Area **Total Array Area assessed for ES – 434km²** (355km² for Array Area + 79km² Construction Buffer Zone) *(no change)* **Total area of disturbance within Array Areas – 9,671,083m²** Array and Inter-Platform Cables **Maximum area disturbed (trenching + sandwave levelling) – 8,392,500m²** Array cable trench area (350,000m x 20m boulder plough width) – 7,000,000m² Inter-platform cable trench area (23,000m x 20m disturbance width) – 460,000m² Maximum seabed area disturbed by sandwave levelling – 932,500m² Foundations and Vessel Impacts **Maximum area disturbed (foundations, platforms, vessel jack-up locations and anchoring) – 1,278,583m²** Seabed preparation area for 100 small turbine monopile foundations (including scour protection) – 358,498m² *(no change)* Seabed preparation area for two offshore platforms (monopile foundations), including scour protection – 12,445m² Area of seabed contact for vessel jack-up assuming six jack-up locations per turbine (275m² per jack-up leg x	Array Areas **Total Array Area assessed for ES – 1,008km²** (874km² for Array Areas and Inter Platform Cabling Area + 134km² Construction Buffer Zone) *(no change)* **Total area of disturbance within Array Areas – 21,915,594m²** Array and Inter-Platform Cables **Maximum area disturbed (trenching + sandwave levelling) – 19,372,500m²** Array cable trench area (700,000m x 20m boulder plough width) – 14,000,000m² Inter-platform cable trench area (161,000m x 20m disturbance width) – 3,220,000m² Maximum seabed area disturbed by sandwave levelling – 2,152,500m² Foundations and Vessel Impacts **Maximum area disturbed (foundations, platforms, vessel jack-up locations and anchoring) – 2,543,094m²** Seabed preparation area for 200 small turbine monopile foundations (including scour protection) – 716,966m² *(no change)* Seabed preparation area for three offshore platforms (monopile foundations), including scour protection – 18,668m²	Overall reduction in total area of disturbance within the Array Areas due to the overall reduction in cable lengths and reduction in number of offshore platforms, leading to a reduction in required trenching, sandwave levelling, seabed preparation, jack-up footprint and anchoring.	No change, magnitude of impact remains low. Therefore, the residual significance of effect remains **minor adverse** for all fish and shellfish receptor groups as assessed in the ES.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	four legs x six operations per turbine x 100 small turbines) – 660,000m² Area of seabed contact for vessel jack-up for all platforms in Array Areas (1,100m² combined leg area x five operations per platform x two offshore platforms) – 11,000m² Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 100 small turbines + two offshore platforms – 236,640m²	four legs x six operations per turbine x 100 small turbines) – 660,000m² Area of seabed contact for vessel jack-up for all platforms in Array Areas (1,100m² combined leg area x five operations per platform x two offshore platforms) – 11,000m² Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 100 small turbines + two offshore platforms) – 236,640m²	Area of seabed contact for vessel jack-up vessel jack-up assuming six jack-up locations per turbine (275m² per jack-up leg x four legs x six operations per turbine x 200 small turbines) – 1,320,000m² Area of seabed contact for vessel jack-up for all platforms in Array Areas (1,100m² combined leg area x five operations per platform x three offshore platforms) – 16,500m² Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 200 small turbines + three offshore platforms) – 470,960m²		
	Offshore Export Cable Corridor **Total temporary area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 19,814,871m²** Total offshore cable length per cable – 188km *(no change)* Maximum number of cables required – Two *(no change)* Maximum offshore cable length for all cables – 376km *(no change)* Note – Assumes a worst case of a separate cable trench for each cable, spaced 50m apart. *(no change)* Maximum temporary disturbance area for cable installation – 7,510,800m² (based on 376,000m distance x 20m width of temporary disturbance) *(no change)* Maximum seabed area disturbed by sandwave levelling – 12,282,010m² *(no change)*	Offshore Export Cable Corridor **Total temporary area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 16,976,296m²** Total offshore cable length per cable – 153km *(no change)* Maximum number of cables required – Two *(no change)* Maximum offshore cable length for all cables – 306km *(no change)* Note – Assumes a worst case of a separate cable trench for each cable, spaced 50m apart. *(no change)* Maximum temporary disturbance area for cable installation – 6,120,400m² (based on 306,000m distance x 20m width of temporary disturbance) *(no change)* Maximum seabed area disturbed by sandwave levelling – 10,833,835m² *(no change)*	Offshore Export Cable Corridor **Total temporary area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 36,791,136m²** Total offshore cable length per cable – 188km for DBS East, 153km for DBS West. *(no change)* Maximum number of cables required – Four *(no change)* Maximum offshore cable length for all cables – 682km *(no change)* Note – Assumes a worst case of a separate cable trench for each cable, spaced 50m apart. *(no change)* Maximum temporary disturbance area for cable installation – 13,631,200m² (based on 682,000m distance x 20m width of temporary disturbance) *(no change)*	The removal of the ESP within the Offshore Export Cable Corridor removed the impacts of foundation disturbance and vessel jack-up, thereby reducing the total temporary area disturbed for export cable installation. No changes have occurred to other parameters. Minor increase in total impacted area by anchoring in the Offshore Export Cable Corridor for the Projects together from 44,091m² included within the ES to 44,122m².	

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Maximum total area impacted by anchoring – 22,061m² *(no change)* *Note - 10km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring.*	Maximum total area impacted by anchoring – 22,061m² *(no change)* *Note – 10km stretch along the Offshore Export Cable Corridor where water depth is <10m LAT, may require use of anchoring.*	Maximum seabed area disturbed by sandwave levelling – 23,115,845m² *(no change)* Maximum total area impacted by anchoring – 44,122m² *(no change)* *Note – 10km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring.*		
	Trenchless Crossing (e.g. HDD) **Total volume of sediment disturbed by subtidal exit pits – 936m³** No. of exit pits – 3 Size of each exit pit – 26m length x 6m width x 2m depth Volume of displaced sediment per exit pit – 312m³ Depth of cable – 1.5m	Trenchless Crossing (e.g. HDD) **Total volume of sediment disturbed by subtidal exit pits - 936m³** No. of exit pits – 3 Size of each exit pit – 26m length x 6m width x 2m depth Volume of displaced sediment per exit pit – 312m³ Depth of cable – 1.5m	Trenchless Crossing (e.g. HDD) **Total volume of sediment disturbed by subtidal exit pits – 1,872m³** No. of exit pits – 6 Size of each exit pit – 26m length x 6m width x 2m depth Volume of displaced sediment per exit pit – 312m³ Depth of cable – 1.5m	The Applicants have removed the short trenchless crossing from the Projects' Design Envelope, thereby committing to a long trenchless crossing with a subtidal exit. In addition, the exit pit dimensions have been reduced from that assessed at ES.	
Impact 2: Increase in local suspended sediment concentrations and sediment settlement; and Impact 3: Release of sequestered contaminants following sediment disturbance	**Total displaced sediment across the Offshore Development Area - 39,226,252m³** **Total Displaced sediment during sandwave levelling (Array Cables, Inter-Platform Cables and Export Cables) - 33,499,463m³** Maximum volume of sandwave material to be dredged / relocated for Array Cables and Inter-Platform Cables – 377,663m³ Maximum volume of sandwave material to be dredged / relocated for Export Cables – 33,121,800m³ *(no change)* **Maximum volume of displaced sediment during cable trenching – 5,691,000m³**	**Total displaced sediment across the Offshore Development Area - 35,407,351m³** **Total Displaced sediment during sandwave levelling (Array Area, Inter-Platform Cabling Corridor and Offshore Export Cable Corridor) - 29,680,562m³** Maximum volume of sandwave material to be dredged / relocated for Array Cables and Inter-Platform Cables – 377,663m³ Maximum volume of sandwave material to be dredged / relocated for Export Cables – 29,302,899m³ *(no change)* **Maximum volume of displaced sediment during cable trenching – 5,691,000m³**	**Total displaced sediment across the Offshore Development Area - 75,153,734m³** **Total Displaced sediment during sandwave levelling (Array Cables, Inter-Platform Cables and Offshore Export Cable Corridor) – 63,296,463m³** Maximum volume of sandwave material to be dredged / relocated for Array Cables and Inter-Platform Cables – 871,763m³ Maximum volume of sandwave material to be dredged / relocated for Export Cables – 62,424,700m³ *(no change)* **Maximum volume of displaced sediment during cable trenching – 11,787,000m³**	Overall reduction in total volume of displaced sediment within the Array Areas due to the overall reduction in cables. Parameters for drill arisings from installation of monopile foundations for offshore platforms now included in worst case parameters.	Impact 2: No change, magnitude of impact remains low. Therefore, the residual significance of effect remains as assessed in the ES: • **negligible** for elasmobranch, demersal fish, pelagic fish, and migratory fish receptor groups; • **minor adverse** for eggs and / or larvae within the elasmobranch, demersal fish, pelagic fish, and migratory fish receptor groups; and • **minor adverse** for shellfish.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth) Export cables – 3,384,000m³ (376,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 35,789m³** Drill arisings from 57 large wind turbines = 34,382m³ *(no change)* Drill arisings from two offshore platform monopile foundations = 1,407m³	Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth) Export cable – 2,754,000m³ (306,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 35,789m³** Drill arisings from 57 large wind turbines = 34,382m³ *(no change)* Drill arisings from two offshore platform monopile foundations = 1,407m³	Array cable – 4,200,000m³ (161,000m length x 6m width x 1m depth) Inter-Platform Cables – 1,449,000m³ (161,000m length x 6m width x 1.5m depth) Export cable – 6,138,000m³ (682,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 70,271m³** Drill arisings from 113 large wind turbines = 68,160m³ *(no change)* Drill arisings from three monopile foundations = 2,111m³		Impact 3: No change, magnitude of impact remains negligible. Therefore, the residual significance of effect remains **negligible** for all fish and shellfish receptor group as assessed in the ES.
Impact 4: Impacts on fish and shellfish species as a result of noise and vibration (from piling and UXO clearance only)	<u>Array Area</u> <u>Piling (monopile)</u> Maximum piles per day – 4 *(no change)* Maximum concurrent monopile piling events – 2 *(no change)* Hammer energy – 6,000kJ hammer *(no change)* Duration per monopile – Indicative 320 minutes, up to 8 hours *(no change)* Number of wind turbine monopiles – 100 *(no change)* Monopiles for offshore platforms – 2 UXO	<u>Array Area</u> <u>Piling (monopile)</u> Maximum piles per day – 4 *(no change)* Maximum concurrent monopile piling events – 2 *(no change)* Hammer energy – 6,000kJ hammer *(no change)* Duration per monopile – Indicative 320 minutes, up to 8 hours *(no change)* Number of wind turbine monopiles – 100 *(no change)* Monopiles for offshore platforms – 2 UXO	<u>Array Area</u> <u>Piling (Pin Pile)</u> Maximum pin piles per day – 8[4] Maximum concurrent pin piling events – 2[4] Hammer energy – 3,000kJ hammer *(no change)* Maximum pin piles per turbine foundation – 4 *(no change)* Duration per pin pile – Indicative 190 minutes, up to 8 hours *(no change)* Number of wind turbine pin piles – 800 *(no change)* Pin piles for offshore platforms –24 UXO	Piling (pin pilling) within the Offshore Export Cable Corridor is no longer required as the ESP has been removed from the Projects' Design Envelope.	No change, magnitude of impact remains low. Therefore, the residual significance of effect remains **minor adverse** for all fish and shellfish receptor groups as assessed in the ES.

[4] The version of this report previously issued for consultation in late 2024 stated that no more than 12 pin piles would be installed in a single day, based on the maximum concurrent pin piling events being three. This was an error, with the proposed changes resulting in no more than eight pin piles being installed in a single day and the maximum concurrent pin piling events being reduced to two. The updated assessments presented in **Appendix A – Fish and Shellfish Ecology Environmental Statement Update** [document reference: 10.50] are based on total piling time and total number of piles to be installed, for which the values remain identical to that previously consulted on. As such, the assessment outcomes previously consulted on remain unchanged.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Maximum UXO to be cleared in one day – 2 *(no change)* Offshore Export Cable Corridor Maximum UXO to be cleared in one day – 2 *(no change)*	Maximum UXO to be cleared in one day – 2 *(no change)* Offshore Export Cable Corridor Maximum UXO to be cleared in one day – 2 *(no change)*	Maximum UXO to be cleared in one day – 2 *(no change)* Offshore Export Cable Corridor Maximum UXO to be cleared in one day – 2 *(no change)*		
Impact 5: Reduced fishing pressure within the Array Areas and increased fishing pressure outside of the Array Areas	No change in worst case parameters.				No change, the residual significance of effect is **minor adverse** as assessed in the ES.
Operation and Maintenance					
Impact 1: Temporary habitat disturbance and direct damage	No change in worst case parameters.				No change, the residual significance of effect is **minor adverse** as assessed in the ES.
Impact 2: Increase in local suspended sediment concentrations and sediment settlement; and Impact 3: Release of sequestered contaminants following sediment disturbance	No change in worst case parameters.				Impact 1: No change, the residual significance of effect is **negligible** to **minor adverse** depending on the receptor group as assessed in the ES. Impact 3: No change, the residual significance of effect is **negligible** for all fish and shellfish receptor groups as assessed in the ES.
Impact 5: Reduced fishing pressure within the Array Areas and increased fishing pressure outside of the Array Area	**Total footprint of infrastructure within the Array Area – 0.74km²** **Total footprint within the Offshore Export Cable Corridor - 1.10km²**	**Total footprint of infrastructure within the Array Area – 0.74km²** **Total footprint within the Offshore Export Cable Corridor - 0.94km²**	**Total footprint of infrastructure within the Array Areas – 1.7km²** **Total footprint within the Offshore Export Cable Corridor - 2.08km²**	Reduction in number of offshore platforms and reduction in overall length of cabling within the Array Areas would lead to a reduction in the total footprint of infrastructure within the Array Area(s) and Offshore Export Cable Corridor, and	No change, magnitude of impact remains negligible. Therefore, the residual significance of effect remains **negligible** for all fish and shellfish receptor groups as assessed in the ES.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
				therefore a reduction in fishing pressure.	
Impact 6: Permanent loss of habitat and / or change in habitat type as a result of changes in substrate composition	Array Area **Total area of habitat loss within the Array Area (foundations, scour protection, cable protection and cable crossings) – 739,252m²** Total worst case turbine foundation area, including scour protection – 311,725m² (100 small turbines x 3,117m² total protection per turbine) *(no change)* Total worst case offshore platforms foundation area, including scour protection– 10,822m² Total area of array and inter-platform cable protection – 363,625m² (326,700m² array cable protection + 35,925m² inter-platform cable protection) Estimated number of array / inter-platform cable pipeline / cable crossings - 21 Total area of pipeline / cable crossing material (array + inter–platform cables) – 54,080m² Offshore Export Cable Corridor **Total area of habitat loss within the Offshore Export Cable Corridor – 1,147,415m²** Total area of export cable protection – 1,000,282m² *(no change)* Estimated number Offshore Export Cable Corridor pipeline / cable crossings – 24 *(no change)* Total area of pipeline / cable crossing material – 147,133m² *(no change)*	Array Area **Total area of habitat loss within the Array Area (foundations, scour protection, cable protection and cable crossings) – 739,252m²** Total worst case turbine foundation area, including scour protection – 311,725m² (100 small turbines x 3,117m² total protection per turbine) *(no change)* Total worst case offshore platforms foundation area, including scour protection – 10,822m² Total area of array and inter-platform cable protection – 363,625m² (326,700m² array cable protection + 35,925m² inter-platform cable protection) Estimated number of array / inter-platform cable pipeline / cable crossings – 21 Total area of pipeline / cable crossing material (array + inter–platform cables) – 54,080m² Offshore Export Cable Corridor **Total area of habitat loss within the Offshore Export Cable Corridor – 936,074m²** Total area of export cable protection – 788,941m² *(no change)* Estimated number Offshore Export Cable Corridor pipeline / cable crossings – 24 *(no change)* Total area of pipeline / cable crossing material – 147,133m² *(no change)*	Array Area **Total area of habitat loss within the Array Areas (foundations, scour protection, cable protection and cable crossings) – 1,715,882m²** Total worst case turbine foundation area, including scour protection – 623,449m² (200 small turbines x 3,117m² total protection per turbine) *(no change)* Total worst case offshore platforms foundation area, including scour protection – 16,233m² Total area of array and inter-platform cable protection – 901,160m² (653,400m² array cable protection + 247,760m² inter-platform cable protection) Estimated number of array / inter-platform cable pipeline / cable crossings – 53 Total area of pipeline / cable crossing material (array + inter–platform cables) – 175,040m² Offshore Export Cable Corridor **Total area of habitat loss within the Offshore Export Cable Corridor – 2,083,489m²** Total area of export cable protection – 1,789,222m² *(no change)* Estimated number Offshore Export Cable Corridor pipeline / cable crossings – 48 *(no change)* Total area of pipeline / cable crossing material – 294,267m² *(no change)*	Reduction in number of offshore platforms and reduction in overall length of cabling within the Array Areas would lead to a reduction in the total footprint of infrastructure within the Array Area(s) and thereby reduced the total area of habitat loss. Removal of the ESP from the Projects' Design Envelope removed the requirement for scour protection in the Offshore Export Cable Corridor and thereby reduced the total area of habitat loss within the Offshore Export Cable Corridor.	No change, magnitude of impact remains low. Therefore, the residual significance of effect remains **minor adverse** for all fish and shellfish receptor groups as assessed in the ES.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Impact 7: Electromagnetic field effects arising from cables.	**Maximum Offshore Export Cable length** 2 x cables of 188km = 376km *(no change)* **Maximum array cable length** 350km **Maximum Inter platform cable length** 23km **Offshore Export Cable Voltage** Up to 525kV DC *(no change)* **Array Cable Voltage** Up to 132kV *(no change)* **Inter platform Cable Voltage** 275kV **Minimum Burial Depth** 0.5m (no change)	**Maximum Offshore Export Cable length** 2 x cables of 153km = 306km *(no change)* **Maximum array cable length** 350km **Maximum Inter platform cable length** 23km Offshore Export Cable Voltage Up to 525kV DC *(no change)* **Array Cable Voltage** Up to 132kV *(no change)* **Inter platform Cable Voltage** 275kV **Minimum Burial Depth** 0.5m (no change)	**Maximum Offshore Export Cable length** 682km (no change) **Maximum array cable length** 700km **Maximum Inter platform cable length** 161km **Offshore Export Cable Voltage** Up to 52kV DC *(no change)* **Array Cable Voltage** Up to 132kV *(no change)* **Inter platform Cable Voltage** 275kV**Minimum Burial Depth** 0.5m (no change)	There is no change in the length of the Offshore Export Cable. A small increase (25km) in array cable length is required due to array cable layout constraints leading to a re-evaluation of lengths included as part of the DCO submission. Inter-Platform Cables were omitted in error from the original assessment at the EIA stage which is discussed within **Appendix A – Fish and Shellfish Ecology Environmental Statement Update** [document reference: 10.50] and therefore have been included here. However, the proposed changes to the Project's Design Envelope reduce the total cable length for both the Projects in isolation or together.	No change, magnitude of impact remains negligible. Therefore, the residual significance of effect remains: • **Minor adverse** for the elasmobranch receptor group as assessed in the ES; • **Negligible** for the demersal, pelagic, and migratory fish species receptor groups as assessed in the ES; and • **Negligible** for shellfish as assessed in the ES.

4.4 Marine Mammals

36. **Table 4-5** presents the changes in the worst case parameters for potential effects on Marine Mammals assessed within the **Chapter 11 Marine Mammals** [APP-095] and **RIAA HRA Part 3 of 4 – Annex II Marine Mammal**s [APP-047], a description of the change in relation to the previous worst case assessed and whether the significance of effect has changed as a result of the proposed changes in the Projects' parameters.

37. The EIA undertaken in **Chapter 11 Marine Mammals** [APP-095] included the construction impact of disturbance at seal haul-out sites and the O&M impacts of:

- Underwater noise from operational turbines; and
- Underwater noise from vessels and vessel collisions.

38. However, the proposed changes to the Projects' Design Envelope do not change the worst case parameters assessed within the ES chapter for these impacts and therefore have not been discussed further within **Table 4-5**.

39. The assessment of underwater noise from construction activities was based on pile driving in the Array Areas and Offshore Export Cable Corridor. As a result of the proposed change to remove the ESP from the Projects' Design Envelope, in order to understand the impacts of the changes, the underwater noise modelling has been updated to exclude the ESP, removing piling in the Offshore Export Cable Corridor (**Appendix 11-3 - Underwater Noise Modelling Report (Revision 2)** [document reference: 7.11.11.3]).

40. Further discussion of the impacts affected by the proposed changes, primarily the proposed removal of the ESP in the Offshore Export Cable Corridor and reduction in number of offshore platforms reducing the potential area of effect for underwater noise changes, are presented within **Appendix B – Marine Mammal Environmental Statement Update** [document reference: 10.51].

41. In summary, the proposed changes would reduce the worst case parameters assessed for Marine Mammals and therefore would result in either no changes, or a reduction in the significance of effects, to the original assessment presented within **Chapter 11 Marine Mammals** [APP-095].

42. The reduction in the significance of effect relates to the impact of 'Temporary Threshold Shift (TTS) from cumulative exposure from concurrent jacket pin pile installations at multiple piling locations on grey seal'.

43. The magnitude for TTS on grey seal would be reduced from high in the ES to low due to the removal of the ESP from the Projects' Design Envelope. Therefore, the significance of effect (before mitigation) would be reduced from major adverse to **minor adverse**, and therefore not significant in EIA terms.

44. In addition, further discussion of the impacts affected by the proposed changes with regards to sites designed for Annex II Marine Mammals is presented in **Appendix C – Marine Mammal RIAA HRA** [document reference: 10.52], which focuses on the potential changes to the assessment which could arise from the removal of the ESP in the Offshore Export Cable Corridor and the reduction in piling (disturbance) days due to the proposed reduction in number of offshore platforms.

45. In summary, while the removal of the ESP in the Offshore Export Cable Corridor would substantially reduce the maximum number of grey seals affected in the Southern North Sea (SNS) SAC, the Humber Estuary SAC, the Wash and North Norfolk SAC and Berwickshire and North Northumberland SAC, the proposed changes would not result in any changes to the conclusions for Annex II Marine Mammals as assessed in the **RIAA HRA Part 3 of 4 – Annex II Marine Mammal**s [APP-047].

Table 4-5 Changes to the Marine Mammals Worst Case Scenario and Effect Significance / AEoI Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Impact 1 and 2: Underwater noise and vibration from piling	<u>Array Area</u> • Total Array Area assessed for ES – 427km² (349km² for Array Area + 78km² Construction Buffer Zone) *(no change)* • Up to 100 turbines *(no change)* • Up to two offshore platforms	<u>Array Area</u> • Total Array Area assessed for ES – 434km² (355km² for Array Area + 79km² Construction Buffer Zone) *(no change)* • Up to 100 turbines *(no change)* • Up to two offshore platforms	<u>Array Areas</u> • Total Array Area assessed for ES – 1008km² (874km² for Array Areas and Inter Platform Cabling Area + 134km² Construction Buffer Zone) *(no change)* • Up to 200 turbines *(no change)* • Up to three offshore platforms	Reduction in number of offshore platforms required, resulting in subsequent reduction in piling.	No change to the residual significance of effect assessed in the ES, with the exception of TTS for grey seal. Within the ES, the magnitude of impact of TTS due to cumulative exposure from concurrent jacket pin pile installations at multiple piling locations on grey seal has reduced from high in the ES to low due to the removal of the ESP from the Projects' Design Envelope. Therefore, the significance of effect before mitigation is reduced from major adverse to **minor adverse,** and therefore no longer significant in EIA terms. As noted in **Appendix C – Marine Mammal RIAA HRA Update** [document reference: 10.52] there is no change to the assessment of no AEoI for the SNS SAC, the Humber Estuary SAC, the Wash and North Norfolk SAC and Berwickshire and North Northumberland SAC from the impact of concurrent piling of jacket pin piles. However, it should be noted that removal of the ESP in the Offshore Export Cable Corridor would substantially reduce the
	<u>Foundations</u> No change in worst case parameters.				
	<u>Piling</u> Maximum jacket pin piles per day – Eight[5] No change in remaining worst case parameters, number of maximum monopiles per day, hammer energies and duration per pile (both monopile and pin pile) remain unchanged from the ES.				

[5] The version of this report previously issued for consultation in late 2024 stated that no more than 12 pin piles would be installed in a single day. This was an error, with the proposed changes resulting in no more than eight pin piles being installed in a single day. The updated assessments presented in **Appendix B – Marine Mammal Environmental Statement Update** [document reference: 10.51] and **Appendix C – Marine Mammal RIAA HRA** [document reference: 10.52] where conducted with the assumption of no more than eight pin piles being installed in a single day. As such, the assessment outcomes previously consulted on remain unchanged.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
					maximum number of grey seals affected in each SAC.
Impact 3: Underwater noise from other construction activities	Sea-bed clearance methods: No change in worst case parameters.				No change, the residual significance of effect assessed in the ES remains **negligible adverse** to **minor adverse** depending on species.
	Cable installation methods: No change in worst case parameters.				
	Underwater noise modelling for all construction activities			See **Appendix 11-3 - Underwater Noise Modelling Report (Revision 2)** [document reference: 7.11.11.3]	
	• Maximum number of export cables: 2 *(no change)* • Maximum length of export cable: 376km *(no change)* • Maximum length of Inter-Platform Cables: 23km • Maximum length of Array cables: 350km	• Maximum number of export cables: 2 *(no change)* • Maximum length of export cable: 306km *(no change)* • Maximum length of Inter-Platform Cables: 23km • Maximum length of Array cables: 350km	• Maximum number of export cables: 4 *(no change)* • Maximum length of export cable: 682km *(no change)* • Maximum length of Inter-Platform Cables: 161km • Maximum length of Array cables: 700km	Overall reduction in noise from construction activities within the Array Areas due to the overall reduction in cable lengths.	
Impact 4 and 6: Underwater noise and disturbance from vessels, and vessel collision risk	Maximum number of construction vessels on site at any one time: up to 32 vessels (up to 26 in the Array Area and up to six in the Offshore Export Cable Corridor) *(no change)* and up to 3,686 round trips to port.	Maximum number of construction vessels on site at any one time: up to 32 vessels (up to 26 in the Array Area and up to six in the Offshore Export Cable Corridor) *(no change)* and up to 3,686 round trips to port.	Maximum number of construction vessels on site at any one time: up to 59 vessels (up to 47 in the Array Area and up to 12 in the Offshore Export Cable Corridor) *(no change)* and up to 7,239 round trips to port.	Overall reduction in cabling within the Array Areas and removal of the ESP from the Offshore Export Cable Corridor, leading to a slight reduction in number of construction vessel round-trips to port.	Impact 4: No change, the residual significance of effect assessed in the ES remains **negligible adverse** to **minor adverse** depending on species. Impact 6: No change, the residual significance of effect assessed in the ES remains **minor adverse** for all species.
Impact 5: Barrier effect from underwater noise	As described for Impact 1 above.			Reduction in number of offshore platforms required, resulting in subsequent reduction in piling.	No change, the residual significance of effect assessed in the ES remains **minor adverse** for all species.
Impact 7: Changes to prey resources	Impacts to prey species and habitat as described in **Table 4-4**.				No change, the residual significance of effect assessed in the ES remains **negligible** to **minor adverse** for all species.
	Total area of disturbance within Array Areas – 9,671,083m² **Total temporary area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 19,814,871m²**	**Total area of disturbance within Array Areas – 9,671,083m²** **Total temporary area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 16,976,296m²**	**Total area of disturbance within Array Areas – 21,915,594m²** **Total temporary area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 36,791,136m²**	Overall reduction in total area of disturbance within the Array Areas due to the overall reduction in cable lengths and number of offshore platforms, leading to a reduction in required trenching, sandwave levelling,	

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
				seabed preparation, jack-up footprint and anchoring. The removal of the ESP within the Offshore Export Cable Corridor removed the impacts of foundation disturbance and vessel jack-up, thereby reducing the total temporary area disturbed for export cable installation. No changes have occurred to other parameters.	
	Total Displaced sediment during sandwave levelling (Array Area, Inter-Platform Cables and Offshore Export Cables) - 33,499,463m³ Maximum volume of sandwave material to be dredged/relocated for Array Cables and Inter-Platform Cables – 377,663m³ Maximum volume of sandwave material to be dredged/relocated for export cables – 33,121,800m³ *(no change)* **Maximum volume of displaced sediment during cable trenching – 5,691,000m³** Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth) Export cables – 3,384,000m³ (376,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 35,789m³** Drill arisings from 57 large wind turbines = 34,382m³ *(no change)*	**Total Displaced sediment during sandwave levelling (Array Area, Inter-Platform Cables and Offshore Export Cables) - 29,680,562m³** Maximum volume of sandwave material to be dredged/relocated for Array Cables and Inter-Platform Cables – 377,663m³ Maximum volume of sandwave material to be dredged / relocated for export cables – 29,302,899m³ *(no change)* **Maximum volume of displaced sediment during cable trenching – 5,061,000m³** Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth) Export cable – 2,754,000m³ (306,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 35,789m³** Drill arisings from 57 large wind turbines = 34,382m³ *(no change)*	**Total Displaced sediment during sandwave levelling (Array Cables, Inter-Platform Cables and Export Cables) - 63,296,463m³** Maximum volume of sandwave material to be dredged/relocated for Array Cables and Inter-Platform Cables – 871,763m³ Maximum volume of sandwave material to be dredged / relocated for export cables – 62,424,700m³ *(no change)* **Maximum volume of displaced sediment during cable trenching – 11,787,000m³** Array cable – 4,200,000m³ (700,000m length x 6m width x 1m depth) Inter-Platform Cables – 1,449,000m³ (161,000m length x 6m width x 1.5m depth) *(no change)* Export cable – 6,138,000m³ (682,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 70,271m³** Drill arisings from 113 large wind turbines = 68,160m³ *(no change)*	Overall reduction in total volume of displaced sediment within the Array Areas due to the overall reduction in cable lengths. Parameters for drill arisings from installation of monopile foundations for offshore platforms now included in worst case parameters.	

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Drill arisings from two offshore platform monopile foundations = 1,407m³	Drill arisings from two offshore platform monopile foundations = 1,407m³	Drill arisings from three monopile foundations = 2,111m³		
Impact 8: Changes to water quality	Impacts to water quality as described in **Table 4-2.** See worst case for temporary increases in suspended sediment concentrations and re-mobilisation of contaminated sediments as described.				No change, the residual significance of effect assessed in the ES remains **negligible adverse** for all species.
Impact 9: Disturbance at seal haul-out sites	No change in worst case parameters.				No change, the residual significance of effect assessed in the ES remains **negligible** to **minor adverse** for all species.
Operation and Maintenance					
Impact 1: Underwater noise from operational turbines	No change in worst case parameters.				No change, the significance of effect assessed in the ES remains **minor adverse** for all species.
Impact 2: Underwater noise from maintenance activities	No change in worst case parameters.				No change, the residual significance of effect assessed in the ES remains **negligible** to **minor adverse** for all species.
Impact 3 and 5: Underwater noise from vessels and vessel collision	No change in worst case parameters.				No change, the significance of effect assessed in the ES remains **negligible** to **minor adverse** for all species.
Impact 4: Barrier effects from underwater noise	No change in worst case parameters.				No change, the significance of effect assessed in the ES remains **no impact** for all species.
Impact 6: Changes to prey resources	Array Area Total Array Area assessed for ES – 427km² (349km² for Array Area + 78km² Construction Buffer Zone) *(no change)* Total area of habitat loss within the Array Area (foundations, scour	Array Area Total Array Area assessed for ES – 434km² (355km² for Array Area + 79km² Construction Buffer Zone) *(no change)* Total area of habitat loss within the Array Area (foundations, scour	Array Areas Total Array Area assessed for ES – 1,008km² (874km² for Array Areas and Inter Platform Cabling Area + 134km² Construction Buffer Zone) *(no change)*	Overall reduction in permanent habitat loss within the Array Areas due to the reduction in number of offshore platforms and reduction in cabling within the Array Areas, leading to a reduction in platform foundation area, scour protection, cable	No change, the residual significance of effect assessed in the ES remains **negligible** to **minor adverse** for all species.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	protection, cable protection and cable crossings) – 739,252m² Area of seabed disturbance from jacking-up activities over Projects lifetime – 306,900m² (10,230m² per year x 30 year lifespan) *(no change)* Area of seabed disturbance from array cable repairs over Projects lifetime – 54,000m² (Nine events x 6,000m² per event) *(no change)* Area of seabed disturbance from inter-platform cable repairs over Projects lifetime – 12,000m² (Two events x 6,000m² per event) *(no change)* Offshore Export Cable Corridor No Change	protection, cable protection and cable crossings) – 739,252m² Area of seabed disturbance from jacking-up activities over Projects lifetime – 306,900m² (10,230m² per year x 30 year lifespan) *(no change)* Area of seabed disturbance from array cable repairs over Projects lifetime – 54,000m² Nine events x 6,000m² per event) *(no change)* Area of seabed disturbance from inter-platform cable repairs over Projects lifetime – 12,000m² (Two events x 6,000m² per event) *(no change)* Offshore Export Cable Corridor No Change	Total area of habitat loss within the Array Areas (foundations, scour protection, cable protection and cable crossings) – 1,715,882m² Area of seabed disturbance from jacking-up activities over Projects lifetime – 613,800m² (20,460m² per year x 30 year lifespan) *(no change)* Area of seabed disturbance from array cable repairs over Projects lifetime – 102,000m² (17 events x 6,000m² per event) *(no change)* Area of seabed disturbance from inter-platform cable repairs over Projects lifetime – 36,000m² (Six events x 6,000m² per event) *(no change)* Offshore Export Cable Corridor No Change	protection and number of cable / pipeline crossings. Removal of the ESP from the Projects' Design Envelope removed the requirement for scour protection in the Offshore Export Cable Corridor and thereby reduced the total area of habitat loss within the Offshore Export Cable Corridor.	
	Displaced sediment during maintenance activities in Array Area and Offshore Export Cable Corridor No change in worst case parameters.				
	See Operation Impact in **Chapter 9 Benthic and Intertidal Ecology** [APP-085]				
Impact 7: Changes to water quality	Impacts to water quality (**Chapter 8 Marine Physical Environment** [APP-080]). Temporary increases in suspended sediment concentrations and any deterioration in water quality through the resuspension of contaminated sediment due to maintenance activities could result from periodic jack-up vessel deployment, and cable repair, replacement and reburial activities – same as temporary habitat loss / disturbance for prey above.				No change, the residual significance of effect assessed in the ES remains **negligible adverse** for all species.
Impact 8: Disturbance at seal haul-out sites	No change in worst case parameters.				No change, the residual significance of effect assessed in the ES remains **negligible** to **minor adverse** for all species.

4.5 Commercial Fisheries

46. **Table 4-6** presents the changes in the worst case parameters for potential effects on Commercial Fisheries assessed within the ES (**Chapter 13 Commercial Fisheries** [APP-117]), a description of the change in relation to the previous worst case assessed and whether the significance of effects has changed as a result of the proposed changes in the Projects' parameters.

47. The EIA undertaken in **Chapter 13 Commercial Fisheries** [APP-117] included the construction and O&M impact of supply chain opportunities for local fishing vessels. However, the proposed changes to the Project's Design Envelope do not change the worst case parameters assessed within the ES chapter for this impact and therefore have not been discussed further within **Table 4-6**.

48. In summary, the proposed changes would reduce the worst case parameters assessed for Commercial Fisheries. However, the extent of the reduction would not result in any changes to the original assessment presented within **Chapter 13 Commercial Fisheries** [APP-117].

Table 4-6 Changes to the Commercial Fisheries Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Loss or restricted access to fishing grounds	Construction duration No change in worst case parameter.				No change, magnitude of impact remains as no change to medium depending on Dogger Bank SAC byelaw status, fishing ground location and gear type. Therefore, the residual significance of effect remains as **no change** to **minor adverse** as assessed in the ES.
	Safety zones No change in worst case parameter.				
	Array Area Total Array Area assessed for ES: 349km² *(no change)* Inter-platform cable trench area (23,000 x 20m disturbance width): 0.46km²	Array Area Total Array Area assessed for ES: 355km² *(no change)* Inter-platform cable trench area (23,000m x 20m disturbance width): 0.46km²	Array Area Total Array Area assessed for ES: 704km² *(no change)* Inter-platform cable trench area (161,000m x 20m disturbance width): 3.22km²	Reduction in length of inter-platform cabling, resulting in a reduction to the loss or restricted access to fishing grounds.	
	Offshore Export Cable Corridor No change in worst case parameter.				
Displacement from the Array Area and Offshore Export Cable Corridor leading to gear conflict and increased pressure on adjacent fishing grounds	As per the realistic worst case scenario for construction phase loss or restricted access to fishing grounds.			Reduction in length of inter-platform cabling, resulting in a reduction to the loss or restricted access to fishing grounds.	No change, magnitude of impact remains as no change to low depending on Dogger Bank SAC byelaw status, fishing ground location and gear type. Therefore, the residual significance of effect remains as **no change** to **minor adverse** as assessed in the ES.
Temporary increase in steaming times	As per the realistic worst case scenario for construction phase loss or restricted access to fishing grounds.			Reduction in length of inter-platform cabling, resulting in a reduction to the loss or restricted access to fishing grounds.	No change, magnitude of impact remains as low. Therefore, residual significance of the effect remains as **minor adverse** as assessed in the ES.
Loss or damage to fishing gear due to snagging	As per the realistic worst case scenario for construction phase loss or restricted access to fishing grounds.			Reduction in length of inter-platform cabling, resulting in a reduction to	No change, magnitude of impact remains as no change. Therefore, the residual significance of

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
				the loss or restricted access to fishing grounds.	effect remains as **no change** as assessed in the ES.
Supply chain opportunities for local fishing vessels	No change in worst case parameter.				No change, magnitude of impact remains as negligible to low depending on gear type used. Therefore, residual significance of effect remains as **negligible** to **minor beneficial** as assessed in the ES.
Potential impacts on commercially important fish and shellfish resources	See **Table 4-4** for potential changes to worst case parameters.				No change, magnitude of impact remains as low. Therefore, residual significance of effect remains as **negligible** to **minor adverse**, depending on gear type as assessed in the ES.
Navigational safety	See **Table 4-7** for potential changes to worst case parameters.				No change, magnitude of impact remains as no change. Therefore, residual significance of remains as **no change** effect as assessed in the ES.
Operation and Maintenance					
Loss or restricted access to fishing grounds	<u>Array Area</u> Total footprint of infrastructure within the Array Area: 0.74km² Up to 100 small wind turbines on monopile foundations *(no change)* Up to two platforms with topside dimensions of 125x100m. Minimum spacing of 830m between array structures *(no change)* Up to 350km of array cables.	<u>Array Area</u> Total footprint of infrastructure within the Array Area: 0.74km² Up to 100 small wind turbines on monopile foundations *(no change)* Up to two platforms with topside dimensions of 125x100m. Minimum spacing of 830m between array structures *(no change)* Up to 350km of array cables.	<u>Array Area</u> Total footprint of infrastructure within the Array Area: 1.7km² Up to 200 small wind turbines on monopile foundations *(no change)* Up to three platforms with topside dimensions of 125x100m. Minimum spacing of 830m between array structures *(no change)* Up to 700km of array cables.	Reduction in number of offshore platforms and reduction in overall length of cabling within the Array Areas would lead to a reduction in the total footprint of infrastructure within the Array Area(s), reducing the loss or restricted access to fishing grounds.	No change, magnitude of impact remains as no change to low depending on Dogger Bank SAC byelaw status, fishing ground location and gear type. Therefore, residual significance of effect remains as **no change** to **minor adverse** as assessed in the ES.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Inter-Platform Cables with combined 23km length. Indicative target burial depth for array and Inter-Platform Cables of between 0.5m and 1.5m. Indicative maximum proportion of array and inter platform cable protection requirement of 10%. Up to 21 total array and inter platform cable and pipeline crossings. Indicative height of protection for array cables (including crossings) of 1.0m *(no change)* Indicative height of protection for Inter-Platform Cables (including crossings) of 1.4m *(no change)*	Inter-Platform Cables with combined 23km length. Indicative target burial depth for array and Inter-Platform Cables of between 0.5m and 1.5m. Indicative maximum proportion of array and inter platform cable protection requirement of 10%. Up to 21 total array and inter platform cable and pipeline crossings. Indicative height of protection for array cables (including crossings) of 1.0m *(no change)* Indicative height of protection for Inter-Platform Cables (including crossings) of 1.4m *(no change)*	Inter-Platform Cables with combined 161km length. Indicative target burial depth for array and Inter-Platform Cables of between 0.5m and 1.5m. Indicative maximum proportion of array and inter platform cable protection requirement of 10%. Up to 53 total array and inter-platform cable and pipeline crossings. Indicative height of protection for array cables (including crossings) of 1.0m *(no change)* Indicative height of protection for Inter-Platform Cables (including crossings) of 1.4m *(no change)*		
	<u>Offshore Export Cable Corridor</u> No change in remaining worst case parameters.			Removal of the ESP would reduce the loss or restricted access to fishing grounds from the Offshore Export Cable Corridor.	
	<u>Safety zones</u> No change in worst case parameters.				
Displacement from the Array Area and Offshore Export Cable Corridor leading to gear conflict and increased pressure on adjacent fishing grounds	As per the realistic worst case scenario for operational phase loss or restricted access to fishing grounds.			Reduction in number of offshore platforms and reduction in overall length of cabling within the Array Areas would lead to a reduction in the total footprint of infrastructure within the Array Area(s), reducing the loss or restricted access to fishing grounds. Removal of the ESP would reduce the loss or restricted access to fishing grounds from the Offshore Export Cable Corridor.	No change, magnitude of impact remains as no change to low depending on Dogger Bank SAC byelaw status, fishing ground location and gear type. Therefore, residual significance of effect remains as **no change** to **minor adverse** as assessed in the ES.
Increased steaming times	As per the realistic worst case scenario for operational phase loss or restricted access to fishing grounds.				No change, magnitude of impact remains as low. Therefore, residual significance of effect

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
					remains as **minor adverse** as assessed in the ES.
Loss or damage to fishing gear due to snagging	As per the realistic worst case scenario for operational phase loss or restricted access to fishing grounds.				No change, magnitude of impact remains as negligible. Therefore, residual significance of effect remains as **negligible** to **minor adverse** as assessed in the ES, depending on gear type.
Supply chain opportunities for local fishing vessels	No change in worst case parameters.				No change, magnitude of impact remains as negligible to low depending on gear type used. Therefore, residual significance of effect remains as **negligible** to **minor beneficial** as assessed in the ES.
Potential impacts on commercially important fish and shellfish resources	See **Table 4-4** for potential changes to worst case parameters with regards to impacts on fish and shellfish.				No change, magnitude of impact remains as low. Therefore, residual significance of effect remains as **negligible** to **minor adverse** as assessed in the ES, depending on gear type.
Navigational safety	See **Table 4-7** for potential changes to worst case parameters with regards to shipping and navigation.				No change, magnitude of impact remains as low. Therefore, residual significance of effect remains as **negligible** to **minor adverse** as assessed in the ES, depending on gear type.

4.6 Shipping and Navigation

49. **Table 4-7** presents the changes in the worst case parameters for each potential effect on Shipping and Navigation assessed within the ES (**Chapter 14 Shipping and Navigation** [APP-121], a description of the change in relation to the previous worst case assessed and whether the significance of effects has changed as a result of the proposed changes in the Projects' parameters.

50. In summary, the proposed changes would reduce the worst case parameters assessed for Shipping and Navigation. However, the extent of the reduction would not result in any changes to the original assessment presented within **Chapter 14 Shipping and Navigation** [APP-121].

Table 4-7 Changes to the Shipping and Navigation Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East or DBS West In Isolation	DBS East and DBS West Concurrently	DBS East and DBS West Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Array Areas	Construction in isolation of up to five years (*no change)* Full build out of either DBS East or DBS West taken forward (Layout A) (*no change)* Up to 189nm of array cables for DBS East or up to 189nm of array cables for DBS West. Up to 12nm of Inter-Platform Cables for DBS East and up to 12nm of Inter-Platform Cables for DBS West. Buoyed construction area encompassing the maximum extent of either the Offshore Development Area for DBS East or Offshore Development Area for DBS West (*no change)* Presence of 500m construction safety zones and 50m pre commissioning safety zones (*no change)* Up to 79 construction vessels on-site simultaneously and up to 3,686 round trips to port.	Concurrent construction of DBS East and DBS West of up to five years (*no change)* Full build out of the Array Areas (Layout A) (*no change)* Up to 378nm of array cables. Up to 87nm of Inter-Platform Cables. Buoyed construction area encompassing the maximum extent of the Array Areas (*no change)* Presence of 500m construction safety zones and 50m pre commissioning safety zones (*no change)* Up to 133 construction vessels on-site simultaneously and up to 7,239 round trips to port.	Sequential construction of DBS East and DBS West of up to seven years (*no change)* Full build out of the Array Areas (Layout A) (*no change)* Up to 378nm of array cables. Up to 87nm of Inter-Platform Cables. Buoyed construction area encompassing the maximum extent of the Array Areas (*no change)* Presence of 500m construction safety zones and 50m pre commissioning Safety zones (*no change)* Up to 133 construction / decommissioning vessels on-site simultaneously and up to 7,239 round trips to port.	Overall reduction in cabling within the Array Areas, leading to a slight reduction in number of construction vessels on-site simultaneously and round-trips to port.	No change, remains as **broadly acceptable** to **tolerable with mitigation** depending on potential impact and location as assessed in the ES.
Offshore Export Cable Corridor	No change to the remaining worst case parameters.			Removal of one platform (ESP) located within the Export Cable Platform Search Area from Projects' Design Envelope.	
Operation and Maintenance					
Array Areas	Maximum operational life of 30 years *(no change)*	Maximum operational life of 30 years *(no change*). Full build out of the Array Areas (Layout A) *(no change)*.	Maximum operational life of 32 years *(no change).* Full build out of the Array Areas (Layout A) *(no change).*	Overall reduction in cabling within the Array Areas and reduction in number of offshore platforms.	No change, remains as **broadly acceptable** to **tolerable with mitigation** depending on potential

Effect	DBS East or DBS West In Isolation	DBS East and DBS West Concurrently	DBS East and DBS West Sequentially	Notes and Rationale	Change in Effect Significance?
	Full build out of DBS East or DBS West taken forward (Layout A) *(no change)* Up to 100 wind turbines on four-legged pile jackets with sea surface dimensions of 27.5 x 27.5m *(no change).* Up to two platforms with topside dimensions of 125x110m. Minimum spacing of 830m between array structures (Layout B) *(no change).* Single line of orientation in array layout *(no change).* Minimum wind turbine air gap of 34m above Mean Sea Level (MSL) *(no change).* Up to 189nm of array cables for DBS East or up to 189nm of array cables for DBS West. Up to 12nm of Inter-Platform Cables for DBS East and up to 12nm of Inter-Platform Cables for DBS West. Target burial depth for array cables and Inter-Platform Cables of between 0.5 and 1.5m. Indicative maximum proportion of array cable protection requirement of 10% *(no change).* Indicative maximum proportion of inter-platform cable protection requirement of 10% *(no change).* Up to 20 cable / pipeline crossings per array cable for DBS East and 20 cable / pipeline crossings per array cable for DBS West. Up to one cable / pipeline crossing per inter-platform cable for DBS	Up to 200 wind turbines on four-legged pile jackets with sea surface dimensions of 27.5 x 27.5m *(no change).* Up to three platforms with topside dimensions of 125x110m. Minimum spacing of 830m between array structures (Layout B) *(no change).* Single line of orientation in array layout *(no change).* Minimum wind turbine air gap of 34m above MSL *(no change).* Up to 378nm of array cables. Up to 87nm of Inter-Platform Cables. Target burial depth for array cables and Inter-Platform Cables of between 0.5 and 1.5m. Indicative maximum proportion of array cable protection requirement of 10% *(no change).* Indicative maximum proportion of inter-platform cable protection requirement of 10% *(no change).* Up to 40 cable / pipeline crossings per array cable for both Projects. Up to 13 cable / pipeline crossings per inter-platform cable for both Projects. Indicative height of protection for array cables (including crossings) of 1.0m *(no change).* Indicative height of protection for Inter-Platform Cables (including crossings) of 1.4m *(no change).* Presence of 500m safety zones during major maintenance *(no change).*	Up to 200 wind turbines on four-legged pile jackets with sea surface dimensions of 27.5 x 27.5m *(no change).* Up to three platforms with topside dimensions of 125x110m. Minimum spacing of 830m between array structures (Layout B) *(no change).* Single line of orientation in array layout *(no change).* Minimum wind turbine air gap of 34m above MSL *(no change).* Up to 378nm of array cables. Up to 87nm of Inter-Platform Cables. Target burial depth for array cables and Inter-Platform Cables of between 0.5 and 1.5m. Indicative maximum proportion of array cable protection requirement of 10% *(no change).* Indicative maximum proportion of inter-platform cable protection requirement of 10% *(no change).* Up to 40 cable / pipeline crossings per array cable for both Projects. Up to 13 cable / pipeline crossings per inter-platform cable for both Projects. Indicative height of protection for array cables (including crossings) of 1.0m *(no change).* Indicative height of protection for Inter-Platform Cables (including crossings) of 1.4m *(no change).* Presence of 500m safety zones during major maintenance *(no change).*		impact and location as assessed in the ES.

Effect	DBS East or DBS West In Isolation	DBS East and DBS West Concurrently	DBS East and DBS West Sequentially	Notes and Rationale	Change in Effect Significance?
	East and one cable / pipeline crossing per inter-platform cable for DBS West. Indicative height of protection for array cables (including crossings) of 1.0m *(no change)* Indicative height of protection for Inter-Platform Cables (including crossings) of 1.4m *(no change)* Presence of 500m safety zones during major maintenance *(no change)* Up to 20 operation and maintenance vessels on-site simultaneously and up to 239 annual round trips to port *(no change)*	Up to 21 operation and maintenance vessels on-site simultaneously and up to 473 annual round trips to port *(no change).*	Up to 21 operation and maintenance vessels on-site simultaneously and up to 473 annual round trips to port *(no change).*		
Offshore Export Cable Corridor	No change to the remaining worst case parameters.			Removal of one platform (ESP) located within the Export Cable Platform Search Area from Projects' Design Envelope.	

4.7 Aviation and Radar

51. **Table 4-8** presents the changes in the worst case parameters for potential effects on Aviation and Radar assessed within the ES (**Chapter 15 Aviation and Radar** [APP-125], a description of the change in relation to the previous worst case assessed and whether the significance of effects has changed as a result of the proposed changes in the Projects' parameters.

52. The EIA undertaken in **Chapter 15 Aviation and Radar** [APP-125] included the construction and O&M impacts of:

- Impacts on civil and military Primary Surveillance Radar (PSR) systems due to high construction vessels / cranes and partially complete structures (construction only);
- Increased air traffic in the area related to wind farm construction activities (construction only);
- Wind turbines causing permanent interference on civil and military PSRs (O&M only); and
- Increased air traffic in the area related to wind farm support activities (O&M only).

53. However, the proposed changes to the Projects' Design Envelope do not change the worst case parameters assessed within the ES chapter for these impacts and therefore have not been discussed further within **Table 4-8**.

54. In summary, the proposed changes would reduce the worst case parameters assessed for **Chapter 15 Aviation and Radar** [APP-125]. However, the extent of the reduction would not result in any changes to the original assessment presented within **Chapter 15 Aviation and Radar** [APP-125].

Table 4-8 Changes to the Aviation and Radar Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East or DBS West In Isolation	DBS East and DBS West Concurrently	DBS East and DBS West Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Impacts on civil and military PSR systems due to high construction vessels / cranes and partially complete structures.	No change in worst case parameters.				No change to the original assessment, the residual significance of effect remains as **no change** as assessed in the ES.
Creation of an aviation obstacle environment.	Up to 100 wind turbines (*no change).* Maximum blade tip height of 394m above Mean High Water Springs (MHWS) (*no change).* High crane installation vessels (*no change).* One OCP height 205m above LAT. Up to one Accommodation Platform. Construction period of up to five years (*no change).*	Up to 200 wind turbines (*no change).* Maximum blade tip height of 394m above MHWS (*no change).* High crane installation vessels (*no change).* Up to two OCPs / height 205m above LAT. Up to one Accommodation Platform. Construction period of up to five years (*no change).*	Up to 200 wind turbines (*no change).* Maximum blade tip height of 394m above MHWS (*no change).* High crane installation vessels. Up to two OCPs / height 205m above LAT. Up to one Accommodation Platform. Construction period of up to seven years (*no change).*	Reduction in number of offshore platforms and removal of the ESP, therefore reducing the number of potential aviation obstacles.	No change to the original assessment, the residual significance of effect remains **not significant** as assessed in the ES.
Increased air traffic in the area related to wind farm construction activities.	No change in worst case parameters.				No change to the original assessment, the residual significance of effect remains **not significant** as assessed in the ES.
Operation and Maintenance					
Wind turbines causing permanent interference on civil and military PSRs.	No change in worst case parameters.				No change to the original assessment, the residual significance of effect remains **not significant** as assessed in the ES.
Creation of an aviation obstacle environment.	Up to 100 wind turbines (*no change).* Maximum blade tip height of 394m above MHWS (*no change).* One OCP height 205m above LAT.	Up to 200 wind turbines (*no change).* Maximum blade tip height of 394m above MHWS (*no change).*	Up to 200 wind turbines (*no change).* Maximum blade tip height of 394m above MHWS (*no change).*	Reduction in number of offshore platforms and removal of the ESP, therefore reducing the number of potential aviation obstacles.	No change to the original assessment, the residual significance of effect remains **not significant** as assessed in the ES.

Effect	DBS East or DBS West In Isolation	DBS East and DBS West Concurrently	DBS East and DBS West Sequentially	Notes and Rationale	Change in Effect Significance?
	Up to one Accommodation Platform. Operational lifetime of 30 years (*no change)*.	Up to two OCPs height 205m above LAT. Up to one Accommodation Platform. Operational lifetime of 30 years (*no change)*.	Up to two OCPs / height 205m above LAT. Up to one Accommodation Platform. Operational lifetime of up to 32 years (*no change)*.		
Increased air traffic in the area related to wind farm support activities.	No change in worst case parameters.				No change to the original assessment, the residual significance of effect remains **not significant** as assessed in the ES.

4.8 Infrastructure and Other Users

55. **Table 4-9** presents the changes in the worst case parameters for potential effects on Infrastructure and Other Users assessed within the ES (**Chapter 16 Infrastructure and Other Users** [APP-130]), a description of the change in relation to the previous worst case assessed and whether the significance of effects has changed as a result of the changes to the Projects' parameters.

56. In summary, the proposed changes would reduce the worst case parameters assessed for **Chapter 16 Infrastructure and Other Users** [APP-130]. However, the extent of the reduction would not result in any changes to the original assessment presented within **Chapter 16 Infrastructure and Other Users** [APP-130].

Table 4-9 Changes to the Infrastructure and Other Users Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Impact 1: Potential interference with other wind farms Impact 2: Potential interference with oil & gas and Carbon Capture and Storage (CCS) operations including decommissioning activities Impact 3: Physical impacts on sub-sea cables and pipelines Impact 5: Impacts on Ministry of Defence (MOD) Activities	<u>Array Area</u> Total Array Area assessed for ES – 427km² (349km² for Array Area + 78km² construction buffer area) *(no change).* Installation of up to 100 small turbines and two offshore platforms within the Array Area. 350km array cable length with up to 10% of the cable length requiring surface laid cable protection. 23km Inter-Platform Cable length with up to 10% of the cable length requiring surface laid cable protection. Approximate number of cable / pipeline crossings (array and Inter-Platform Cables) – 21. Safety zones of 500m radius from any construction activity (to be applied for) *(no change).*	<u>Array Area</u> Total Array Area assessed for ES – 434km² (355km² for Array Area + 79km² construction buffer area) *(no change).* Installation of up to 100 small turbines and two offshore platforms within the Array Area. 350km array cable length with up to 10% of the cable length requiring surface laid cable protection. 23km Inter-Platform Cable length with up to 10% of the cable length requiring surface laid cable protection. Approximate number of cable / pipeline crossings (array and Inter-Platform Cables) – 21. Safety zones of 500m radius from any construction activity (to be applied for) *(no change).*	<u>Array Areas and Inter-Platform Cable Corridor</u> Total Array Area assessed for ES – 1,008km² (874km² for Array Areas and Inter Platform Cabling Area + 134km² construction buffer area) *(no change).* Installation of up to 200 small turbines and three offshore platforms within the Array Area. 700km array cable length with up to 10% of the cable length requiring surface laid cable protection. 161km Inter-Platform Cable length with up to 10% of the cable length requiring surface laid cable protection. Approximate number of cable / pipeline crossings (array and Inter-Platform Cables) – 53. Safety zones of 500m radius from any construction activity (to be applied for) *(no change).*	Overall reduction in total area of disturbance within the Array Areas due to the reduction in number of offshore platforms and overall reduction in cable lengths, leading to a reduction in required cable protection measures and cable / pipeline crossings.	No change, magnitude of impact remains negligible. Therefore, significance of effect remains **negligible** for impacts on MOD Activities and **minor adverse** for all remaining impacts as assessed in the ES.
	<u>Offshore Export Cable Corridor</u> 376km export cable length with up to 20% of the cable length requiring surface laid cable protection (2x 188km export cables). Approximate number of cable / pipeline crossings – 24.	<u>Offshore Export Cable Corridor</u> 376km export cable length with up to 20% of the cable length requiring surface laid cable protection (2x 188km export cables). Approximate number of cable / pipeline crossings – 24.	<u>Offshore Export Cable Corridor</u> 682km export cable length cables with up to 20% of the cable length requiring surface laid cable protection (4x export cable circuits, 2x 188km in length and 2x 153km in length). Approximate number of cable / pipeline crossings – 48.	ESP removed from the worst case parameters for the Offshore Export Cable Corridor.	
	<u>Vessel Movements</u> Maximum total vessels offshore on site simultaneously – 79.	<u>Vessel Movements</u> Maximum total vessels offshore on site simultaneously – 79.	<u>Vessel Movements</u> Maximum total vessels offshore on site simultaneously – 133.	Slight reduction in maximum total vessels offshore on site simultaneously due to removal of the ESP, reduction in Offshore	

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Note – This figure is a combination of the estimated peaks for separate tasks. It is unlikely (but possible) that each of the packages use their maximum quantity of vessels and very unlikely that this occurs simultaneously. Assumes half of the vessel numbers required for installation of both Array Areas.	Note – This figure is a combination of the estimated peaks for separate tasks. It is unlikely (but possible) that each of the packages use their maximum quantity of vessels and very unlikely that this occurs simultaneously. Assumes half of the vessel numbers required for installation of both Array Areas.	Note – This figure is a combination of the estimated peaks for separate tasks. It is unlikely (but possible) that each of the packages use their maximum quantity of vessels and very unlikely that this occurs simultaneously.	Platform number and overall reduction in cabling within the Array Areas.	
Operation and Maintenance					
Impact 1: Potential interference with other wind farms Impact 2: Potential interference with oil & gas and CCS operations including decommissioning activities Impact 3: Physical impacts on sub-sea cables and pipelines Impact 5: Impacts on MOD Activities	<u>Maximum infrastructure</u> 100 small turbines and two offshore platforms within the Offshore Development Area. Max Upper Blade Tip Height above MHWS – 394.08m (above MHWS) *(no change).* Total area of array and inter-platform cable protection –362,625m² (326,700m² array cable protection + 35,925m² inter-platform cable protection. Total area of pipeline / cable crossing material (array + inter–platform cables) –54,080m². Total area of export cable protection – 1,000,282m² *(no change).* Total area of pipeline / cable crossing material (Offshore Export Cable) – 147,133m² *(no change).* Approximate 30 year design lifespan *(no change).*	<u>Maximum infrastructure</u> 100 small turbines and two offshore platforms within the Offshore Development Area. Max Upper Blade Tip Height above MHWS – 394.08m (above MHWS) *(no change).* Total area of array and inter-platform cable protection –362,625m² (326,700m² array cable protection + 35,925m² inter-platform cable protection. Total area of pipeline / cable crossing material (array + inter–platform cables) –54,080m². Total area of export cable protection – 788,941m² *(no change).* Total area of pipeline / cable crossing material (Offshore Export Cable) – 147,133m² *(no change).* Approximate 30 year design lifespan *(no change).*	<u>Maximum infrastructure</u> 200 small turbines and three offshore platforms within the Offshore Development Area. Max Upper Blade Tip Height above MHWS – 394.08m (above MHWS) *(no change).* Total area of array and inter-platform cable protection – 901,160m² (653,400m² array cable protection + 247,760m² inter-platform cable protection) . Total area of pipeline / cable crossing material (array + inter–platform cables) – 175,040m². Total area of export cable protection – 1,789,222m² *(no change).* Total area of pipeline / cable crossing material (Offshore Export Cable) – 294,267m² *(no change).* Approximate 30 year design lifespan (+ 2 years if the Projects were built sequentially) *(no change).*	Overall reduction in total footprint within the Array Areas due to the reduction in number of offshore platforms and overall reduction in cable lengths, leading to a reduction in required cable protection measures and cable / pipeline crossings.	No change, magnitude of impact remains negligible. Therefore, significance of effect remains as **negligible** for Impacts on MOD Activities and **minor adverse** for all remaining impacts as assessed in the ES.
	<u>Vessel Movements</u> No change in worst case parameters.				

4.9 Offshore Archaeology and Cultural Heritage

57. **Table 4-10** presents the changes in the worst case parameters for potential effects on Offshore Archaeology and Cultural Heritage assessed within the ES (**Chapter 17 Offshore Archaeology and Cultural Heritage** [APP-133]), a description of the change in relation to the previous worst case assessed and whether the significance of effects has changed as a result of the proposed changes in the Projects' parameters.

58. In summary, the proposed changes would reduce the worst case parameters assessed for **Chapter 17 Offshore Archaeology and Cultural Heritage** [APP-133]. However, the extent of the reduction would not result in any changes to the original assessment presented within **Chapter 17 Offshore Archaeology and Cultural Heritage** [APP-133].

Table 4-10 Changes to the Offshore Archaeology Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Impact 1: Direct (physical) impact to known heritage assets Impact 2: Direct impact to potential heritage assets	Array Area **Total Array Area assessed for ES – 427km² (349km² for Array Area + 78km² construction buffer area) *(no change)*** **Total area of disturbance within Array Area – 9,671,083m²**	Array Area **Total Array Area assessed for ES – 434km² (355km² for Array Area + 79km² construction buffer area) *(no change)*** **Total area of disturbance within Array Area – 9,671,083m²**	Array Areas **Total Array Area assessed for ES – 1008km² (874km² for Array Areas and Inter Platform Cabling Area + 134km² construction buffer area) *(no change)*** **Total area of disturbance within Array Areas – 21,915,594m²**	Overall reduction in total area of disturbance within the Array Areas due to the overall reduction in cable lengths and numbers of platforms, leading to a reduction in required trenching, sandwave levelling, seabed preparation, jack-up footprint and anchoring.	Impact 1: No change, magnitude of impact remains high. Therefore, the residual significance of effect remains as **no change** as assessed in the ES. Impact 2: No change, magnitude of impact remains as low to high depending on the receptor. Therefore, the residual significance of effect remains **minor adverse** as assessed in the ES.
	Array and Inter-Platform Cables **Maximum area disturbed (trenching + sandwave levelling) – 8,392,500m²** Array cable trench area (350,000m x 20m boulder plough width) – 7,000,000m² Inter-platform cable trench area (23,000m x 20m disturbance width) – 460,000m² Maximum seabed area disturbed by sandwave levelling – 932,500m²	Array and Inter-Platform Cables **Maximum area disturbed (trenching + sandwave levelling) – 8,392,500m²** Array cable trench area (350,000m x 20m boulder plough width) – 7,000,000m² Inter-platform cable trench area (23,000m x 20m disturbance width) – 460,000m² Maximum seabed area disturbed by sandwave levelling – 932,500m²	Array and Inter-Platform Cables **Maximum area disturbed (trenching + sandwave levelling) – 19,372,500m²** Array cable trench area (700,000m x 20m boulder plough width) – 14,000,000m² Inter-platform cable trench area (161,000m x 20m disturbance width) – 3,220,000m² Maximum seabed area disturbed by sandwave levelling – 2,152,500m²	Overall reduction in total area of disturbance within the Array Areas due to the overall reduction in cable lengths, leading to a reduction in required trenching and sandwave levelling.	
	Foundations, offshore platforms and Vessel Impacts Within Array Areas **Maximum area disturbed (foundations, platforms, vessel jack-up locations and anchoring) – 1,278,583m²** Maximum penetration depth for wind turbines and offshore platforms (monopile and pin pile jacket foundations) – 60m *(no change)* Seabed preparation area for 100 small turbine monopile foundations	Foundations, offshore platforms and Vessel Impacts Within Array Areas **Maximum area disturbed (Maximum area disturbed (foundations, platforms, vessel jack-up locations and anchoring) – 1,278,583m²** Maximum penetration depth for wind turbines and offshore platforms (monopile and pin pile jacket foundations) – 60m *(no change)* Seabed preparation area for 100 small turbine monopile foundations	Foundations, offshore platforms and Vessel Impacts Within Array Areas **Maximum area disturbed (foundations, platforms, vessel jack-up locations and anchoring) – 2,543,094m²** Maximum penetration depth for wind turbines and offshore platforms (monopile and pin pile jacket foundations) – 60m *(no change)* Seabed preparation area for 200 small turbine monopile foundations	Overall reduction in total area of disturbance within the Array Areas due to the overall reduction in cable lengths and number of offshore platforms, leading to a reduction in required seabed preparation, jack-up footprint and anchoring.	

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	(including scour protection) – 358,498m² *(no change)* Seabed preparation area for two offshore platforms (monopile foundations), including scour protection – 12,445m² Area of seabed contact for vessel jack-up assuming six jack-up locations per turbine (275m² per jack-up leg x four legs x six operations per turbine x 100 small turbines) – 660,000m² *(no change)* Area of seabed contact for vessel jack-up for all platforms in Array Areas (1,100m² combined leg area x five operations per platform x two platforms) – 11,000m² Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 100 small turbines + two offshore platforms) – 236,640m²	(including scour protection) – 358,498m² *(no change)* Seabed preparation area for two offshore platforms (monopile foundations), including scour protection – 12,445m² Area of seabed contact for vessel jack-up – assuming six jack-up locations per turbine (275m² per jack-up leg x four legs x six operations per turbine x 100 small turbines) – 660,000m² *(no change)* Area of seabed contact for vessel jack-up for all platforms in Array Areas (1,100m² combined leg area x five operations per platform x two platforms) – 11,000m² Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 100 small turbines + two offshore platforms) – 236,640m²	(including scour protection) – 716,966m² *(no change)* Seabed preparation area for three offshore platforms (monopile foundations), including scour protection – 18,668m² Area of seabed contact for vessel jack-up vessel jack-up assuming six jack-up locations per turbine (275m² per jack-up leg x four legs x six operations per turbine x 200 small turbines) – 1,320,000m² *(no change)* Area of seabed contact for vessel jack-up for all platforms in Array Areas (1,100m² combined leg area x five operations per platform x three platforms) – 16,500m² Anchoring area (116m² area x four anchors per activity x five activities requiring the deployment of anchors x 200 small turbines+ three offshore platforms) – 470,960m²		
	Offshore Export Cable Corridor **Total area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 19,885,242m²** Total offshore cable length per cable – 188km *(no change)* Maximum number of cables required – Two *(no change)* Max. offshore cable length for all cables – 376km *(no change)* Note – Assumes a worst case of a separate cable trench for each cable, spaced 50m apart.	Offshore Export Cable Corridor **Total area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 17,046,667m²** Total offshore cable length per cable – 153km *(no change)* Maximum number of cables required – Two *(no change)* Max. offshore cable length for all cables – 306km *(no change)* Note – Assumes a worst case of a separate cable trench for each cable, spaced 50m apart.	Offshore Export Cable Corridor **Total area disturbed for export cable installation (trenching, sandwave levelling and anchoring) – 36,861,507m²** Total offshore cable length per cable – 188km for DBS East, 153km for DBS West *(no change)* Maximum number of cables required – Four *(no change)* Max. offshore cable length for all cables – 682km *(no change)* Note – Assumes a worst case of a separate cable trench for each cable, spaced 50m apart.	Removal of the ESP within the Offshore Export Cable Corridor has removed the foundation disturbance and vessel jack-up footprint for the ESP, thereby reducing the total area disturbed for export cable installation.	

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Maximum disturbance area for cable installation – 7,510,800m² (based on 376,000m distance x 20m width of disturbance) *(no change)* Maximum seabed area disturbed by sandwave levelling – 12,282,010m² *(no change)* Maximum total area impacted by anchoring – 22,061m² *(no change)* *Note – 10km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring.*	Maximum disturbance area for cable installation – 6,120,400m² (based on 306,000m distance x 20m width of disturbance) *(no change)* Maximum seabed area disturbed by sandwave levelling – 10,833,835m² *(no change)* Maximum total area impacted by anchoring – 22,061m² *(no change)* *Note – 10km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring.*	Maximum disturbance area for cable installation – 13,631,200m² (based on 682,000m distance x 20m width of disturbance) *(no change)* Maximum seabed area disturbed by sandwave levelling – 23,115,845m² *(no change)* Maximum total area impacted by anchoring – 44,122m² *Note – 10km stretch along the Offshore Export Cable Corridor <10m LAT, may require use of anchoring.*		
	Trenchless crossing (e.g. HDD) **Total volume of sediment disturbed by subtidal exit pits – 936m³** No. of exit pits – 3 Size of each exit pit – 26m length x 6m width x 2m depth Volume of displaced sediment per exit pit – 312m³	Trenchless crossing (e.g. HDD) **Total volume of sediment disturbed by subtidal exit pits - 9360m³** No. of exit pits – 3 Size of each exit pit – 26m length x 6m width x 2m depth Volume of displaced sediment per exit pit – 312m³	Trenchless crossing (e.g. HDD) **Total volume of sediment disturbed by subtidal exit pits – 1,872m³** No. of exit pits – 6 Size of each exit pit – 26m length x 6m width x 2m depth Volume of displaced sediment per exit pit – 312m³	The Applicants have removed the short trenchless crossing from the Projects' Design Envelope, thereby committing to a long trenchless crossing with a subtidal exit. In addition, the exit pit dimensions have been reduced from that assessed at ES.	
	Total Displaced sediment during sandwave levelling (Array Area, Inter-Platform Cables and Offshore Export Cable Corridor) - 33,499,463m³ Maximum volume of sandwave material to be dredged / relocated for Array Cables and Inter-Platform Cables – 377,663m³ Maximum volume of sandwave material to be dredged / relocated for Export Cables – 33,121,800m³ *(no change)*	**Total Displaced sediment during sandwave levelling (Array Area, Inter-Platform Cabling Corridor and Offshore Export Cable Corridor) - 29,680,562m³** Maximum volume of sandwave material to be dredged / relocated for Array Cables and Inter-Platform Cables – 377,663m³ Maximum volume of sandwave material to be dredged / relocated – 29,302,899m³ *(no change)* **Maximum volume of displaced sediment during cable trenching – 5,061,000m³**	**Total Displaced sediment during sandwave levelling (Array Cables, Inter-Platform Cables and Export Cables) - 63,296,463m³** Maximum volume of sandwave material to be dredged / relocated for Array Cables and Inter-Platform Cables – 871,763m³ Maximum volume of sandwave material to be dredged / relocated – 62,424,700m³ *(no change)* **Maximum volume of displaced sediment during cable trenching – 11,787,000m³**	Overall reduction in total volume of displaced sediment within the Array Areas due to the overall reduction in cables. Parameters for drill arisings from installation of monopile foundations for offshore platforms now included in worst case parameters.	

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	Maximum volume of displaced sediment during cable trenching – 5,691,000m³ Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth) Export cable – 3,384,000m³ (376,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 35,789m³** Drill arisings from 57 large wind turbines = 34,382m³ *(no change)* Drill arisings from two offshore platform monopile foundations = 1,407m³	Array cable – 2,100,000m³ (350,000m length x 6m width x 1m depth) Inter-Platform Cables – 207,000m³ (23,000m length x 6m width x 1.5m depth) Export cable –2,754,000m³ (306,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 35,789m³** Drill arisings from 57 large wind turbines = 34,382m³ *(no change)* Drill arisings from two offshore platform monopile foundations = 1,407m³	Array cable – 4,200,000m³ (700,000m length x 6m width x 1m depth) Inter-Platform Cables – 1,449,000m³ (161,000m length x 6m width x 1.5m depth) Export cable – 6,138,000³ (682,000m length x 6m width x 1.5m depth) *(no change)* **Maximum volume of drill arisings – 70,271m³** Drill arisings from 113 large wind turbines = 68,160m³ *(no change)* Drill arisings from three monopile foundations = 2,111m³		
	Scour / Cable Protection and Crossings Array Area Total area of protection within the Array Area (foundations, scour protection, cable protection and cable crossings) – 739,252m² Total worst case turbine foundation area, including scour protection – 311,725m² (100 small turbines x 3,117m² total protection per turbine) *(no change)* Total worst case offshore platforms foundation area, including scour protection– 10,822m² Total area of array and inter-platform cable protection –362,625m² (326,700m² array cable protection +	Scour / Cable Protection and Crossings Array Area Total area of protection within the Array Area (foundations, scour protection, cable protection and cable crossings) – 739,252m² Total worst case turbine foundation area, including scour protection – 311,725m² (100 small turbines x 3,117m² total protection per turbine) *(no change)* Total worst case offshore platforms foundation area, including scour protection – 10,822m² Total area of array and inter-platform cable protection –362,625m² (326,700m² array cable protection +	Scour / Cable Protection and Crossings Array Areas Total area of protection within the Array Areas (foundations, scour protection, cable protection and cable crossings) – 2,053,218m² Total worst case turbine foundation area, including scour protection – 623,449m² (200 small turbines x 3,117m² total protection per turbine) *(no change)* Total worst case offshore platforms foundation area, including scour protection – 16,233m² Total area of array and inter-platform cable protection – 901,160m² (653,400m² array cable protection +	Removal of the ESP in the Offshore Export Cable Corridor from the Projects' Design Envelope removes the requirement for scour protection for the ESP and therefore reduced the total area of protection within the Offshore Export Cable Corridor.	

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
	35,925m² inter-platform cable protection) Estimated number of array / Inter-Platform Cables / pipeline / cable crossings – 21 Total area of pipeline / cable crossing material (array + inter–platform cables) – 54,080m² <u>Offshore Export Cable Corridor</u> Total area of protection within the Offshore Export Cable Corridor (scour protection, cable protection and cable crossings) – 1,147,415m² Total area of cable protection – 1,000,282m² *(no change)* Estimated number Offshore Export Cable Corridor pipeline / cable crossings – 24 *(no change)* Total area of pipeline / cable crossing material – 147,133m² *(no change)*	35,925m² inter-platform cable protection) Estimated number of array / Inter-Platform Cable / pipeline/cable crossings – 21 Total area of pipeline / cable crossing material (array + inter–platform cables) – 54,080m² <u>Offshore Export Cable Corridor</u> Total area of protection within the Offshore Export Cable Corridor (scour protection, cable protection and cable crossings) – 936,074m² Total area of export cable protection – 788,941m² *(no change)* Estimated number Offshore Export Cable Corridor pipeline / cable crossings – 24 *(no change)* Total area of pipeline / cable crossing material – 147,133m² *(no change)*	247,760m² inter-platform cable protection) Estimated number of array / Inter-Platform Cable / pipeline / cable crossings – 53 Total area of pipeline / cable crossing material (array + inter–platform cables) – 175,040m² <u>Offshore Export Cable Corridor</u> Total area of protection within the Offshore Export Cable Corridor (scour protection, cable protection and cable crossings) – 2,083,489m² Total area of export cable protection – 1,789,222m² *(no change)* Estimated number Offshore Export Cable Corridor pipeline / cable crossings – 48 *(no change)* Total area of pipeline / cable crossing material – 294,267m² *(no change)*		
Impact 3: Indirect impact to heritage assets from changes to physical processes	The worst case scenarios for marine physical processes are set out in **Table 4-2**. The following impacts are relevant to the worst case for offshore archaeology and cultural heritage (i.e. increased exposure of buried archaeological material to marine processes due to loss of sediment cover): • Changes to bedload sediment transport due to trenchless crossing (e.g. HDD); and • Indentations on the seabed due to installation vessels. Conversely, marine physical processes impacts which correspond to increased bed-level and consequent increased potential for the protection of heritage assets which are currently exposed through additional sediment cover (sediment deposited from plume) are: • Changes to seabed level due to seabed preparation for foundation installation; • Changes to seabed level due to drill arisings from foundations; and • Changes to seabed level due to array, inter platform and offshore export cable installation.			Worst case as per originally assessed other than reduction in number of platforms and reduction in associated area / volume of disturbed sediment. Number of offshore platforms reduced from five to two per Project in isolation, and from eight to three for the Projects' concurrently or sequentially.	No change, magnitude of impact remains as no impact to high depending on the receptor. Therefore, the residual significance of effect remains **minor adverse** as assessed in the ES.
Impact 4: Impacts to the setting of heritage assets	Maximum duration of offshore construction: 5 years *(no change)* Up to 79 construction vessels on-site simultaneously and up to 3,686 round trips to port.	Maximum duration of offshore construction: 5 years *(no change)* Up to 79 construction vessels on-site simultaneously and up to 3,686 round trips to port.	Maximum duration of offshore construction: 7 years *(no change)* Up to 133 construction vessels on-site simultaneously and up to 7,239 round trips to port.		No change, magnitude of impact remains as no impact. Therefore, the residual significance of effect remains as **no change** as assessed in the ES.

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Operation and Maintenance					
Impact 1: Direct (physical) impact to known heritage assets Impact 2: Direct impact to potential heritage assets	No change to worst case parameters.				Impact 1: No change, magnitude of impact remains high. Therefore, the residual significance of effect remains as **no change** as assessed in the ES. Impact 2: No change, magnitude remains as low to high depending on the receptor. Therefore, the residual significance of effect remains **minor adverse** as assessed in the ES.
Impact 3: Indirect impact to heritage assets from changes to physical processes	The worst case scenarios for marine physical processes are set out in **Table 4-2**. The following impacts are relevant to the worst case for offshore archaeology and cultural heritage (i.e. increased exposure of buried archaeological material to marine processes due to loss of sediment cover): • Changes to the tidal regime due to the presence of infrastructure (wind turbines and offshore platforms); • Changes to the wave regime due to the presence of infrastructure (wind turbines and offshore platforms); • Changes to bedload sediment transport and seabed morphology due to the presence of infrastructure (wind turbines and offshore platforms); • Changes to bedload sediment transport and seabed morphology due to the presence of cable protection measures; • Cable repairs and reburial; and • Indentations on the seabed due to installation vessels.			Number of offshore platforms reduced from five to two per Project in isolation, and from eight to three for the Projects' concurrently or sequentially. GBS foundations removed from the Projects' physical processes modelling, modelling for platforms now based on monopile foundations.	No change, magnitude of impact remains as no impact. Therefore, the residual significance of effect remains as **no change** as assessed in the ES.
Impact 4: Impacts to the setting of heritage assets	<u>Presence of wind farm infrastructure across Offshore Development Area:</u> Up to 100 wind turbines *(no change)* Up to two offshore platforms <u>Maximum temporal footprint</u> No change <u>Vessels</u> No change	<u>Presence of wind farm infrastructure across Offshore Development Area:</u> Up to 100 wind turbines *(no change)* Up to two offshore platforms <u>Maximum temporal footprint</u> No change <u>Vessels</u> No change	<u>Presence of wind farm infrastructure across Offshore Development Area:</u> Up to 200 wind turbines *(no change)* Up to three offshore platforms <u>Maximum temporal footprint</u> No change <u>Vessels</u> No change	Number of offshore platforms reduced from five to two per Project in isolation, and from eight to three for the Projects' concurrently and / or sequentially.	No change, magnitude of impact remains as no impact. Therefore, the residual significance of effect remains as **no change** as assessed in the ES.

4.10 Terrestrial Ecology and Ornithology

59. **Table 4-11** presents the changes in the worst case parameters as a result of the design change at Landfall, 'Removal of the short trenchless crossing at landfall' and the subsequent effect on Terrestrial Ecology and Ornithology as assessed in the ES chapter (**Chapter 18 Terrestrial Ecology and Ornithology (Revision 4)** [PDC-002 and PDC-003]). A description of the change in relation to the previous worst case assessed in the ES chapter, and whether the magnitude of impact and as such residual significance of effects has changed as a result of the change in Projects' parameters, is shown in **Table 4-11**.

60. In relation to the proposed change, the only impact that is potentially affected is Potential Mortality, Harm or Disturbance to Over-wintering Birds, or Destruction, Damage, or Disturbance to Over-wintering Bird Habitat, as such this is considered within this document. Removal of the short trenchless crossing does not change the worst case parameters assessed within **Chapter 18 Terrestrial Ecology and Ornithology (Revision 4)** [PDC-002 and PDC-003] for any other impacts and therefore no other effects have been discussed further within **Table 4-11**.

61. In summary, the proposed change would reduce the worst case parameters assessed for **Chapter 18 Terrestrial Ecology and Ornithology (Revision 4)** [PDC-002 and PDC-003] at Landfall. However, the extent of the change would not result in any change in magnitude of impact or residual significance of effect as reported in **Chapter 18 Terrestrial Ecology and Ornithology (Revision 4)** [PDC-002 and PDC-003].

Table 4-11 Changes to the Terrestrial Ecology and Ornithology Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Impact 9: Potential Mortality, Harm or Disturbance to Over-wintering Birds, or Destruction, Damage, or Disturbance to Over-wintering Bird Habitat	• Emergency vehicle access on the beach but not accessed from the landward side *(no change).* • There would be no permanent infrastructure in the intertidal *(no change).* • Duration of works in the intertidal zone for the potential use of the emergency access (months): 18 (not continuous) *(no change).*	• Emergency vehicle access on the beach but not accessed from the landward side *(no change).* • There would be no permanent infrastructure in the intertidal *(no change).* • Duration of works in the intertidal zone for the potential use of the emergency access (months): 18 (not continuous) *(no change).*	• Emergency vehicle access on the beach but not accessed from the landward side *(no change).* • There would be no permanent infrastructure in the intertidal *(no change).* • Duration of works in the intertidal zone for the potential use of the emergency access (months): 48 (not continuous) *(no change).*	As a result of the design change, 'Removal of the short trenchless crossing option at landfall', support vessels, pontoons, exit pits and any associated offshore cables intertidal zone, which were included in the worst case table in the ES, have been removed. The implications of this design change and associated amendment to the worst case table are summarised below. As a result of the design change, exit pits would no longer be situated within the intertidal zone but would be within the subtidal. This would result in a reduction in the total amount of directly impacted intertidal beach habitat which is suitable for over-wintering birds. As a result there would be a reduced potential impact to over-wintering birds, from the removal of the exit pits within the intertidal zone, and therefore reduced: • Risk of injuring or killing over-wintering birds during the construction phase; • Risk of noise, vibration and light disturbance to over-wintering bird species; • Temporary habitat loss for the duration of the onshore construction works; and • Permanent habitat loss. This would result in a potential reduction in temporary impacts to terrestrial ecology and ornithological receptors. The mitigation remains unchanged from the ES however there remains a potential impact to over-wintering birds due to other onshore construction works outside of the intertidal zone.	Impact 9: No change, the magnitude of impact remains medium and as such the residual significance of effect remains **minor adverse** as assessed in the ES.

4.11 Flood Risk and Hydrology

62. **Chapter 20 Flood Risk and Hydrology** [APP-163] study area includes the onshore coastal catchment. This is land which drains directly to coastal or estuarine waters, rather than through a river water body. For this assessment, the onshore coastal catchment extends to MHWS. Potential impacts in the intertidal zone and on associated protected areas were assessed in **Appendix 20-3 Water Environment Regulations (WER) Compliance Assessment (Revision 2)** [AS-074 and AS-075].

63. The proposed change at Landfall, 'Removal of the short trenchless crossing option at landfall', does not result in any changes to the worst case parameters detailed in Table 29-1 of **Chapter 20 Flood Risk and Hydrology** [APP-163]. It does however change the worst case parameters and the subsequent effect on the parameters of **Appendix 20-3 WER Compliance Assessment (Revision 2)** [AS-074 and AS-075] as assessed in the ES.

64. A description of the change in relation to the previous worst case assessed in the WER Compliance Assessment, and whether the proposed change results in an amendment to the assessment process undertaken, is shown in **Table 4-12**.

65. The proposed change at Landfall, 'Removal of the short trenchless crossing option at landfall', does not change the outcome of the scoping assessment of coastal water bodies within the **Appendix 20-3 WER Compliance Assessment (Revision 2)** [AS-074 and AS-075]. It can be concluded that there would be no change to the magnitude of impact and significance of effect, which would remain **negligible**.

66. In summary, while the proposed change would reduce the worst case parameters assessed in **Appendix 20-3 WER Compliance Assessment (Revision 2)** [AS-074 and AS-075] for coastal water bodies, the extent of the change would not result in any change in magnitude of impact or residual significance of effect as reported in **Chapter 20 Flood Risk and Hydrology** [APP-163].

67. As such, the assessment conclusions detailed in **Appendix 20-3 WER Compliance Assessment (Revision 2)** [AS-074 and AS-075], would not be changed should the proposed changes be incorporated into the Projects' Design Envelope.

Table 4-12 Changes to the WER Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Coastal Water Bodies Project components assessed: Offshore export cables (including intertidal works on the beach), emergency access; cable protection. Parameter 1: Biology Parameter 2: Hydromorphology Parameter 3: Physio-chemistry and Chemistry	• A trenchless solution is to be used to install ducts that will house the cables under the beach. The ducts will run from the Crossing Joint Bay (TJB), located landward of landfall, to an exit location at a subtidal ("long trenchless landfall"). • Emergency vehicle access on the beach but not accessed from the landward side *(no change)*. • There would be no permanent infrastructure above ground level in the intertidal zone *(no change)*. • Duration of works in the intertidal zone for the potential use of the emergency access (months): 18 (not continuous) *(no change)*.	• Emergency vehicle access on the beach but not accessed from the landward side *(no change)*. • There would be no permanent infrastructure above ground level in the intertidal zone *(no change)*. • Duration of works in the intertidal zone for the potential use of the emergency access (months): 18 (not continuous) *(no change)*.	• Emergency vehicle access on the beach but not accessed from the landward side *(no change)*. • There would be no permanent infrastructure above ground level in the intertidal zone *(no change)*. • Duration of works in the intertidal zone for the potential use of the emergency access (months): 48 (not continuous) *(no change)*.	As a result of the design change, 'Removal of the short trenchless crossing option at landfall', support vessels, pontoons, exit pits and any associated offshore cables intertidal zone, which were included in the worst case table in the ES, have been removed. The implications of this design change and associated amendment to the worst case table are summarised below. Parameter 1: Biology. The scoping assessment decision was that coastal water bodies were scoped out of further assessment. There would be no change to this decision based on the proposed change at Landfall. Parameter 2: Hydromorphology. The scoping assessment decision was that coastal water bodies were scoped out of further assessment. There would be no change to this decision based on the proposed change at Landfall. Parameter 3: Physio-chemistry and Chemistry. The scoping assessment decision was that coastal water bodies were scoped out of further assessment. There would be no change to this decision based on the proposed change at Landfall.	No change to the scoping decision in the ES. Coastal water bodies would remain scoped out of a detailed compliance assessment (Stage 3) of the Water Environmental Regulations Compliance Assessment.

4.12 Landscape and Visual Impact Assessment

68. **Table 4-13** presents the changes in the worst case parameters as a result of the design change at Landfall 'Removal of the short trenchless crossing option at landfall' and the subsequent effect on Landscape and Visual Impact as assessed in **Chapter 23 Landscape and Visual Impact Assessment** [APP-192]. A description of the change in relation to the previous worst case assessed in the ES chapter, and whether the magnitude of impact and as such residual significance of effect has changed as a result of the change in project parameters, is shown in **Table 4-13.**

69. The proposed change at Landfall, 'Removal of the short trenchless crossing option at landfall' only applies to the assessment of the landscape effects of the landfall and visual effects of the landfall, as such these are considered within this document. The proposed changes do not change the worst case parameters assessed within **Chapter 23 Landscape and Visual Impact Assessment** [APP-192] for any other impacts and therefore no other effects have been discussed further within **Table 4-13**.

70. In summary, the proposed change would reduce the worst case parameters assessed for Landscape and Visual Impact at Landfall. However, the extent of the change would not result in any change in magnitude of impact or residual significance of effect as reported in **Chapter 23 Landscape and Visual Impact Assessment** [APP-192].

Table 4-13 Changes to the Landscape and Visual Impacts Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Impact 1: Landscape Effects of Landfall – Subarea 1 (Landfall) and Impact 4: Visual Effects of Landfall – Subarea 1 (Landfall)	• A trenchless solution is to be used to install ducts that will house the cables under the beach. The ducts will run from the TJB, located landward of landfall, to an exit location at a subtidal location ("long trenchless landfall"). • Vehicle access on the beach but not accessed from the landward side *(no change).* • There would be no permanent infrastructure above ground level in the intertidal zone *(no change).* • Duration of works in the intertidal zone for the potential use of the emergency access (months): 18 (not continuous) *(no change).*	• Vehicle access on the beach but not accessed from the landward side *(no change).* • There would be no permanent infrastructure above ground level in the intertidal zone *(no change).* • Duration of works in the intertidal zone for the potential use of the emergency access (months): 18 (not continuous) *(no change).*	• Vehicle access on the beach but not accessed from the landward side *(no change).* • There would be no permanent infrastructure above ground level in the intertidal zone *(no change).* • Duration of works in the intertidal zone for the potential use of the emergency access (months): 48 (not continuous) *(no change).*	As a result of the design change, 'Removal of the short trenchless crossing option at landfall', support vessels, pontoons, exit pits and any associated offshore cables intertidal zone, which were included in the worst case table in the ES, have been removed. The implications of this design change and associated amendment to the worst case table are summarised below. The ES assessed an increase in activity, noise and vehicle movements in the Landfall Zone leading to a reduction in tranquillity. It also assessed the disturbance and activity as seen by visual receptors. In the intertidal area, up to six exit pits were assessed in terms of physical disturbance to the landscape and visual impact, throughout the duration of the works in the intertidal zone. It was concluded that works and support vessels would be visible within the intertidal zone and inshore area when viewed from land and marine areas. The above impacts were considered as part of the works associated with the Landfall Zone. No other element of the works associated with the Landfall Zone are changing. As such Impact 1 and Impact 4 would not be removed in their entirety. However, there would be a reduction in the level of disturbance and activity within the intertidal zone resulting in a potential reduction of the temporary impacts to visual receptors. No change to the proposed mitigation.	Impact 1: No change, the magnitude of impact remains medium and as such the residual significance of effect remains **negligible adverse** as assessed in the ES. Impact 4: No change, the magnitude of impact remains medium and as such the residual significance effect remains **minor adverse** as assessed in the ES.

4.13 Noise

71. The proposed change at Landfall, 'Removal of the short trenchless crossing option at landfall', does not result in any changes to the worst case parameters detailed in Table 25-1 of **Chapter 25 Noise** [APP-201].

72. **Chapter 25 Noise** [APP-201] assessed the potential for negative effects of noise on noise sensitive receptors (NSRs), a component of this was the trenchless crossing (e.g. HDD works) within the Landfall Zone as a result of the short or long trenchless crossing option at landfall, which would have a direct temporary impact on NSRs in close proximity to the Landfall Zone during the construction period.

73. Impact 1: Construction noise at the Landfall Zone considered the potential noise impact of construction activities at the Landfall Zone on NSRs. The worst affected NSR as a results of daytime landfall activities was identified as Strawberry Fields Holiday Park (R4). A list of all onshore NSRs included in the ES assessment is presented in Table 25-16 of **Chapter 25 Noise** [APP-201].

74. The removal of the short trenchless crossing option at landfall would result in a reduction in noise generating activities in closer proximity to the noise sensitive receptors compared to the noise associated with a long trenchless crossing. This may result in a potential reduction in the temporary noise impacts to nearby NSRs as a result, but it would be expected to be negligible overall due to the distance between the noise generating activity and the NSR.

75. The emergency beach access route is unchanged from the ES chapter. The mitigation measures outlined in **Chapter 25 Noise** [APP-201] are unchanged.

76. The magnitude of impact on the R4 was defined as, at-worst, a **marginal low** to **marginal medium** impact. For all other NSRs, positioned further away from the construction works, the magnitude of impacts was assessed as being no greater than **negligible**.

77. The residual significance of effect on R4 was assessed as being **minor adverse**. There would be no change as a result of the design change.

78. As such, the assessment conclusions detailed in **Chapter 25 Noise** [APP-201] would not be changed should the proposed changes be incorporated into the Projects' Design Envelope.

4.14 Human Health

79. **Table 4-14** presents the changes in the worst case parameters as a result of the design change at Landfall, 'Removal of the short trenchless crossing option at landfall' and the subsequent effect on Human Health as assessed in the ES chapter (**Chapter 27 Human Health** [APP-214]). A description of the change in relation to the previous worst case assessed in the ES chapter, and whether the magnitude of impact and as such residual significance of effect has changed as a result of the proposed changes to the Projects' parameters, is shown in **Table 4-14**.

80. The proposed change at Landfall, 'Removal of the short trenchless crossing option at landfall' only affects the assessment in relation to Health Related Behaviours: Physical Activity, Open Space and Leisure. It does not change the worst case parameters assessed within **Chapter 27 Human Health** [APP-214] for any other impacts and therefore no other effects have been discussed further within **Table 4-14**.

81. In summary, the proposed change would reduce the worst case parameters assessed in **Chapter 27 Human Health** [APP-214]. However, the extent of the change would not result in any change in magnitude of impact or residual significance of effect as reported in **Chapter 27 Human Health** [APP-214].

Table 4-14 Changes to the Human Health Worst Case Scenario and Effect Significance Resulting from Changes to the Projects' Design Parameters

Effect	DBS East In Isolation	DBS West In Isolation	DBS East and DBS West Concurrently or Sequentially	Notes and Rationale	Change in Effect Significance?
Construction					
Impact 1: Health Related Behaviours: Physical Activity, Open Space and Leisure	• A trenchless solution is to be used to install ducts that will house the cables under the beach. The ducts will run from the TJB, located landward of landfall, to an exit location at a subtidal ("long trenchless landfall"). • Vehicle access on the beach but not accessed from the landward side (*no change*). • There would be no permanent infrastructure in the intertidal (*no change*). • Duration of works in the intertidal zone for the potential use of the emergency access (months): 18 (not continuous) (*no change*).	• Vehicle access on the beach but not accessed from the landward side *(no change).* • There would be no permanent infrastructure in the intertidal *(no change).* • Duration of works in the intertidal zone for the potential use of the emergency access (months): 18 (not continuous) *(no change).*	• Vehicle access on the beach but not accessed from the landward side *(no change).* • There would be no permanent infrastructure in the intertidal *(no change).* • Duration of works in the intertidal zone for the potential use of the emergency access (months): 48 (not continuous) *(no change).*	As a result of the design change, 'Removal of the short trenchless crossing at landfall', support vessels, pontoons, exit pits and any associated offshore cables intertidal zone, which were included in the worst case table in the ES, have been removed. The implications of this design change and associated amendment to the worst case table are summarised below. There would be a potential reduction in health-related impacts associated with temporary disruption to the public open space (beach), by avoiding the need for intertidal exit pits. The population health implications of construction activities affecting marine, nearshore and onshore recreational and leisure activities were assessed in the ES. Access would only be temporarily restricted should there be emergency access needs. It was noted that in the event of a short trenchless landfall to install cable ducts under the beach there would be some temporary restrictions to some areas of the intertidal zone. As a result of the design change the impact of the short trenchless crossing is removed however the potential temporary restriction due to the emergency access remains.	Impact 1: No change. The magnitude of impact for population health due to the Projects remains low and as such the residual significance of effect remains **minor adverse** as assessed in the ES.

4.15 Tourism and Recreation

82. The proposed changes would not result in any changes to the worst case parameters detailed in Table 29-1 of **Chapter 29 Tourism and Recreation** [APP-219].

83. **Chapter 29 Tourism and Recreation** [APP-219] assessed the potential for negative effects on tourism activity, a component of this was the works within the intertidal zone as a result of the short trenchless crossing option at landfall, which would have had a direct temporary impact on Skipsea Beach during the construction period.

84. Impact 3: Recreational Assets considered the potential impact on recreational assets whereby the Projects would have an impact on the ability of people to use or enjoy these assets. Skipsea Beach was identified as an onshore recreational asset and considered In **Chapter 29 Tourism and Recreation** [APP-219] assessment of impacts due to Landscape and Visual Impacts.

85. The removal of the short trenchless crossing option at landfall would result in a reduction in the temporary impacts to users of the beach due to the reduction in the level of disturbance due to the removal of the short trenchless crossing option.

86. The emergency beach access route is unchanged from **Chapter 29 Tourism and Recreation** [APP-219]. The mitigation measures outlined in the ES are unchanged. Access to this beach would not be closed to the public during construction, unless unforeseen and unplanned events occur during which emergency access is required. This remains unchanged from the ES.

87. The magnitude of impact on the recreational receptor of Skipsea Beach was defined as low and the residual significance of effect was assessed as being **minor** adverse. There would be no change as a result of the design change.

88. As such, the assessment conclusions detailed in of **Chapter 29 Tourism and Recreation** [APP-219] would not be changed should the proposed changes be incorporated into the Projects' Design Envelope.

5 Consultation

5.1 Purpose of Consultation

89. Two consultations were carried out simultaneously, one for the Project Change Request 1 which relates to proposed offshore and intertidal changes and one for **Project Change Request 2 - Onshore Substation Zone** [document reference: 10.53] which related to the onshore substation zone. Details relating to Change Request 2 of the onshore changes can be found in the **Project Change Request 2 - Onshore Substation Zone** [document reference: 10.53].

90. The Project Change Request 1 non-statutory consultation, the results of which are presented in this section of the document, sought to obtain feedback on the changes outlined in sections 3 and 4 of this Project Change Request.

5.2 Consultation Approach

91. The approach to the consultation was a targeted non-statutory consultation. The consultation is classified as non-statutory under the Planning Act 2008 as it falls outside of the statutory consultation processes for Nationally Significant Infrastructure Projects.

92. Although the consultation was non-statutory, the consultation period met statutory guidance as it ran for more than 30 days. The targeted approach to the consultation was adopted to ensure that the relevant audiences were informed about the changes, allowing for the changes to be considered and feedback to be provided. The consultation ran from 15th November – 16th December 2024. The ExA were asked to comment on the scope and level of consultation within the **Change Notification Letter** [PDA-012] and did not conclude significant changes to the consultation process and scope outlined within this document.

5.3 Scope of Consultation

93. The scope of the consultation is outlined in the details provided within this report – see sections 2 to 4 . Further details regarding the scope of the consultation can be found in Annex 1 – Project Change Request 1 – Targeted Non-Statutory Consultation Letter.

5.4 Consultation Method / Delivery

94. Letters were issued via email to stakeholders on the 15th November 2024, with one stakeholder receiving a letter by post as outlined in **Table 5-1**. In addition to contacting stakeholders directly, site notices were placed in locations 1 and 2 near to the landfall area as outlined in the map provided in Annex 2 – Project Change Request 1 – Offshore and Intertidal Works Site Notice Letters and Locations Plan.

95. Further details regarding the details of the consultation were made available on the DBS Website (DBS Offshore Wind).

5.5 Consultation Audience/Stakeholder Consultees

96. The approach to identifying stakeholders was carefully considered based on the relevant areas of change as outlined in this document in sections 2 to 4. Stakeholders included Local Authorities, Statutory Undertakers, Transboundary Consultees, Fisheries, Prescribed and Non-prescribed Consultees including all stakeholders with an interest in the scope of the changes outlined.

97. The ExA requested in a Rule 17 Letter [PD-007] issued to the Applicants on the 7th November 2024 that a number of transboundary consultees be added to the list of stakeholders. It should be noted that Belgium and France had previously confirmed no significant interests in the Projects. These additional transboundary consultees were:

- Belgium,
- Denmark,
- France, and;
- Germany.

98. In addition, the ExA requested that the following Non-Prescribed Consultees be included. With the exception of NatureScot, all of the named stakeholders had submitted a Relevant Representation (RR) to the Planning Inspectorate in relation to the DBS Projects:

- Breesea Limited, Soundmark Limited, Sonningmay Wind Limited and Optimus Wind Limited (RR-005),
- EGL2 Ltd (RR-014),
- Equinor New Energy Limited on behalf of Scira Extension Limited and Dudgeon Extension Limited (RR-016),
- Hornsea 1 Limited (RR-023),
- NatureScot,
- Net Zero North Sea Storage Limited (RR-042),
- Race Bank Wind Farm Limited (RR-046), and;
- Westermost Rough Limited (RR-056).

99. The ExA also noted that:

100. *'…the Applicants also intends to consult "the wildlife trusts". It is unclear from the appendix whether this would include consultation with the Lincolnshire Wildlife Trust [RR-028] and the Yorkshire Wildlife Trust [RR-059], as well as The Wildlife Trusts [RR-057]. For completeness the ExA would wish to see all three organisations consulted.'*

101. The Applicants confirmed the ExA's understanding was correct, with Lincolnshire Wildlife Trust, Yorkshire Wildlife Trust and The Wildlife Trusts all being included in this non-statutory consultation period.

102. Where consultees were identified as having an interest in both offshore and onshore changes, they were consulted on both and issued all of the relevant information via a single email / letter. **Table 5-1** outlines the stakeholders consulted, their category and contact method used by the Applicants.

Table 5-1 Stakeholders Consulted Through the Non-Statutory Consultation Process

Stakeholder	Stakeholder Category	Contact Method
ABP Ports	Non-Prescribed Consultee	Letter Emailed
Barmstone and Fraisthorpe Parish Council	Neighbouring Parish Council	Letter Emailed
Belgium	Transboundary Consultee – Requested by ExA	Letter Emailed
BHP	Statutory Undertaker	Letter Emailed
BP Northern Endurance	Statutory Undertaker	Letter Emailed
Brett (Britannia Aggregates)	Non-Prescribed Consultee	Letter Emailed
Breesea Limited, Soundmark Wind Limited, Sonningmay Wind Limited, Optimus Wind Limited (Orsted Hornsea 2 Offshore Wind Farm)	Non-Prescribed Consultee - Requested by ExA	Letter Emailed
Bridlington Harbour Commissioners	Non-prescribed Consultee	Letter Emailed
Bristow (including SAR)	Non-prescribed Consultee	Letter Emailed
British Helicopter Association	Non-prescribed Consultee	Letter Emailed
BT Limited	Statutory Undertaker	Letter Emailed

Stakeholder	Stakeholder Category	Contact Method
Cefas	Non-prescribed Consultee	Letter Emailed
Civil Aviation Authority	Prescribed Consultee	Letter Emailed
Cruising Association	Non-prescribed Consultee	Letter Emailed
DEME	Non-prescribed Consultee	Letter Emailed
Denmark	Transboundary – requested by ExA	Letter Emailed
DFDS Seaways	Non-prescribed Consultee	Letter Emailed
Dogger Bank A	Statutory Undertaker	Letter Emailed
Dogger Bank B Offshore Wind Farm	Statutory Undertaker	Letter Emailed
Dogger Bank C Offshore Wind Farm	Statutory Undertaker	Letter Emailed
Dogger Bank Offshore Wind Farm Project 4 Projco Limited (Dogger Bank D)	Statutory Undertaker	Letter Emailed
Doggerland Foundation	Non-prescribed Consultee	Letter Emailed
East Riding of Yorkshire Council (Planning)	Host Local Authority	Letter Emailed
Eastern IFCA	Non-prescribed Consultee	Letter Emailed
Eastern Green Link 2 Ltd (also see NGET/SSE/EGL2)	Non-prescribed Consultee – requested by ExA	Letter Emailed
France	Transboundary – requested by ExA	Letter Emailed
Fisheries (Andy Wheeler Fisheries Consultancy Limited)	Prescribed Consultee	Letter Emailed
Fisheries (Anglo-Dutch Fishing Industry)	Prescribed Consultee	Letter Emailed
Fisheries (Ben Woolford)	Prescribed Consultee	Letter Emailed
Fisheries (CNPMEM (Comité National des Pêches))	Prescribed Consultee	Letter Emailed

Stakeholder	Stakeholder Category	Contact Method
Fisheries (CRPMEM Normandie)	Prescribed Consultee	Letter Emailed
Fisheries (DFA (Danish Fishing Association) (Danmarks Fiskeriforening))	Prescribed Consultee	Letter Emailed
Fisheries (DFV (Deutscher Fischerei Verband) (German Fisheries Association))	Prescribed Consultee	Letter Emailed
Fisheries (Holderness Fishing Industry Group)	Prescribed Consultee	Letter Emailed
Fisheries (Independent Bridlington Fishermen)	Prescribed Consultee	Letter Emailed
Fisheries (Independent Scottish Sandeel Fishermen)	Prescribed Consultee	Letter Emailed
Fisheries (Katrin Diessner)	Prescribed Consultee	Letter Emailed
Fisheries (Kingfisher)	Prescribed Consultee	Letter Emailed
Fisheries (MMO - Beverley)	Prescribed Consultee	Letter Emailed
Fisheries (MMO - Scarborough)	Prescribed Consultee	Letter Emailed
Fisheries (National Federation of Fishermen's Organisations)	Prescribed Consultee	Letter Emailed
Fisheries (Nederlandse Vissersbond)	Prescribed Consultee	Letter Emailed
Fisheries (Neil Robson)	Prescribed Consultee	Letter Emailed
Fisheries (New Under 10 Fishermen's Association (NUTFA))	Prescribed Consultee	Letter Emailed
Fisheries (NFA (Norwegian Fishermen's Association) (Sør-Norges Trålerlag))	Prescribed Consultee	Letter Emailed
Fisheries (North Eastern Inshore Fisheries and Conservation Authority)	Prescribed Consultee	Letter Emailed
Fisheries (North West Dutch Fisheries PO's & Urk Based PO's)	Prescribed Consultee	Letter Emailed

Stakeholder	Stakeholder Category	Contact Method
Fisheries (Norwegian Fishing Industry Representative)	Prescribed Consultee	Letter Emailed
Norwegian Fishing Vessel Owners Association (Fiskebat)	Prescribed Consultee	Letter Emailed
Fisheries (Rederscentrale)	Prescribed Consultee	Letter Emailed
Fisheries (Rich Pockley)	Prescribed Consultee	Letter Emailed
Fisheries (Sam Law)	Prescribed Consultee	Letter Emailed
Fisheries (Scottish Fishermen's Federation (SFF))	Prescribed Consultee	Letter Emailed
Fisheries (Scottish White Fish Producer Association (SWFPA))	Prescribed Consultee	Letter Emailed
Fisheries (Swedish Fishermen's PO)	Prescribed Consultee	Letter Emailed
Fisheries (Swedish Pelagic Federation PO)	Prescribed Consultee	Letter Emailed
Fisheries (VisNed)	Non-prescribed Consultee	Letter Emailed
Gassco AS UK Branch	Statutory Undertaker	Letter Emailed
Germany	Transboundary – requested by ExA	Letter Emailed
Hanson Limited	Statutory Undertaker	Letter Emailed
Harbour Energy	Statutory Undertaker	Letter Emailed
Historic England	Prescribed Consultee	Letter Emailed
Homes England	Prescribed Consultee	Letter Emailed
INEOS	Statutory Undertaker	Letter Emailed
Joint Nature Conservation Committee	Prescribed Consultee	Letter Emailed
Kellas Midstream Limited	Statutory Undertaker	Letter Emailed

Stakeholder	Stakeholder Category	Contact Method
Lincolnshire Wildlife Trust	Non-prescribed Consultee	Letter Emailed
Lissett Ulrome Parish Council	Neighbouring Parish Council	Letter Emailed
Marine Management Organisation (MMO)	Prescribed Consultee	Letter Emailed
Maritime & Coastguard Agency	Prescribed Consultee	Letter Emailed
Maritime & Coastguard Agency - Hull Marine Office	Prescribed Consultee	Letter Emailed
Ministry of Defence	Prescribed Consultee	Letter Emailed
National Federation of Fishermen's Organisations	Non-prescribed Consultee	Letter Emailed
National Grid Electricity System Operator Limited	Statutory Undertaker	Letter Emailed
National Grid Electricity Transmission PLC	Statutory Undertaker	Letter Emailed
National Grid Ventures Limited	Statutory Undertaker	Letter Emailed
National Grid Viking Link Limited	Statutory Undertaker	Letter Emailed
Natural England (Offshore Wind Farms)	Prescribed Consultee	Letter Emailed
Natural England	Prescribed Consultee	Letter Emailed
NatureScot	Non-prescribed Consultee - Requested by ExA	Letter Emailed
Net Zero Storage Limited (Northern Endurance Partnership)	Non-prescribed Consultee – Requested by ExA	Letter Emailed
NGET/SSE EGL2 (also see Eastern Green Link 2 Ltd)	Statutory Undertaker	Letter Emailed
North Eastern IFCA	Non-prescribed Consultee	Letter Emailed
Norway	Transboundary	Letter Emailed
Optimal Power Networks Limited	Statutory Undertaker	Letter Emailed

Stakeholder	Stakeholder Category	Contact Method
Orsted Hornsea Project Four Limited	Statutory Undertaker	Letter Emailed
Orsted Hornsea Project One Limited	Non-prescribed Consultee – Requested by the ExA	Letter Emailed
Orsted Hornsea Project Three (UK) Limited	Statutory Undertaker	Letter Emailed
Orsted Race Bank Offshore Wind Farm	Statutory Undertaker	Letter Emailed
Orsted Westermost Rough Offshore Wind Farm	Statutory Undertaker	Letter Emailed
Perenco UK Limited	Statutory Undertaker	Letter Emailed
Quadrant Pipelines Limited	Statutory Undertaker	Letter Posted
Royal National Lifeboat Institution	Non-prescribed Consultee	Letter Emailed
Royal Yachting Association	Non-prescribed Consultee	Letter Emailed
RSPB	Non-prescribed Consultee	Letter Emailed
Scira Extension Limited and Dudgeon Extension Limited	Statutory Undertaker	Letter Emailed
Shell Plc	Statutory Undertaker	Letter Emailed
Skipsea Parish Council	Host Parish Council	Letter Emailed
Squire Energy Limited	Statutory Undertaker	Letter Emailed
SSEN Distribution Limited (SEGL2)	Statutory Undertaker	Letter Emailed
Swedish Pelagic Federation PO	Transboundary	Letter Emailed
The Crown Estate Commissioners	Prescribed Consultee	Letter Emailed
The Environment Agency	Prescribed Consultee	Letter Emailed
The Netherlands	Transboundary	Letter Emailed
The Wildlife Trusts	Non-prescribed Consultee	Letter Emailed

Stakeholder	Stakeholder Category	Contact Method
Tidewater Marine UK Ltd	Statutory Undertaker	Letter Emailed
TotalEnergies E&P UK Limited	Statutory Undertaker	Letter Emailed
Trinity House	Prescribed Consultee	Letter Emailed
UK Chamber of Shipping	Prescribed Consultee	Letter Emailed
UK Major Ports Group	Non-prescribed Consultee	Letter Emailed
Yorkshire Wildlife Trust	Non-prescribed Consultee	Letter Emailed

5.6 Consultation Responses and Applicants' Regard

103. A total of 12 consultation responses were received. **Table 5-2** details the comments received and the Applicants' regard.

Table 5-2 Consultation Responses Received through the Non-Statutory Consultation Process and the Applicants' Responses

Stakeholder	Response Date	Comment	Response
Swedish Pelagic Federation Producers Organisation	19/11/2024	Thank you for including the Swedish Pelagic Federation Producers Organisation in this stakeholder consultation. We have no objections to the proposed changes to the project, and welcome the projected decreased negative impact on the environment, fish stocks and commercial fisheries.	The Applicants acknowledge this comment.
Gassco	22/11/2024	Reference is made to your e-mail of November 15th regarding Project Change Request 1: Offshore and Intertidal Works' from 15th November 2024 to 16th December 2024. Gassco has no objections to the proposed changes to the accepted DCO Application for the Dogger Bank South Offshore Wind Farm Projects, and we cannot see that this will have any effect on any future potential crossing of Langeled Pipeline.	The Applicants acknowledge this comment.
NatureScot	25/11/2024	Thank you for seeking NatureScot's feedback in relation to proposed changes to the Dogger Bank South Offshore Wind Farms DCO application. Due to high levels of casework demands relating to marine energy proposals in Scottish seas, we are unable to provide comments on the proposed changes. We do ask that any predicted adverse impacts to Scottish SPAs are identified to enable us to provide advice on potential requirements for compensation measures through a derogation process.	The Applicants thank NatureScot for their response and confirm that the changes proposed in this report do not alter the conclusions detailed in **Report to Inform Appropriate Assessment Habitats Regulations Assessment Part 4 of 4 – Marine Ornithological Features (Revision 3)** [AS-085 and AS-086] regarding Scottish SPAs.
Maritime and Coast Guard Agency	28/11/2024	Thank you for the update regarding 'Change Request 1' in relation to offshore and Intertidal works. The UK Technical Services Navigation team of the Maritime and Coastguard Agency has reviewed the documents, and would like to comment as follows: We note that the change request as presented in the Change Notification Letter (PDA-012) and in section 2 of the Environmental Assessment Update (Document Ref: C1.1) includes: *'Change 1: Removal of Gravity Based Structure (GBS) foundations* *Change 2: Removal of Electrical Switching Platform (ESP) from the design envelope* *Change 3: Reduction of the number of platforms in the design envelope, plus associated scour protection* *Change 4: Reduction of cabling within the array areas, plus associated seabed preparation and cable protection* *Change 5: Removal of the short trenchless crossing option at landfall'* We agree with the conclusions presented in Table 3-7, section 3.6, shipping and navigation, that the changes will not alter previous (pre change request) assessment and will remain broadly acceptable to tolerable with mitigation as assessed in the ES. If you have any questions on this response, please let us know.	The Applicants acknowledge this comment.
Ministry of Defence	29/11/2024	The MOD has reviewed the submitted documents: • PDA-012 - 10.2 Change Notification Letter (Revision 1); • AS-015 - Additional Submission - Accepted at the discretion of the Examining Authority - Intention to Submit a Change Request re Onshore Substation Zone (Change Request 2); and • PD-007 - Rule 17 letter issued 7 November 2024.	The Applicants acknowledge this comment and are due to begin engaging with the MOD in the near future.

Stakeholder	Response Date	Comment	Response
		As the design envelope or wind turbine dimensions have not been amended, the MOD position of 6th September 2024 remains extant. I have attached a copy of that response for ease.	
INEOS Energy	29/11/2024	Many thanks for your e-mail/letter regarding the project change request. As indicated in our representations back in the summer by my colleague *[Redacted]*, given the intention is to construct these wind farms in an area which is proximate to our licence areas, we would urge the project to engage on agreeing appropriate co-location arrangements. Please can I suggest we set up an introductory call so that we can understand more about each other's plans/activities for these proximate areas with a view to avoiding any potential conflicts and exploring any potential synergies. To recap, INEOS Energy's interests in the areas are as follows: INEOS UK SNS Limited is the licence administrator and co-licensee of 2 licences in respect of UKCS Blocks 43/12a, 43/13b, 43/12b, 43/13c, 43/14b, 43/17a, 43/18a and 43/19d awarded as part of the 33rd Offshore Licensing Round by the North Sea Transition Authority (details of which can be found on the NSTA's website under Tranche 3 awards). ONE-Dyas UK Limited is the other co-licensee. INEOS UK SNS Limited is the operator and co-owner of the Cavendish field, which is located in UKCS Block 43/19a, ceased production in 2018 and is currently being decommissioned. Dana Petroleum (E&P) Limited is the other co-owner.	The Applicants are aware of INEOS Energy's interests in the vicinity of the proposed DBS Offshore Wind Farms. The parties have exchanged correspondence with INEOS Energy a number of times over the course of recent years and held a meeting with INEOS Energy in early December 2024 to discuss their respective interests. The Applicants look forward engaging further with INEOS Energy in due course.
Natural England	09/12/2024	Thank you for your consultation on the above dated 14 November 2024, which was received on 15 November 2024. This advice is being provided as part of Natural England's Discretionary Advice Service. RWE Renewables UK Dogger Bank South (East) Limited; RWE Renewables UK Dogger Bank South (West) Limited has asked Natural England to provide advice upon: • Project Change Request 1: Offshore and Intertidal Works. This advice is provided in accordance with the Quotation and Agreement dated 3 February 2022. The following advice is based upon the information within: **Project Change Request 1: Changes to offshore and intertidal works** 1. Project Change Request 1: Environmental Assessment Update, Nov 2024, C1.1, Rev 01 2. Appendix A – Fish and Shellfish Ecology Environmental Statement Update, Nov 2024, C1.1.1, Rev 01 3. Appendix B – Marine Mammal Environmental Statement Update, Nov 2024, C1.1.2, Rev 01 4. Appendix C – Marine Mammal Report to Inform Appropriate Assessment Update, Nov 2024, C1.1.3, Rev 01 5. Appendix 8-3 – Marine Physical Process Modelling Technical Report, Nov 2024, 7.8.8.3, Rev 02 (Tracked) 6. Appendix 11-3 – Underwater Noise Modelling Report, Nov 2024, 7.11.11.3, Rev 02 (Tracked) 7. Appendix 11-4 – iPCoD Modelling, Nov 2024, 7.11.11.4, Rev 02 (Tracked) **Project Change Request 1: Changes to offshore and intertidal works** Natural England welcomes the refinements to the Project Envelope and Maximum Design Parameters summarised in the documents above and agree that they will not result in a material change to the nature of the project. Our advice therefore remains as given in PDB-011, that the changes are submitted and accepted into Examination with relevant chapters and assessments updated at the earliest opportunity. We note that we have not conducted a detailed review of the assessments at this stage, as the updates reflect the specific changes related to the request itself and further updates may be required to the	The Applicants thank Natural England for their feedback. The Applicants reiterate their position, stated in section 2, that the purpose of this document is to provide an update to each environmental topic assessed in the Environmental Statement (ES) and Report to Inform Appropriate Assessment (RIAA) that may be affected by the proposed offshore and intertidal changes. In doing so, this document allows a clear understanding of the implications of the proposed changes on the environment to be developed, such that an informed decision can be made by the ExA on whether the proposed changes should be accepted into the DBS DCO Examination. As any updated assessments due to the proposed changes are presented comprehensively within this report and its accompanying appendices, no updates to the original ES chapters are required

Stakeholder	Response Date	Comment	Response
		environmental assessments to address other concerns raised in Relevant and Written Representations. We therefore defer our full comments to when the updates assessments are submitted into Examination.	
Rijkswaterstaat (The Netherlands)	11/12/2024	Thank you for your letter with reference nr. 005458275-01 regarding a change request for the Dogger Bank South Offshore Wind Farms. We have noted the proposed changes and would like to provide feedback on the change from Gravity-Based Structures (GBS) to monopile foundations. In earlier stages of the development of this offshore wind farm, the Netherlands sent a letter to RWE with elaborate feedback on the Preliminary Environmental Information Report (PEIR), see attached. In this letter, The Netherlands stresses that regarding marine mammals, "*major effects are predicted for the harbour porpoise, minke whale and the grey seal due to underwater noise as a result of pile driving during the construction of Dogger Bank South Offshore Wind Farms. This was also a real concern for Dogger Bank Teesside A and B. The Netherlands mitigate this issue by setting requirements for maximum underwater noise exposure during pile driving. Various noise mitigation measures can reduce noise exposure, for example using a bubble screen during pile driving. We hope that these suggestions can be taken into account in your further activities*". In the documents provided on the website https://doggerbanksouth.co.uk/, we have not been able to find any mitigating measures to lower underwater noise or its effects on marine mammals, such as acoustic deterrent devices or bubble screens, and would appreciate such measures being taken in order to minimise negative transboundary ecological effects. As stressed before in the letter, "*international cumulative effects should be included, as transboundary effects on the Dutch marine mammal population and Dutch Natura 2000 areas are expected*". These international cumulative effects do not seem to have been included in the Environmental Statements. The mentioned issues emphasise the necessity of international coordination related to the exploitation of new activities in the North Sea, in order to create a common understanding on ecological cumulative effects of wind farms and management options for protection of the marine environment. As Dutch government, we hope to intensify contacts with UK governmental bodies, and in parallel, we aim to discuss this issue in OSPAR or NSEC. At the same time we hope that wind farm developers will keep improving applied methodologies, taking into account a broader international perspective when predicting environmental effects of wind farm construction activities in the North Sea. Concerning the development of the Dogger Bank South Offshore Wind Farms, the Netherlands would like to be involved in the process of assessing the ecological (and other) effects of this development and think along about the required mitigation measures. We hope that our response is helpful to your process. We would appreciate it to receive a response to the mentioned issues and hope you will provide us with more information on the further process. We are open to provide additional information in an online meeting, if desired. If there are any questions, please respond to this email.	The Applicants thank the Netherlands for their response. To clarify, the only structure within the Projects' Design Envelope that may have used GBS foundations was the ESP within the Offshore Export Cable Corridor. As a result of the proposed changes presented within this document, the ESP has been removed from the Projects' Design Envelope and therefore the physical processes modelling has been revised to accommodate this change. With regards to underwater noise, the Applicants are considering the use of NAS as mitigation for underwater noise. The use of NAS will be dependent on the final project design and determined at the post-consent stage. NAS is being included within the Projects' procurement strategy to allow it to be called upon should it be required based on the final design parameters. Mitigation measures are secured within a final Marine Mammal Mitigation Plan (MMMP) which will outline all measures to reduce the impact of underwater noise to marine mammals that the Applicants will commit to during the construction of the Projects. An outline MMMP has also been submitted to the ExA **(Outline Marine Mammal Mitigation Protocol (Revision 2)** [AS-100 and AS-101]). In addition to the MMMP, a final Site Integrity Plan (SIP); which is a detailed project design plan that outlines measures to monitor and mitigate the impact of the Project(s) on the conservation objectives of the SNS SAC, will be submitted to the MMO and other Statutory Nature Conservation Bodies (SNCBs) for agreement. The final SIP will include an assessment of underwater noise on harbour porpoise and to ensure that there is no adverse effect on the integrity of the SNS SAC

Stakeholder	Response Date	Comment	Response
			from the Projects alone, along with an in-combination assessment that considers the scheduling of other plans and projects. An **In Principle SIP (Revision 2)** [AS-102 and AS-103] has been submitted to the ExA.
Trinity House	11/12/2024	I can confirm that Trinity House note that details of Change Request 1 and have no objections or further comments in this regard.	The Applicants acknowledge this comment.
Historic England	13/12/2024	Thank you for your notification of 15th November, 2024, concerning two Project Change Requests, the first in relation to Offshore and Intertidal Works and the second in relation to the Onshore Substation Zone. We have considered the notification and your supporting information (PDA-012 for Offshore and AS-015 for Onshore) and have the following comments and observations: **1) Offshore:** By way of some context, within 10.3 'The Applicants' Responses to Relevant Representations' (PDA-013), the Applicant provided clarifications to the concerns we had previously raised, as outlined in ID RR-022: 1.1.1 to 1.1.3. These principally relate to how seabed impacts generated by the installation of Artificial Nesting Structures (ANS) for Kittiwake (as a means of habitat compensation) will be addressed by the project. We now also note that the 'Project-Level Kittiwake Compensation Plan' (AS-087) also confirms the use of a separate marine licence, to ensure that the appropriate consent is in place prior to ANS installation. We do however request that during further planned assessment work on the five shortlisted Area of Search locations for the ANS, that the Applicant ensures their marine archaeological advisor is included in this undertaking, such that the marine historic environment is adequately considered as part of any constraint's assessment. Furthermore, we recommend that the Applicant and their marine archaeological advisors discuss with Historic England any refined plans on possible locations at the earliest opportunity prior to a marine licence application being submitted. As such, we have no further comments to offer at this juncture. We therefore confirm that we are satisfied that sufficient information to assess the effects of the Proposed Development has now been submitted or can be submitted within the six-month examination period.	The Applicants thank Historic England for their response and note that any potential offshore artificial nesting structure (ANS) for kittiwake would be applied for under a separate marine licence outside of this DCO application. The Applicants also confirm that a marine archaeological advisor will be included in the assessment work to support the marine licence application.
Espoo, Denmark	16/12/2024	Denmark thanks for the notification regarding project "Dogger Bank South Offshore Wind Farm" and wants to participate in the further environmental assessment process. The notification has been sent for consultation to several Danish authorities and interest organizations and has been published on the Danish Environmental Protection Agency's website. Espoo, Denmark didn´t get any comment about the Change Request 1: Offshore and Intertidal Works - the project: Dogger Bank Offshore Wind Farm If you have any questions, feel free to contact me.	The Applicants acknowledge this comment.
Marine Management	16/12/2024	Thank you for your email dated 15 November 2024, detailing a targeted non-statutory consultation for offshore and intertidal works for the Marine Management Organisation ('the MMO'). **The MMO's role in Nationally Significant Infrastructure Projects**	The Applicants thank the MMO for their response and note that the MMO will provide a full response at Deadline 1.

Stakeholder	Response Date	Comment	Response
Organisation (MMO)		The MMO was established by the Marine and Coastal Access Act 2009 ('the 2009 Act') to make a contribution to sustainable development in the marine area and to promote clean, healthy, safe, productive and biologically diverse oceans and seas. The responsibilities of the MMO include the licensing of construction works, deposits and removals in English inshore and offshore waters and for Welsh and Northern Ireland offshore waters by way of a marine licence1. Inshore waters include any area which is submerged at mean high water spring (MHWS) tide. They also include the waters of every estuary, river or channel where the tide flows at MHWS tide. Waters in areas which are closed permanently or intermittently by a lock or other artificial means against the regular action of the tide are included, where seawater flows into or out from the area. In the case of Nationally Significant Infrastructure Projects (NSIPs), the 2008 Act enables Development Consent Order's (DCO) for projects which affect the marine environment to include provisions which deem marine licences2. As a prescribed consultee under the 2008 Act, the MMO advises developers during pre-application on those aspects of a project that may have an impact on the marine area or those who use it. In addition to considering the impacts of any construction, deposit or removal within the marine area, this also includes assessing any risks to human health, other legitimate uses of the sea and any potential impacts on the marine environment from terrestrial works. Where a marine licence is deemed within a DCO, the MMO is the delivery body responsible for post-consent monitoring, variation, enforcement and revocation of provisions relating to the marine environment. As such, the MMO has a keen interest in ensuring that provisions drafted in a deemed marine licence (DML) enable the MMO to fulfil these obligations. Further information on licensable activities can be found on the MMO's website3. Further information on the interaction between the Planning Inspectorate and the MMO can be found in our joint advice note4. Please find the MMO comments below on the following documents: • Project Change Request 1: Environmental Assessment Update – C1.1; • Appendix A – Fish and Shellfish Ecology Environmental Statement Update – C1.1.1; • Appendix B – Marine Mammal Environmental Statement Update – C1.1.2; • Appendix C – Marine Mammal Report to Inform Appropriate Assessment Update – C1.1.3; • Appendix 8-3 – Marine Physical Process Modelling Technical Report (Revision 2) (Tracked) – 7.8.8.3; • Appendix 11-3 – Underwater Noise Modelling Report (Revision 2) (Tracked) – 7.11.11.3; and • Appendix 11-4 – iPCoD Modelling (Revision 2) (Tracked) – 7.11.11.4.	
		1. Project Change Request 1: Environmental Assessment Update – C1.1 1.1. The removal of Gravity Based Structures (GBS) foundations. 1.2. Removal of Electrical Switching Platforms (ESP) from the Projects' Design Envelope. 1.3. Reduction in number of offshore platforms in the Projects' Design Envelope, from eight to three within the array areas, including reductions in associated seabed preparation and scour protection. 1.4. Reduction of cabling within the array areas, plus associated seabed preparation and cable protection. 1.5. Removal of the short trenchless crossing at landfall.	
		2. Appendix A – Fish and Shellfish Ecology Environmental Statement Update – C1.1.1 2.1. The MMO welcomes the changes to the worst-case scenario footprint on temporary habitat disturbance to fish and shellfish from 62.4 kilometres squared (km^2) to 58.7km^2 as well as the reduction for all generation assets including the array, inter	

Stakeholder	Response Date	Comment	Response
		platform cables, offshore platforms and foundations from 24.2km² to 21.9km² and a reduction for all offshore transmission works from 38.2km² to 36.8km². 2.2. The MMO welcomes the changes to the worst-case scenario volume of sediment with the potential to cause an increase in suspended sediment concentrations (SSC) and sediment settlement associated with the construction phase of the projects would decrease from 76,618,434 metres cubed (m³) to 75,153,734m³. 2.3. When considering the impact of simultaneous pin piling events, the total number of pin piles to be installed would decrease from 864 across the Array Areas and Offshore Export Cable Corridor (ECC) to 824 across the Array Areas only, with no more than 12 piles being installed on a single day. Pin piling would no longer take place within the Offshore ECC. Modelling assumes each pile would take up to 190 minutes of piling to install, with 120 minutes being at the full 3,000 Kilojoules (kJ). This totals a piling time of 2,609.3 hours, which is fewer than the 2,736 hours required for the previous Projects' Design Envelope. 2.4. Total footprint of infrastructure within the Array Area for both Projects together (Dogger Bank South (DBS) East and DBS West) is revised from 8.28km² (2.05km²) to 1.7km², and from 3.14km² (2.1km²) to 2.08km² for the Offshore Export Cable Corridor (worst case values). 2.5. Due to the proposed changes, the worst-case scenario for permanent loss of habitat and / or change in habitat type as a result of changes in substrate composition associated with the operational phase of both Projects would decrease from 4.19km² to 3.79km². This represents approximately 0.014% of the total Fish and Shellfish Ecology Study Area. This is the worst-case habitat loss for the total Array Areas, which would decrease from 2.05km² to 1.71km², and the total Offshore ECC, which would decrease from 2.14km² to 2.08km². 2.6. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.	
		3. Appendix B – Marine Mammal Environmental Statement Update – C1.1.2 3.1. In Chapter 11 Marine Mammals [APP-095] impacts from piling were assessed for the Array Areas as well as the Offshore ECC. Due to the proposed changes as detailed in Project Change Request 1 – Environmental Assessment Update [document reference: C1.1]; there would be no piling in the Offshore ECC, therefore, the underwater noise modelling for the Projects has been updated. Based on the proposed removal of the electrical switching platform (ESP) in the Offshore ECC, there will no longer be three concurrent (12 sequential) jacket pin piles. Appendix 11-3 Underwater Noise Modelling Report (Revision 2) [document reference: 7.11.11.3] presents impact ranges for two concurrent (four sequential) jacket pin piles per Array Area for both Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS). 3.2. The population modelling was redone to include the proposed reduction in number of offshore platforms, and therefore a reduction in piling days, and the proposed removal of the ESP in the Offshore ECC for both Projects in Isolation and for the cumulative effects assessment. 3.3. The interim population of consequences of disturbance (iPCoD) modelling was based on the number of harbour porpoise to be disturbed and at risk of PTS for every piling day with a piling schedule of four years. The worst-case total number of potentially 17,334 harbour porpoise disturbed within the Environmental Statement (ES) would be reduced to 9,393.2, and a total of 276 individuals at risk of PTS; reduced from 601.5 in the ES. 3.4. The iPCoD modelling was based on the number of minke whale to be disturbed and at risk of PTS for every piling day with a piling schedule of four years. The worst-case total number of potentially 142 minke whale disturbed within the ES would be reduced to 85, and a total of 15 individuals at risk of PTS; reduced from 45 in the ES.	

Stakeholder	Response Date	Comment	Response
		3.5. The iPCoD modelling was based on the number of grey seals to be disturbed and at risk of PTS for every piling day with a piling schedule of four years. The worst-case total number of potentially 14,601 grey seal disturbed within the ES would be reduced to 5,502.9, and a total of up to three individuals at risk of PTS; reduced from 15 in the ES. 3.6. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.	
		4. Appendix C – Marine Mammal Report to Inform Appropriate Assessment Update – C1.1.3 4.1. Updated underwater noise modelling for the concurrent piling of the jacket pin piles (Appendix 11-3 Underwater Noise Modelling Report (Revision 2) [document reference: 7.11.11.3]) shows that there is a reduction in the potential impact range for harbour porpoise. In the Report to Inform Appropriate Assessment (RIAA) Habitats Regulations Assessment (HRA) Part 3 of 4 [APP-047] the impact range used for the assessment was 3,700km², with the proposed removal of the ESP in the Offshore ECC, the impact range would be reduced to 1,800km² (Table 2-1) 4.2. The effective implementation of the Marine Mammal Mitigation Protocol (MMMP) and the In Principle Site Integrity Plan (SIP) for piling will reduce the risk of PTS to harbour porpoise during piling at the Projects. This mitigation alongside less than 1% of the population being affected, means there would be no adverse effect on the integrity of the Southern North Sea (SNS) Special Area of Conservation (SAC) in relation to the conservation objectives for harbour porpoise due to auditory injury from underwater noise during construction (piling) of the Projects together. 4.3. The population affected by disturbance from underwater noise at the Projects remains less than 5%. Therefore, there would be no adverse effect on the integrity of the SNS SAC in relation to the conservation objectives for harbour porpoise due to disturbance or behaviour effects from increased underwater noise during construction (piling) for the Projects alone or the Projects together. 4.4. The results from the population modelling show that there would be no adverse effect on the integrity of the SNS SAC in relation to the conservation objectives for harbour porpoise due to disturbance or behaviour effects from increased underwater noise during construction (piling) for the Projects constructed in-combination with other offshore wind farms (OWF)s. 4.5. The proposed removal of the ESP in the Offshore ECC significantly reduces the numbers of grey seal to be disturbed, in particular within the Humber Estuary SAC population. However, the proposed removal of the ESP in the Offshore ECC does not change the conclusions of no adverse of effect of the site integrity on the SACs as presented in the RIAA HRA Part 3 of 4 [APP-047]. 4.6. The proposed reduction of piling days would not cause any significant changes to the original results from the population modelling with in the RIAA HRA Part 3 of 4 [APP-047]. However, the proposed reduction of piling days would result in the in-combination assessment of disturbance from piling at other OWF schemes being reduced to below the seasonal threshold of 10% for the SNS SAC. 4.7. For the in-combination assessment of disturbance due to underwater noise from other piling projects for the Humber Estuary SAC, an error was corrected to use the worst-case numbers for DBS West. The conclusion presented in paragraph 659 in RIAA HRA Part 3 of 4 [APP-047] still remains valid. Based on the population modelling there is no potential for adverse effect on integrity of the Humber Estuary SAC in relation to the conservation objectives for grey seal for in-combination with piling at the Projects and other OWFs. 4.8. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.	
		5. Appendix 8-3 – Marine Physical Process Modelling Technical Report (Revision 2) (Tracked) – 7.8.8.3	

Stakeholder	Response Date	Comment	Response
		5.1. MMO welcomes the updates to modelling which reflects the updated project design envelope. 5.2. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.	
		6. Appendix 11-3 – Underwater Noise Modelling Report (Revision 2) (Tracked) – 7.11.11.3 6.1. The MMO welcomes the additional modelling results for non-impulsive noise impacts as well as updated to modelling which reflects the updated project design envelope. 6.2. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.	
		7. Appendix 11-4 – iPCoD Modelling (Revision 2) (Tracked) – 7.11.11.4 7.1. The MMO welcomes the updating modelling which reflects the updated project design envelope as well as the addition of population modelling for the RIAA. 7.2. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.	
		The MMO welcomes the updated documents as submitted by Dogger Bank South (East) Limited and Dogger Bank South (West) Limited. The MMO are currently reviewing these documents alongside the additional submissions from the applicant and a full response will be provided at deadline 1. The MMO reserves the right to make further comments on the Project throughout the examination process and may modify its present advice or opinion in view of any additional information that may come to our attention. If you require any further information, please do not hesitate to contact me using the details provided below.	

5.7 Summary of Consultation

104. A total of 12 consultation responses were received following conclusion of the non-statutory consultation period held between the 15th November 2024 and 16th December 2024. Following the conclusion of the non-statutory consultation period, the Applicants reviewed each comment and provided individual responses to each (detailed in section 1.1 above). In summary, stakeholders broadly welcomed the proposed changes to the Projects' Design Envelope, and as such no further material amendments were made to proposals for change or the assessments within this report or the accompanying appendices (subject to further comments due to be received from the MMO and Natural England during examination).

6 Conclusion

105. **Table 6-1** presents a summary of the potential changes to the original assessment conclusions submitted by the Applicants with the Projects' DCO Application. While the proposed changes would reduce the Projects' footprint across the Offshore Development Area and Intertidal Zone, the magnitude of the impacts previously assessed for the majority of environmental topics would not alter as a result of the proposed changes. Therefore, the majority of ES and RIAA assessment conclusions submitted by the Applicants with the Projects' DCO Application would not change as a result of the incorporation of the proposed changes.

106. The exception to this would be for the ES impacts of '*TTS from cumulative exposure from concurrent jacket pin pile installations at multiple piling locations on grey seal*' where the impacts, and thus likely significant effects, would be reduced.

107. The magnitude for TTS on grey seal would be reduced from high in the ES to low due to the removal of the ESP from the Projects' Design Envelope. Therefore, the significance of effect before mitigation would be reduced from major adverse to **minor adverse**.

108. The proposed changes to the Projects' Design Envelope do not change the majority of the assessments made within the ES or RIAA previously submitted for the Projects' DCO application. For the assessment of '*TTS from cumulative exposure from concurrent jacket pin pile installations at multiple piling locations on grey seal*', the change is positive, resulting in a reduced significance of effect compared to that previously assessed in the ES.

109. The non-statutory consultation on the proposed changes concluded with stakeholders broadly welcoming the proposed changes to the Projects' Design Envelope, with no further material amendments being made to the assessments or their accompanying appendices. As such, the Applicants can confirm that the proposed changes will not have any impact on securing any consents or licences for the Projects and confirm there will be no delay to securing any consents or licences prior to the close of examination as a result of the proposed changes.

Table 6-1 Summary of Changes in Assessment Conclusions Resulting from Changes to the Projects' Design Envelope (N/A – proposed change not applicable to the topic).

Topic	Changes to the Projects' Design Envelope				
	Removal of the ESP	Removal of GBS Foundations	Reduction of the Number of Offshore Platforms	Reduction in Overall Cabling Lengths within the Array Areas	Removal of the Short Trenchless Crossing at Landfall
Offshore					
Marine Physical Environment	No change to original ES conclusions.				
Benthic and Intertidal Ecology	No change to original ES or RIAA conclusions.				
Fish and Shellfish Ecology	No change to original ES or RIAA conclusions.				
Marine Mammals	As presented in **Table 4-5** the removal of the ESP in the Offshore Export Cable Corridor has reduced the magnitude of the impact of TTS from cumulative exposure of concurrent jacket pin pile installations at multiple piling locations on grey seal. Therefore, the significance of effect has been reduced from major adverse to **minor adverse for grey seal**. No change to original RIAA conclusions.	No change to original ES or RIAA conclusions.	No change to original ES or RIAA conclusions.		N/A
Commercial Fisheries	No change to original ES conclusions.	N/A	No change to original ES conclusions.		
Shipping and Navigation	No change to original ES conclusions.	N/A	No change to original ES conclusions.		N/A
Aviation and Radar	No change to original ES conclusions.	N/A	No change to original ES conclusions.	N/A	N/A
Infrastructure and Other Users	No change to original ES conclusions.	N/A	No change to original ES conclusions.		
Offshore Archaeology and Cultural Heritage	No change to original ES conclusions.				
Onshore					
Terrestrial Ecology and Ornithology	N/A	N/A	N/A	N/A	No change to original ES conclusions.

Topic	Changes to the Projects' Design Envelope				
	Removal of the ESP	Removal of GBS Foundations	Reduction of the Number of Offshore Platforms	Reduction in Overall Cabling Lengths within the Array Areas	Removal of the Short Trenchless Crossing at Landfall
Flood Risk and Hydrology	N/A	N/A	N/A	N/A	No change to original ES conclusions.
Landscape and Visual Impacts	N/A	N/A	N/A	N/A	No change to original ES conclusions.
Noise	N/A	N/A	N/A	N/A	No change to original ES conclusions.
Human Health	N/A	N/A	N/A	N/A	No change to original ES conclusions.
Tourism and Recreation	N/A	N/A	N/A	N/A	No change to original ES conclusions.

7 Next Steps

110. Should the proposed changes detailed in this document be accepted by the ExA, the Applicants propose to update the following documents previously submitted to the ExA during the examination process. This will be in order to reflect the changes to the Projects' Design Envelope resulting from this change request, any relevant Written Representations and questions from the ExA:

- Works Plan (Offshore) (Revision 3) [PDA-002];
- Commitments Register [APP-231];
- Disposal Site Characterisation Report [APP-242];
- Safety Zone Statement [APP-243];
- Cable Statement (Revision 2) [AS-079];
- Outline Project Environmental Management Plan [APP-245];
- In-Principle Monitoring Plan [APP-247];
- Outline Offshore Operations and Maintenance Plan (Revision 2) [AS-027];
- Outline Marine Mammal Mitigation Protocol (Revision 2) [AS-100];
- In Principle Site Integrity Plan for the Southern North Sea Special Area of Conservation (Revision 2) [AS-102];
- Outline Scour Protection Plan (Revision 2) [AS-081]; and
- Outline Fisheries Liaison and Co-Existence Plan (Revision 2) [AS-083].

Annex 1 - Project Change Request 1 – Targeted Non-Statutory Consultation Letter

DBS Offshore Wind

Our ref.	005458275-01
Contact	Thomas Tremlett
Phone	[redacted]
Email	[redacted]@rwe.com

14th November 2024

Dear Stakeholder,

Dogger Bank South Offshore Wind Farms

PINS Reference: EN010125

Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank (East) (hereafter referred to as 'the Applicants') submitted a Development Consent Order (DCO) application to the Planning Inspectorate on 12th June 2024 for the Dogger Bank South East ("DBS East") and Dogger Bank South West ("DBS West") Offshore Wind Farms (together referred to as "the Projects"). The DCO application was accepted for Examination on 10th July 2024. A non-technical summary of the scope of the Projects at the point of submission into examination can be found in the Environmental Statement Non-technical Summary included with the DCO submission.

The Applicants have been engaging with stakeholders to seek to resolve concerns or comments throughout the pre-examination period. This engagement, combined with continuing design work and the receipt of a grid connection offer for each Project have provided enough information to enable the Applicants to propose a small number of changes to the DCO application within the Offshore and Intertidal works areas which the Applicants refer to as 'Project Change Request 1'. These proposed changes provide environmental benefit compared to the assessment submitted with the DCO application. The changes comprise:

- Change 1: Removal of Gravity Based Structure (GBS) foundations;
- Change 2: Removal of Electrical Switching Platform (ESP) from the Projects' Design Envelope;
- Change 3: Reduction in number of offshore platforms in the Projects' Design Envelope, from eight to three within the Array Areas, including reductions in associated seabed preparation and scour protection;
- Change 4: Reduction of cabling within the array areas, plus associated seabed preparation and cable protection; and
- Change 5: Removal of the short trenchless crossing at landfall

Prior to the submission of Change Request 1 to the Examining Authority and the subsequent decision by the Examining Authority on its acceptability, the Applicants are undertaking targeted non-statutory consultation for a period of 30 days with identified stakeholders in line with the relevant Planning Inspectorate guidance. The Applicants notified the Examining Authority of their intention to submit a change request on the 8th October 2024 [PDA-012] which provided a brief description of the proposed changes, a summary of the predicted environmental effects introduced by the changes, a summary of how consultation on the changes would be undertaken and the Applicants' consideration on how this could be accommodated within the Draft Examination Timetable. The Examining Authority responded on the 7th November 2024 [PD-007] outlining additional stakeholders who should be consulted on the change request information. All additional consultees recommended by the Examining Authority have been included in this consultation.

The Applicants are consulting on environmental information that assesses the changes listed above. Whilst substantial information is included in the documents provided for consultation, the proposed changes to the Projects' Design Envelope represent a reduction in activities. The changes are broadly beneficial, however they are not significant enough to alter the outcomes of all but one of the offshore environmental assessments, where the impact has been reduced. The effects detailed in the Environmental Statement submitted with the original application, therefore, remain largely unchanged.

The documents for consultation are outlined in Table 1 below. This includes updates to some documents which were submitted as part of the DCO application. Documents that are updated versions of documents provided with the original DBS DCO submission have been provided with 'tracked' changes to facilitate review and comment by stakeholders.

Table 1 – List of documents for consultation

Document Title	**Our Document reference**
Project Change Request 1: Environmental Assessment Update	C1.1
Appendix A – Fish and Shellfish Ecology Environmental Statement Update	C1.1.1
Appendix B – Marine Mammal Environmental Statement Update	C1.1.2
Appendix C – Marine Mammal Report to Inform Appropriate Assessment Update	C1.1.3
Appendix 8-3 – Marine Physical Process Modelling Technical Report (Revision 2) (Tracked)	7.8.8.3
Appendix 11-3 – Underwater Noise Modelling Report (Revision 2) (Tracked)	7.11.11.3
Appendix 11-4 – iPCoD Modelling (Revision 2) (Tracked)	7.11.11.4

The Applicants are undertaking a targeted non-statutory consultation on the information outlined in Table 1 from the **15 November 2024 to the 16 December 2024.** Full information and copies of all of the documents listed above can be found at http://www.doggerbanksouth.co.uk. The Applicants are also undertaking a consultation on a second change request for works focused at the Onshore Substation Zone in parallel to this consultation.

The Applicants welcome all feedback on the proposed design change and the associated assessment work undertaken to support these changes. The deadline for consultation feedback is **16th December at 23:59** by either of the options below:

(1) by email to dbs@rwe.com; or

(2) by post to 'Freepost DBSOWF'. No further postal address or stamp is required. Postal responses must be sent on or before this deadline.

Consultation feedback must be received by email to dbs@rwe.com before **16 December at 23:59**. The Applicants will consider all feedback received and will provide responses detailing how the feedback has been taken into account when the change request is submitted to the ExA. The current intention is that the Request for Change will be submitted in January 2025.

Please don't hesitate to contact us at dbs@rwe.com or 0800 254 5459 should you have any queries related to this change request. The Project Team would be happy to accommodate a virtual meeting to explain the change should that be convenient within the consultation period.

Yours sincerely,

[redacted]

Thomas Tremlett

Senior Consents Manager

DBS Offshore Wind Farms

RWE Renewables UK Dogger Bank South (East) Limited

Registered no. 13656240

RWE Renewables UK Dogger Bank South (West) Limited

Registered no. 13656525

Registered office:

Windmill Hill Business Park, Whitehill Way, Swindon, Wiltshire, England SN5 6PB

Registered in England and Wales.

Annex 2 – Project Change Request 1 – Offshore and Intertidal Works Site Notice Letter and Locations Plan

NOTICE PUBLICISING CONSULTATION ON PROPOSED CHANGES TO A DEVELOPMENT CONSENT ORDER APPLICATION

THE PLANNING ACT 2008

DOGGER BANK SOUTH OFFSHORE WIND FARMS

Notice is hereby given that RWE Renewables Dogger Bank South (West) Limited and RWE Renewables Dogger Bank South (East) Limited (the "Applicant") of Windmill Hill Business Park, Whitehill Way, Swindon, Wiltshire, United Kingdom, SN5 6PB is consulting on its proposals to make changes to its application for a Development Consent Order (DCO) for the Dogger Bank South Offshore Wind Farms ("the Application") related to works in the Offshore and Intertidal Works areas. On 8 October 2024, the Applicants notified the Examining Authority appointed by the Secretary of State that it was proposing to make a formal request to change an element of the Application. The details of those changes are set out below. The Applicants are holding a targeted consultation on the proposed changes. This notice explains the changes and how you can take part in the consultation.

Summary of the Projects

The application for an order to grant development consent for construction, operation, maintenance and decommissioning of the Dogger Bank South East ("DBS East") and Dogger Bank South West ("DBS West") offshore wind farms, both located in the North Sea on the Dogger Bank (together referred to as "the Projects") and the associated development to connect the proposed offshore wind farms to the national grid was accepted into examination by the Planning Inspectorate on the 12th July 2024. The Projects would have a combined maximum number of 200 turbines. The offshore array areas for DBS West and DBS East are situated at a minimum of 100km and 122km from shore respectively. The proposed onshore works consist of installation of buried onshore export cables, from a landfall on the East Riding of Yorkshire coastline near Skipsea to (up to) two newly constructed onshore converter stations near the hamlet of Bentley, before onward onshore cable routeing to the proposed Birkhill Wood National Grid substation close to the existing Creyke Beck substation

Summary of changes sought

The proposed change includes:

- Change 1: Removal of Gravity Based Structure (GBS) foundations
- Change 2: Removal of Electrical Switching Platform (ESP) from the design envelope
- Change 3: Reduction of the number of platforms in the design envelope, plus associated scour protection
- Change 4: Reduction of cabling within the array areas, plus associated seabed preparation and cable protection
- Change 5: Removal of the short trenchless crossing option at landfall

No additional land outside of the Order Limits nor change of the compulsory acquisition powers sought over the plots as shown on the Land Plans is required for the proposed change. This change is being made following ongoing stakeholder engagement by the Applicants with Interested Parties ahead of the commencement of examination. This engagement, in combination with continuing design work, has resulted in the Applicants deciding to seek a small number of changes to their application within the Offshore and Intertidal works areas which the Applicants refer to as 'Change Request 1'. The proposed changes are broadly positive and do not have any material effect on the assessments and conclusions of the environmental assessments submitted with the Application and for some topics result in a reduction in environmental impacts.

Further Information

A consultation document outlining the changes and plans and maps showing the nature and location of the proposed changes can be viewed and downloaded on the Applicants' website www.doggerbanksouth.co.uk

The documents will be available to view online until the close of the consultation at 23.59 on Monday 16 December 2024.

Respond to the consultation

We are now seeking your views on the changes and are consulting on only these changes between **15 November** and **16 December 2024**.

Any responses in respect of the Projects should be sent:

(1) by email to **dbs@rwe.com**; or

(2) by post to **'Freepost DBSOWF'**. No further postal address or stamp is required.

The deadline for responses is **23:59 on Monday 16 December 2024**, postal responses must be sent on or before this deadline.

Your comments will be analysed by the Applicants and copies may be made available in due course to the Secretary of State, the Examining Authority and the Planning Inspectorate, and other relevant statutory authorities so that your comments can be considered as part of the DCO application process.

What happens after the consultation

The Applicants will consider the consultation responses made and will have regard to them as it finalises its request to make changes to the Application. It will compile a consultation report, which sets out how it has undertaken its consultation and how regard has been had to the responses received. This will be submitted with the request to make changes to the Application. The examining authority will then decide whether to accept the request.

If you have any queries in relation to the consultation please telephone the Applicants on: 0800 254 5459 or email:dbs@rwe.com.

Site Plan: 0 3 6 9 12 15 18 21 24 27 30 km Scale: 1: 288895

Interest: Interest

Location: Location

Coords: -42743, 7145628

Scheme Name: Scheme Name

Drawing Name: Drawing Name

Drawing No: Drawing Number

Rev	Date	Description
-	11.12.2024	First Issue

Please note: this map has been created and printed using an ESRI ArcGIS Enterprise Web Mapping Application.

Drawn:	XX
Sheet No:	1 of 1
Sheet Size:	A4

Key:

ES Red Line Boundary P08

Targeted Consultation - Change Request Notices (13.11.2024)

Notes:

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984

DALCOUR MACLAREN

RWE

Document Path:

Site Plan:

0 0.4 0.8 1.2 1.6 2 2.4 2.8 3.2 3.6 4 km

Scale: 1: 36112

Interest: Interest

Location: Location

Coords: -23337, 7165158

Scheme Name: Scheme Name

Drawing Name: Drawing Name

Drawing No: Drawing Number

Rev	Date	Description
-	11.12.2024	First Issue

Please note: this map has been created and printed using an ESRI ArcGIS Enterprise Web Mapping Application.

Drawn:	XX
Sheet No:	1 of 1
Sheet Size:	A4

Key:

ES Red Line Boundary P08

Targeted Consultation - Change Request Notices (13.11.2024)

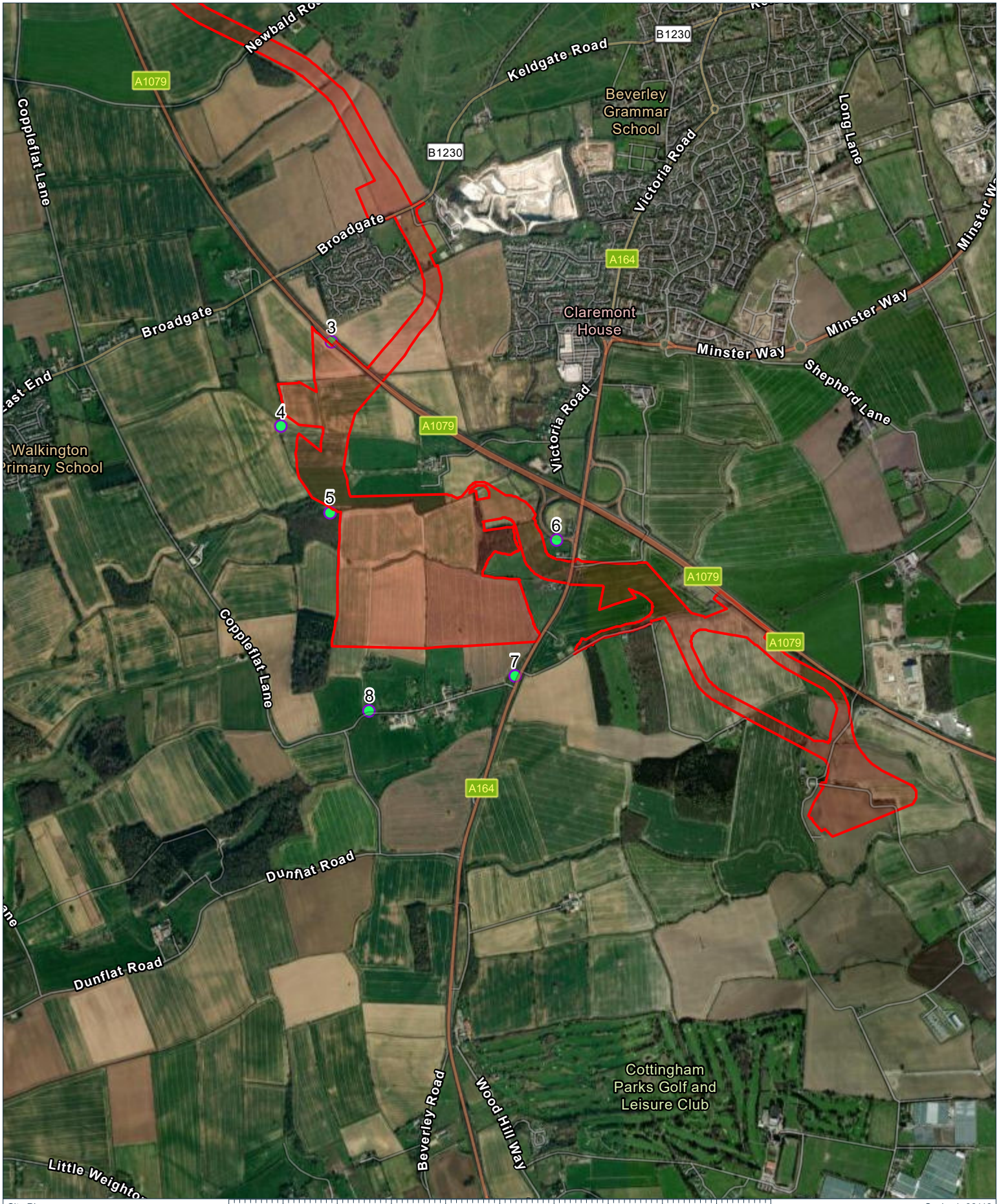
Notes:

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984

DALCOUR MACLAREN

RWE

Document Path:



Site Plan: Scale: 1: 36112

0 0.4 0.8 1.2 1.6 2 2.4 2.8 3.2 3.6 4 km

Interest: Interest

Location: Location

Coords: -49880, 7135022

Scheme Name: Scheme Name

Drawing Name: Drawing Name

Drawing No: Drawing Number

Rev	Date	Description
-	11.12.2024	First Issue

Please note: this map has been created and printed using an ESRI ArcGIS Enterprise Web Mapping Application.

Drawn:	XX
Sheet No:	1 of 1
Sheet Size:	A4

Key:

ES Red Line Boundary P08

Targeted Consultation - Change Request Notices (13.11.2024)

Notes:

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
Projection: Mercator Auxiliary Sphere
Datum: WGS 1984

DALCOUR MACLAREN

RWE

Document Path:

Annex 3 – Project Change Request 1 - Consultation Responses

From: [redacted]
To: Dogger Bank South; [redacted]
Subject: [EXT] Sv: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024
Date: 19 November 2024 15:58:28
Attachments: image002.png
image003.png

Thank you for including the Swedish Pelagic Federation Producers Organisation in this stakeholder consultation.

We have no objections to the proposed changes to the project, and welcome the projected decreased negative impact on the environment, fish stocks and commercial fisheries.

All the best,
[redacted]

[redacted]
Swedish Pelagic Federation PO
Tel [redacted]

[redacted]

Från: dbs@rwe.com <dbs@rwe.com>
Skickat: den 15 november 2024 13:24
Till: dbs@rwe.com; [redacted]@pelagic.se>; [redacted]@pelagic.se>
Ämne: RE: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

Please note that the website address listed in the email and letter included with the previous email is incorrect and should read www.doggerbanksouth.co.uk, please find amended letter attached.

Kind regards,
DBS Project Team

From: Dogger Bank South <dbs@rwe.com>
Sent: Friday, November 15, 2024 11:02 AM
To: [redacted]@pelagic.se [redacted]@pelagic.se
Subject: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

We are undertaking a Targeted Non-statutory Consultation on '**Project Change Request 1: Offshore and Intertidal Works**' from **15th November 2024 to 16th December 2024** following notifying the Examining Authority of a potential change to the accepted DCO Application for the Dogger Bank South Offshore Wind Farm Projects ('the Projects') on 8th October. Further information is provided in the letter attached. As part of discussions with the Examining Authority, your organisation were identified as a potentially Interested Party in this consultation and we are therefore seeking your feedback on the proposed changes and the environmental effects of these changes outlined within the consultation documentation provided at http://www.doggerbanksouth.com. Please provide any feedback by either emailing dbs@rwe.com or sending feedback via post to 'FREEPOST DBSOWF' by the **16th December 23:59**. We will provide a record of all feedback received and our consideration of this feedback when we submit this change to the Examining Authority which is expected to occur in January 2025.

Kind regards,
DBS Project Team

[redacted]
Stakeholder Manager
DBS Offshore Wind

tel: [redacted]
email [redacted]@rwe.com
website: www.doggerbanksouth.co.uk

Please note my working hours are 08 :30 – 17 :30 Monday to Thursday.

From: [redacted]
To: Dogger Bank South
Cc: [redacted]
Subject: [EXT] FW: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024
Date: 22 November 2024 14:26:25
Attachments: image001.png

Dear Sir/Madam,

Reference is made to your e-mail of November 15th regarding **Project Change Request 1: Offshore and Intertidal Works**' from **15th November 2024 to 16th December 2024.** Gassco has no objections to the proposed changes to the accepted DCO Application for the Dogger Bank South Offshore Wind Farm Projects, and we cannot see that this will have any effect on any future potential crossing of Langeled Pipeline.

Best regards/Med vennlig hilsen

[redacted]
Commercial Advisor
Cell Phone
[redacted]
_____
Gassco AS
Phone
[redacted]

Web gassco.no
Org.ID no. 983 452 841

From: dbs@rwe.com <dbs@rwe.com>
Sent: fredag 15. november 2024 13:06
To: dbs@rwe.com; [redacted]@gassco.no>; [redacted]@gassco.no>
Subject: RE: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

Please note that the website address listed in the email and letter included with the previous email is incorrect and should read www.doggerbanksouth.co.uk, please find amended letter attached.

Kind regards,
DBS Project Team

From: Dogger Bank South <dbs@rwe.com>
Sent: Friday, November 15, 2024 10:03 AM
To: [redacted]@gassco.no; [redacted]@gassco.no
Subject: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

We are undertaking a Targeted Non-statutory Consultation on '**Project Change Request 1: Offshore and Intertidal Works**' from **15th November 2024 to 16th December 2024** following notifying the Examining Authority of a potential change to the accepted DCO Application for the Dogger Bank South Offshore Wind Farm Projects ('the Projects') on 8th October. Further information is provided in the letter attached. As part of discussions with the Examining Authority, your organisation were identified as a potentially Interested Party in this consultation and we are therefore seeking your feedback on the proposed changes and the environmental effects of these changes outlined within the consultation documentation provided at http://www.doggerbanksouth.com. Please provide any feedback by either emailing dbs@rwe.com or sending feedback via post to 'FREEPOST DBSOWF' by the **16th December 23:59**. We will provide a record of all feedback received and our consideration of this feedback when we submit this change to the Examining Authority which is expected to occur in January 2025.

Kind regards,
DBS Project Team

[redacted]
Stakeholder Manager
DBS Offshore Wind

tel: [redacted]
email: [redacted]@rwe.com
website: www.doggerbanksouth.co.uk

Please note my working hours are 08 :30 – 17 :30 Monday to Thursday.

From: [redacted]
To: Dogger Bank South
Subject: [EXT] RE: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024
Date: 25 November 2024 12:15:10
Attachments: image003.png

Thank you for seeking NatureScot's feedback in relation to proposed changes to the Dogger Bank South Offshore Wind Farms DCO application.

Due to high levels of casework demands relating to marine energy proposals in Scottish seas, we are unable to provide comments on the proposed changes.

We do ask that any predicted adverse impacts to Scottish SPAs are identified to enable us to provide advice on potential requirements for compensation measures through a derogation process.

I hope this is helpful.

--

[redacted]

From: dbs@rwe.com <dbs@rwe.com>
Sent: 15 November 2024 12:09
To: dbs@rwe.com; PLANNINGRENEWABLES <[redacted]@nature.scot>
Subject: RE: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

Please note that the website address listed in the email and letter included with the previous email is incorrect and should read www.doggerbanksouth.co.uk, please find amended letter attached.

Kind regards,
DBS Project Team

From: Dogger Bank South <dbs@rwe.com>
Sent: Friday, November 15, 2024 10:10 AM
To: [redacted]@nature.scot
Subject: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

We are undertaking a Targeted Non-statutory Consultation on '**Project Change Request 1: Offshore and Intertidal Works**' from **15th November 2024 to 16th December 2024** following notifying the Examining Authority of a potential change to the accepted DCO Application for the Dogger Bank South Offshore Wind Farm Projects ('the Projects') on 8th October. Further information is provided in the letter attached. As part of discussions with the Examining Authority, your organisation were identified as a potentially Interested Party in this consultation and we are therefore seeking your feedback on the proposed changes and the environmental effects of these changes outlined within the consultation documentation provided at http://www.doggerbanksouth.com. Please provide any feedback by either emailing dbs@rwe.com or sending feedback via post to 'FREEPOST DBSOWF' by the **16th December 23:59**. We will provide a record of all feedback received and our consideration of this feedback when we submit this change to the Examining Authority which is expected to occur in January 2025.

Kind regards,
DBS Project Team

[redacted]

Please note my working hours are 08 :30 – 17 :30 Monday to Thursday.

From:	[redacted]
To:	Dogger Bank South; [redacted]
Cc:	[redacted]
Subject:	[EXT] RE: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024
Date:	28 November 2024 14:53:32
Attachments:	image002.png image003.png image004.png image005.png image006.png image007.png image008.png

Good afternoon [redacted],

Thank you for the update regarding 'Change Request 1' in relation to offshore and Intertidal works. The UK Technical Services Navigation team of the Maritime and Coastguard Agency has reviewed the documents, and would like to comment as follows:

We note that the change request as presented in the Change Notification Letter (PDA-012) and in section 2 of the Environmental Assessment Update (Document Ref: C1.1) includes:

'*Change 1: Removal of Gravity Based Structure (GBS) foundations*
Change 2: Removal of Electrical Switching Platform (ESP) from the design envelope
Change 3: Reduction of the number of platforms in the design envelope, plus associated scour protection
Change 4: Reduction of cabling within the array areas, plus associated seabed preparation and cable protection
Change 5: Removal of the short trenchless crossing option at landfall'

We agree with the conclusions presented in Table 3-7, section 3.6, shipping and navigation, that the changes will not alter previous (pre change request) assessment and will remain broadly acceptable to tolerable with mitigation as assessed in the ES.
If you have any questions on this response, please let us know.
Kind regards,

[redacted]
Offshore Renewables Project Lead
UK Technical Services Navigation
[redacted]

Maritime & Coastguard Agency

[redacted]

Safer Lives, Safer Ships, Cleaner Seas
www.gov.uk/mca

From: dbs@rwe.com <dbs@rwe.com>
Sent: 15 November 2024 12:08
To: dbs@rwe.com; [redacted] cga.gov.uk>
Subject: RE: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

Please note that the website address listed in the email and letter included with the previous email is incorrect and should read www.doggerbanksouth.co.uk, please find amended letter attached.

Kind regards,
DBS Project Team

From: Dogger Bank South dbs@rwe.com
Sent: Friday, November 15, 2024 10:08 AM
To: [redacted] mcga.gov.uk
Subject: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

We are undertaking a Targeted Non-statutory Consultation on '**Project Change Request 1: Offshore and Intertidal Works**' from **15th November 2024 to 16th December 2024** following notifying the Examining Authority of a potential change to the accepted DCO Application for the Dogger Bank South Offshore Wind Farm Projects ('the Projects') on 8th October. Further information is provided in the letter attached. As part of discussions with the Examining Authority, your organisation were identified as a potentially Interested Party in this consultation and we are therefore seeking your feedback on the proposed changes and the environmental effects of these changes outlined within the consultation documentation provided at http://www.doggerbanksouth.com. Please provide any feedback by either emailing

dbs@rwe.com or sending feedback via post to 'FREEPOST DBSOWF' by the **16th December 23:59**. We will provide a record of all feedback received and our consideration of this feedback when we submit this change to the Examining Authority which is expected to occur in January 2025.

Kind regards,
DBS Project Team

Please note my working hours are 08 :30 – 17 :30 Monday to Thursday.

From: DIO-Safeguarding-Wind (MULTIUSER)
To: Dogger Bank South [redacted]@mod.gov.uk
Subject: [EXT] 20241129_Do [redacted] MOD_Response
Date: 29 November 2024 11:15:57
Attachments: image001.png
20240906_MOD_Response.pdf

[** **EXTERNAL SENDER** **]:
Do not click links, open attachments or enter your ID/Password unless you recognize the sender and certain the content is safe. **If anything appears suspicious, report it**. Consider the following before taking action: Were you expecting this email? Can you verify the sender? Are the grammar and spelling correct? Does the content or request make sense?
[** **EXTERNER ABSENDER** **]:
Klicken Sie nicht auf Links, öffnen Sie keine Anhänge und geben Sie Ihre ID/Ihr Kennwort nur dann ein, wenn Sie den Absender erkennen und sicher sind, dass der Inhalt sicher ist. **Wenn Ihnen etwas verdächtig vorkommt, melden Sie es.** Beachten Sie Folgendes, bevor Sie Maßnahmen ergreifen: Hatten Sie diese E-Mail erwartet? Können Sie den Absender verifizieren? Sind Grammatik und Rechtschreibung korrekt? Ergibt der Inhalt oder die Aufforderung einen Sinn?

Good morning [redacted]

Hope you're well.

Thank you for consulting the MOD safeguarding team in regard to the proposed Project Change Requests for the Dogger Bank South Offshore Wind Farm.

The MOD has reviewed the submitted documents:

- PDA-012 - 10.2 Change Notification Letter (Revision 1)
- AS-015 - Additional Submission - Accepted at the discretion of the Examining Authority - Intention to Submit a Change Request re Onshore Substation Zone (Change Request 2)
- PD-007 - Rule 17 letter issued 7 November 2024

As the design envelope or wind turbine dimensions have not been amended, the MOD position of 6th September 2024 remains extant. I have attached a copy of that response for ease.

Kind regards,

[redacted]

From: dbs@rwe.com <dbs@rwe.com>
Sent: Friday, November 15, 2024 9:11 AM
To: [redacted]
Subject: Dogger Bank South Offshore Wind Farms - Project Change Request Targeted Non-Statutory Consultation 15th November to the 16th December 2024

Dear Stakeholder,

We are undertaking Targeted Non-statutory Consultations on two Project Change Requests (the first in relation to Offshore and Intertidal Works and the second in relation to the Onshore Substation Zone) from **15th November 2024 to 16th December 2024** following notifying the Examining Authority of a potential change to the accepted DCO Application for the Dogger Bank South Offshore Wind Farm Projects ('the Projects') on the 8th October and 4th November respectively. Further information is provided in the letter attached.

As part of discussions with the Examining Authority, you were identified as a potentially Interested Party in these consultations and we are therefore seeking your feedback on the proposed changes and the environmental effects of these changes outlined within the consultation documentation provided at http://www.doggerbanksouth.com. Please provide any feedback by either emailing dbs@rwe.com or sending feedback via post to 'FREEPOST DBSOWF' by the **16th December 23:59**. We will provide a record of all feedback received and our consideration of this feedback when we submit these changes to the Examining Authority in January 2025.

Kind regards,
DBS Project Team

Please note my working hours are 08 :30 – 17 :30 Monday to Thursday.

[redacted]
Assistant Safeguarding Manager
Ministry of Defence
Safeguarding
Defence Infrastructure Organisation
[redacted]
United Kingdom

Telephone:
E-mail: [redacted]@mod.gov.uk

Application Ref: EN010125

Our Reference: DIO10053433

The Planning Inspectorate
Temple Quay House
Temple Quay
Bristol
BS1 6PN

06 September 2024

Dear Sir/Madam,

NOTICE OF ACCEPTANCE OF AN APPLICATION FOR A DEVELOPMENT CONSENT ORDER BY THE PLANNING INSPECTORATE (ON BEHALF OF THE SECRETARY OF STATE FOR ENERGY SECURITY AND NET ZERO) UNDER SECTION 56 OF THE PLANNING ACT 2008

DOGGER BANK SOUTH OFFSHORE WIND FARMS PROJECT

REGULATIONS 8 AND 9 OF THE INFRASTRUCTURE PLANNING (APPLICATIONS: PRESCRIBED FORMS AND PROCEDURE) REGULATIONS 2009

REGULATION 16 OF THE INFRASTRUCTURE PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) REGULATIONS 2017

Thank you for consulting the Ministry of Defence (MOD) in relation to the application for an order granting development consent for the Dogger Bank South Offshore Wind Farm through your communication dated 23 July 2024.

The Defence Infrastructure Organisation (DIO) Safeguarding Team represents the MOD as a consultee in UK planning and energy consenting systems to ensure that development does not compromise or degrade the operation of defence sites such as aerodromes, explosives storage sites, air weapon ranges, and technical sites or training resources such as the Military Low Flying System.

I write to advise the safeguarding position of the MOD in relation to the above application to construct and operate the Dogger Bank Offshore Wind Farm.

This scheme will comprise of up to 200 wind turbines, with a maximum height to blade tip of up to 394.08 metres above Mean Low Water Springs (MHWS) that will be located in the North Sea on the Dogger Bank. In addition to the turbine structures there will be offshore platforms, including offshore Collector Platforms (CPs) and / or converter platforms (OCPs), an Electrical Switching Platform (ESP) and an Accommodation; foundation structures for wind turbines and offshore platforms; array cables; Inter-platform cables; offshore Export Cables from the Array Areas to the landfall; landfall works seaward of Mean Low Water Springs (MLWS) for a long trenchless crossing; and scour/cable

protection (where required). The onshore components from the landfall near Skipsea travel west before reaching the Onshore Substation Zone located at Beverley Road along the A1079 and A164.

Following consultation, the MOD requested additional information from the applicant that is necessary to complete assessments of the proposed development. The information requested was provided on 23rd August 2024, whilst assessments have been initiated, we have not yet received all required responses. Therefore, this response reflects those representations provided to this date, the MOD will update its position, if required, following completion of all outstanding assessments.

The principal concerns of the MOD with respect to this proposed wind farm relate to the impact of the development on the operation and capability of air defence radar systems, and the potential to create a physical obstruction to air traffic movements.

At this time the MOD must **object** to the proposed development on the basis that the scheme would have a significant and detrimental impact on the effective operation and capability of air defence radar deployed at RRH Staxton Wold.

Air Defence (AD) radar

The proposed turbines would be located approximately 123.2km from, detectable by, and will cause unacceptable interference to the AD radar at RRH Staxton Wold.

Wind turbines have been shown to have detrimental effects on the operation of radar. These include the desensitisation of radar in the vicinity of the turbines, and the creation of "false" aircraft returns. The probability of the radar detecting aircraft flying over or in the vicinity of the turbines would be reduced, hence turbine proliferation within a specific locality can result in unacceptable degradation of the radar's operational integrity. This would reduce the RAF's ability to detect and deter aircraft in United Kingdom sovereign airspace, thereby preventing it from effectively performing its primary function of Air Defence of the United Kingdom.

Our assessments have determined that, when operational, the proposed wind farm will cause unacceptable and unmanageable interference to the effective operation of air defence radar deployed at RRH Staxton Wold.

Therefore, on the basis of the information provided, and until a suitable mitigation scheme has been submitted, assessed, and accepted, the MOD must **object** to this proposal due to the impact it will have on the AD radar at RRH Staxton Wold.

Physical Obstruction

In this case the development falls within Low Flying Area 11 (LFA 11). Within these areas fixed wing aircraft may operate as low as 250 feet or 76.2 metres above ground level to conduct low level flight training. The addition of turbines in this location would introduce a physical obstruction to low flying aircraft operating in the area.

As this development includes structures that exceed a height of 60m above Highest Astronomical Tide (HAT) it would be subject to the lighting requirements set out in the Air Navigation Order 2016. In addition to any CAA requirements, the MOD will require the submission, approval, and implementation of an aviation safety lighting specification that details the installation of MOD accredited aviation safety lighting.

In the event that the applicant is able to overcome the Air Defence Radar objection detailed above, MOD would require that conditions are added to any consent issued requiring the submission, approval and implementation of an aviation lighting scheme, and that sufficient data is submitted to ensure that structures can be accurately charted to allow deconfliction.

Landfall and Onshore
Amongst the additional information provided by the applicant is a map showing the position of landfall and the extent of the onshore area of interest. I can confirm that the area of interest identified is not covered by any statutory safeguarding zones. As the proposal matures MOD should be consulted so any potential impact on safeguarded MOD assets can be identified and assessed.

For the avoidance of any doubt, MOD **objects** to the proposal on the grounds of the unacceptable impact that the development would have on:

- air defence radar system sited at RRH Staxton Wold.

I trust this adequately explains our position on this matter.

Yours faithfully,

[redacted]
Assistant Safeguarding Manager

From: [redacted]
To: Dogger Bank South; [redacted]
Cc: [redacted]
Subject: [EXT] RE: Dogger Bank South Offshore Wind Farms - Project Change Request Targeted Non-Statutory Consultation 15th November to the 16th December 2024
Date: 29 November 2024 08:47:06
Attachments: image001.png
image002.png
image003.png

[redacted]

Many thanks for your e-mail/letter regarding the project change request.

As indicated in our representations back in the summer by my colleague [redacted] given the intention is to construct these wind farms in an area which is proximate to [redacted] eas, we would urge the project to engage on agreeing appropriate co-location arrangements. Please can I suggest we set up an introductory call so that we can understand more about each other's plans/activities for these proximate areas with a view to avoiding any potential conflicts and exploring any potential synergies.

To recap, INEOS Energy's interests in the areas are as follows:

- INEOS UK SNS Limited is the licence administrator and co-licensee of 2 licences in respect of UKCS Blocks 43/12a, 43/13b, 43/12b, 43/13c, 43/14b, 43/17a, 43/18a and 43/19d awarded as part of the 33rd Offshore Licensing Round by the North Sea Transition Authority (details of which can be found on the NSTA's website under Tranche 3 awards). ONE-Dyas UK Limited is the other co-licensee.

- INEOS UK SNS Limited is the operator and co-owner of the Cavendish field, which is located in UKCS Block 43/19a, ceased production in 2018 and is currently being decommissioned. Dana Petroleum (E&P) Limited is the other co-owner.

I'll look forward to hearing from you.

Kind regards,

[redacted]

[redacted]

From: dbs@rwe.com <dbs@rwe.com>
Sent: 15 November 2024 11:37
To: dbs@rwe.com; [redacted]
Subject: RE: Dogger Bank South Offshore Wind Farms - Project Change Request Targeted Non-Statutory Consultation 15th November to the 16th December 2024

Dear Stakeholder,

Please note that the website address listed in the email and letter included with the previous email is incorrect and should read www.doggerbanksouth.co.uk, please find amended letter attached.

Kind regards,
DBS Project Team

From: Dogger Bank South <dbs@rwe.com>
Sent: Friday, November 15, 2024 9:08 AM
To: [redacted]
Subject: Dogger Bank South Offshore Wind Farms - Project Change Request Targeted Non-Statutory Consultation 15th November to the 16th December 2024

Dear Stakeholder,

We are undertaking Targeted Non-statutory Consultations on two Project Change Requests (the first in relation to Offshore and Intertidal Works and the second in relation to the Onshore Substation Zone) from **15th November 2024 to 16th December 2024** following notifying the Examining Authority of a potential change to the accepted DCO Application for the Dogger Bank South Offshore Wind Farm Projects ('the Projects') on the 8th October and 4th November respectively. Further

information is provided in the letter attached.

As part of discussions with the Examining Authority, you were identified as a potentially Interested Party in these consultations and we are therefore seeking your feedback on the proposed changes and the environmental effects of these changes outlined within the consultation documentation provided at http://www.doggerbanksouth.com. Please provide any feedback by either emailing dbs@rwe.com or sending feedback via post to 'FREEPOST DBSOWF' by the **16th December 23:59**. We will provide a record of all feedback received and our consideration of this feedback when we submit these changes to the Examining Authority in January 2025.

Kind regards,
DBS Project Team

Please note my working hours are 08 :30 – 17 :30 Monday to Thursday.

From: [redacted]
To: Dogger Bank South
Cc: [redacted]
Subject: [EXT] Dogger Bank South OWF: response to Change Request consultation
Date: 09 December 2024 15:00:41
Attachments: Picture (Device Independent Bitmap) 1.jpg
EN010125_494247_DBS_NE_response_to_Change_Request_1_and_2_FINAL.pdf

---

Dogger Bank South Offshore Wind Farms PINS Reference: EN010125

Project Change Request 1: Offshore and Intertidal Works and Project Change Request 2: Onshore Substation Zone
Non-Statutory Consultation

Dear [redacted]

Thank you for the recent consultation request regarding the above mentioned change request (1&2) for DBS OWF. Please find attached Natural England's response. If you wish to discuss anything further, please feel free to get in touch.

Thanks and best wishes,

[redacted]

Date: 09 December 2024
Our ref: DAS/494247
Your ref: NA

Customer Services
[redacted]

BY EMAIL ONLY

Dear [redacted]

Discretionary Advice Service (Charged Advice)
UDS A009159
Development proposal and location: Dogger Bank South Offshore Wind Farms Change Request

Thank you for your consultation on the above dated 14 November 2024, which was received on 15 November 2024.

This advice is being provided as part of Natural England's Discretionary Advice Service. RWE Renewables UK Dogger Bank South (East) Limited; RWE Renewables UK Dogger Bank South (West) Limited has asked Natural England to provide advice upon:

- Project Change Request 1: Offshore and Intertidal Works
- Project Change Request 2: Onshore Substation Zone

This advice is provided in accordance with the Quotation and Agreement dated 3 February 2022.

The following advice is based upon the information within:

Project Change Request 1: Changes to offshore and intertidal works

1. Project Change Request 1: Environmental Assessment Update, Nov 2024, C1.1, Rev 01
2. Appendix A – Fish and Shellfish Ecology Environmental Statement Update, Nov 2024, C1.1.1, Rev 01
3. Appendix B – Marine Mammal Environmental Statement Update, Nov 2024, C1.1.2, Rev 01
4. Appendix C – Marine Mammal Report to Inform Appropriate Assessment Update, Nov 2024, C1.1.3, Rev 01
5. Appendix 8-3 – Marine Physical Process Modelling Technical Report, Nov 2024, 7.8.8.3, Rev 02 (Tracked)
6. Appendix 11-3 – Underwater Noise Modelling Report, Nov 2024, 7.11.11.3, Rev 02 (Tracked)
7. Appendix 11-4 – iPCoD Modelling, Nov 2024, 7.11.11.4, Rev 02 (Tracked)

Project Change Request 2: Onshore

8. Project Change Request 2: Onshore Substation Zone (Appendix A – Figures, Appendix B - List of DCO Application Documents to be Updated), Nov 2024, C2.1, Rev 01

Project Change Request 1: Changes to offshore and intertidal works

Natural England welcomes the refinements to the Project Envelope and Maximum Design Parameters summarised in the documents above and agree that they will not result in a material change to the nature of the project. Our advice therefore remains as given in PDB-011, that the changes are submitted and accepted into Examination with relevant chapters and assessments updated at the earliest opportunity. We note that we have not conducted a detailed review of the assessments at this stage, as the updates reflect the specific changes related to the request itself and further updates may be required to the environmental assessments to address other concerns raised in Relevant and Written Representations. We therefore defer our full comments to when the updates assessments are submitted into Examination.

Project Change Request 2: Onshore

Natural England have reviewed the changes and are satisfied that there should be no material impact on aspects relevant to our remit.

For clarification of any points in this letter, please contact [redacted] at [redacted]@naturalengland.org.uk

☒ The advice provided in this letter has been through Natural England's Quality Assurance process

The advice provided within the Discretionary Advice Service is the professional advice of the Natural England adviser named below. It is the best advice that can be given based on the information provided so far. Its quality and detail is dependent upon the quality and depth of the information which has been provided. It does not constitute a statutory response or decision, which will be made by Natural England acting corporately in its role as statutory consultee to the competent authority after an application has been submitted. The advice given is therefore not binding in any way and is provided without prejudice to the consideration of any statutory consultation response or decision which may be made by Natural England in due course. The final judgement on any proposals by Natural England is reserved until an application is made and will be made on the information then available, including any modifications to the proposal made after receipt of discretionary advice. All pre-application advice is subject to review and revision in the light of changes in relevant considerations, including changes in relation to the facts, scientific knowledge/evidence, policy, guidance or law. Natural England will not accept any liability for the accuracy, adequacy or completeness of, nor will any express or implied warranty be given for, the advice. This exclusion does not extend to any fraudulent misrepresentation made by or on behalf of Natural England.

Yours sincerely,

[redacted]
Higher Officer
Yorkshire and North Lincolnshire
Telephone: [redacted]

From:	[redacted]
To:	Dogger Bank South
Cc:	[redacted]
Subject:	[EXT] Response to Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works
Date:	11 December 2024 15:37:23
Attachments:	image001.jpg Dutch reaction on PEIR report for Proposed Development Dogger Bank South_Signed_Sian_Arts.pdf Annex - Scenario studies on potential ecosystem effects in future offshore wind farms in the North Sea.pdf

Dear [redacted]

Thank you for your letter with reference nr. 005458275-01 regarding a change request for the Dogger Bank South Offshore Wind Farms. We have noted the proposed changes and would like to provide feedback on the change from Gravity-Based Structures (GBS) to monopile foundations.

In earlier stages of the development of this offshore wind farm, the Netherlands sent a letter to RWE with elaborate feedback on the Preliminary Environmental Information Report (PEIR), see attached. In this letter, The Netherlands stresses that regarding marine mammals, "*major effects are predicted for the harbour porpoise, minke whale and the grey seal due to underwater noise as a result of pile driving during the construction of Dogger Bank South Offshore Wind Farms. This was also a real concern for Dogger Bank Teesside A and B. The Netherlands mitigate this issue by setting requirements for maximum underwater noise exposure during pile driving. Various noise mitigation measures can reduce noise exposure, for example using a bubble screen during pile driving. We hope that these suggestions can be taken into account in your further activities*".

In the documents provided on the website https://doggerbanksouth.co.uk/, we have not been able to find any mitigating measures to lower underwater noise or its effects on marine mammals, such as acoustic deterrent devices or bubble screens, and would appreciate such measures being taken in order to minimise negative transboundary ecological effects. As stressed before in the letter, "*international cumulative effects should be included, as transboundary effects on the Dutch marine mammal population and Dutch Natura 2000 areas are expected*". These international cumulative effects do not seem to have been included in the Environmental Statements.

The mentioned issues emphasise the necessity of international coordination related to the exploitation of new activities in the North Sea, in order to create a common understanding on ecological cumulative effects of wind farms and management options for protection of the marine environment. As Dutch
government, we hope to intensify contacts with UK governmental bodies, and in parallel, we aim to discuss this issue in OSPAR or NSEC. At the same time we hope that wind farm developers will keep improving applied methodologies, taking into account a broader international perspective when predicting environmental effects of wind farm construction activities in the North Sea.

Concerning the development of the Dogger Bank South Offshore Wind Farms, the Netherlands would like to be involved in the process of assessing the ecological (and other) effects of this development and think along about the required mitigation measures.

We hope that our response is helpful to your process. We would appreciate it to receive a response to the mentioned issues and hope you will provide us with more information on the

further process. We are open to provide additional information in an online meeting, if desired. If there are any questions, please respond to this email.

With kind regards,

[redacted]
Advisor North Sea

Rijkswaterstaat
Visitors address: [redacted]
Correspondance address: Postbus 2232 | 3500 GE | Utrecht
Invoice address: Postbus 2232 | 3500 GE | Utrecht
E-mail: [redacted]
Phone: [redacted]
www.rijkswaterstaat.nl/en

.....
Water. Wegen. Werk. Rijkswaterstaat

From: [redacted]
To: Dogger Bank South
Cc: [redacted]
Subject: [EXT] RE: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024
Date: 11 December 2024 16:18:00
Attachments: image002.jpg
image003.png
DBS - Change Request 1 Consultation Cover Letter.pdf

Good afternoon [redacted],

I can confirm that Trinity House note the details of Change Request 1 and have no objections or further comments in this regard.

Kind regards,

[redacted]
Navigation Services Manager | Navigation Directorate | Trinity House
[redacted]
www.trinityhouse.co.uk

From: dbs@rwe.com <dbs@rwe.com>
Sent: 15 November 2024 12:15
To: dbs@rwe.com; [redacted]@trinityhouse.co.uk [redacted] [redacted]@trinityhouse.co.uk>
Subject: RE: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

Please note that the website address listed in the email and letter included with the previous email is incorrect and should read www.doggerbanksouth.co.uk, please find amended letter attached.

Kind regards,
DBS Project Team

From: Dogger Bank South dbs@rwe.com
Sent: Friday, November 15, 2024 10:24 AM
To [redacted]@trinityhouse.co.uk; [redacted]@trinityhouse.co.uk
Subject: Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works - Targeted Non-Statutory Consultation 15 November to 16 December 2024

Dear Stakeholder,

We are undertaking a Targeted Non-statutory Consultation on '**Project Change Request 1: Offshore and Intertidal Works**' from **15th November 2024 to 16th December 2024** following notifying the Examining Authority of a potential change to the accepted DCO Application for the Dogger Bank South Offshore Wind Farm Projects ('the Projects') on 8th October. Further information is provided in the letter attached. As part of discussions with the Examining Authority, your organisation were identified as a potentially Interested Party in this consultation and we are therefore seeking your feedback on the proposed changes and the environmental effects of these changes outlined within the consultation documentation provided at http://www.doggerbanksouth.com. Please provide any feedback by either emailing dbs@rwe.com or sending feedback via post to 'FREEPOST DBSOWF' by the **16th December 23:59**. We will provide a record of all feedback received and our consideration of this feedback when we submit this change to the Examining Authority which is expected to occur in January 2025.

Kind regards,
DBS Project Team

[redacted]

Please note my working hours are 08 :30 – 17 :30 Monday to Thursday.

Historic England

[redacted]
RWE Renewables UK Swindon Limited
[redacted]

Direct Dial: [redacted]

Our ref: PL00793267

13 December 2024

Dear [redacted]

Re: Dogger Bank South Offshore Wind Farm - Ref: EN010125
The Infrastructure Planning (Examination Procedure) Rules 2010 (as amended) - Rule 17. Dated 26 November 2024.
Historic England response to request for comments from Interested Parties for Deadline 16th December 2024.

Interested Party Ref No: 20050154

Thank you for your notification of 15th November, 2024, concerning two Project Change Requests, the first in relation to Offshore and Intertidal Works and the second in relation to the Onshore Substation Zone.

We have considered the notification and your supporting information (PDA-012 for Offshore and AS-015 for Onshore) and have the following comments and observations:

1) Offshore:

By way of some context, within 10.3 'The Applicants' Responses to Relevant Representations' (PDA-013), the Applicant provided clarifications to the concerns we had previously raised, as outlined in ID RR-022: 1.1.1 to 1.1.3. These principally relate to how seabed impacts generated by the installation of Artificial Nesting Structures (ANS) for Kittiwake (as a means of habitat compensation) will be addressed by the project.

We now also note that the 'Project-Level Kittiwake Compensation Plan' (AS-087) also confirms the use of a separate marine licence, to ensure that the appropriate consent is in place prior to ANS installation.

We do however request that during further planned assessment work on the five shortlisted Area of Search locations for the ANS, that the Applicant ensures their marine archaeological advisor is included in this undertaking, such that the marine

historic environment is adequately considered as part of any constraint's assessment. Furthermore, we recommend that the Applicant and their marine archaeological advisors discuss with Historic England any refined plans on possible locations at the earliest opportunity prior to a marine licence application being submitted.

As such, we have no further comments to offer at this juncture. We therefore confirm that we are satisfied that sufficient information to assess the effects of the Proposed Development has now been submitted or can be submitted within the six-month examination period.

2) Onshore:

We note and welcome the reduction in the size of the footprint of the proposed Onshore Converter Station (OCS). We agree that the proposed reduction in scale of the OCS will lead to a reduced potential for effects on buried archaeology and a reduced visual impact when seen from the World War II anti-aircraft gun site at Butt Farm (NHLE 1019186). However, we consider that the harm to the significance of the designated site will remain at 'major adverse', and not 'minor adverse'.

The reduction in the scale of the OCS should allow for a reconsideration of the landscaping scheme around the OCS, permitting greater flexibility and nuance and a departure from 'screening' approaches.

An improved approach to the landscaping might include more naturalistic or estate-style planting and/or the introduction of horizontal banding as used to great effect by Sylvia Crowe and Brenda Colvin in the 1950s and 1960s to reduce the visual impact of coal fired and nuclear power stations.

Such interventions could help reduce the level of harm to significance.

Yours sincerely,

[redacted]

[redacted]
Inspector of Ancient Monuments
[redacted]@HistoricEngland.org.uk

cc: [redacted], Humber Archaeology Partnership.

From: [redacted]
To: Dogger Bank South
Subject: [EXT] Comment from Espoo, Denmark - Dogger Bank South Offshore Wind Farms - Change Request 1: Offshore and Intertidal Works (MST Id nr.: 11784867)
Date: 16 December 2024 08:08:29

To dbs@rwe.com

Denmark thanks for the notification regarding project "Dogger Bank South Offshore Wind Farm" and wants to participate in the further environmental assessment process.

The notification has been sent for consultation to several Danish authorities and interest organizations and has been published on the Danish Environmental Protection Agency's website.

Espoo, Denmark didn´t get any comment about the Change Request 1: Offshore and Intertidal Works - the project: Dogger Bank Offshore Wind Farm

If you have any questions, feel free to contact me.

Best regards

[redacted]
Unit secretary | ESPOO | Landscape and Forest
[redacted]@mst.dk

Ministry of Environment of Denmark
Environmental Pretection Agency | [redacted] | mst@mst.dk | www.mst.dk

From: [redacted]
To: [redacted] Dogger Bank South
Cc: [redacted]
Subject: [redacted]ation Response
Date: 16 December 2024 16:37:17
Attachments: image001.png
20241216 - DCO.2022.00007 - Consultation Response .pdf

[** EXTERNAL SENDER **]:
Do not click links, open attachments or enter your ID/Password unless you recognize the sender and certain the content is safe. **If anything appears suspicious, report it**. Consider the following before taking action: Were you expecting this email? Can you verify the sender? Are the grammar and spelling correct? Does the content or request make sense?
[** EXTERNER ABSENDER **]:
Klicken Sie nicht auf Links, öffnen Sie keine Anhänge und geben Sie Ihre ID/Ihr Kennwort nur dann ein, wenn Sie den Absender erkennen und sicher sind, dass der Inhalt sicher ist. **Wenn Ihnen etwas verdächtig vorkommt, melden Sie es.** Beachten Sie Folgendes, bevor Sie Maßnahmen ergreifen: Hatten Sie diese E-Mail erwartet? Können Sie den Absender verifizieren? Sind Grammatik und Rechtschreibung korrekt? Ergibt der Inhalt oder die Aufforderung einen Sinn?

Hello,

Please find the Consultation Response from the MMO attached.

Many thanks,

[redacted]**sing Case Manager | Marine Management Organisation**
[redacted]

Our MMO Values: Together we are **Accountable, Innovative**, **Engaging** and **Inclusive**
Website Blog Twitter Facebook LinkedIn YouTube

Marine Management Organisation

Marine Licensing
[redacted]

[redacted]
www.gov.uk/mmo

[redacted]@rwe.com

Our reference: DCO/2021/00003

By email only

16 December 2024

Dear [redacted]

Dogger Bank South (East) and Dogger Bank South (West) Offshore Wind Farm

Change Request 1: Offshore and Intertidal Works

Section 42 Planning Act 2008

Thank you for your email dated 15 November 2024, detailing a targeted non-statutory consultation for offshore and intertidal works for the Marine Management Organisation ('the MMO').

The MMO's role in Nationally Significant Infrastructure Projects

The MMO was established by the Marine and Coastal Access Act 2009 ('the 2009 Act') to make a contribution to sustainable development in the marine area and to promote clean, healthy, safe, productive and biologically diverse oceans and seas.

The responsibilities of the MMO include the licensing of construction works, deposits and removals in English inshore and offshore waters and for Welsh and Northern Ireland offshore waters by way of a marine licence[1]. Inshore waters include any area which is submerged at mean high water spring (MHWS) tide. They also include the waters of every estuary, river or channel where the tide flows at MHWS tide. Waters in areas which are closed permanently or intermittently by a lock or other artificial means against the regular action of the tide are included, where seawater flows into or out from the area.

[1] Under Part 4 of the 2009 Act

In the case of Nationally Significant Infrastructure Projects (NSIPs), the 2008 Act enables Development Consent Order's (DCO) for projects which affect the marine environment to include provisions which deem marine licences[2].

As a prescribed consultee under the 2008 Act, the MMO advises developers during pre-application on those aspects of a project that may have an impact on the marine area or those who use it. In addition to considering the impacts of any construction, deposit or removal within the marine area, this also includes assessing any risks to human health, other legitimate uses of the sea and any potential impacts on the marine environment from terrestrial works.

Where a marine licence is deemed within a DCO, the MMO is the delivery body responsible for post-consent monitoring, variation, enforcement and revocation of provisions relating to the marine environment. As such, the MMO has a keen interest in ensuring that provisions drafted in a deemed marine licence (DML) enable the MMO to fulfil these obligations.

Further information on licensable activities can be found on the MMO's website[3]. Further information on the interaction between the Planning Inspectorate and the MMO can be found in our joint advice note[4].

Please find the MMO comments below on the following documents:

- Project Change Request 1: Environmental Assessment Update – C1.1
- Appendix A – Fish and Shellfish Ecology Environmental Statement Update – C1.1.1
- Appendix B – Marine Mammal Environmental Statement Update – C1.1.2
- Appendix C – Marine Mammal Report to Inform Appropriate Assessment Update – C1.1.3
- Appendix 8-3 – Marine Physical Process Modelling Technical Report (Revision 2) (Tracked) – 7.8.8.3
- Appendix 11-3 – Underwater Noise Modelling Report (Revision 2) (Tracked) – 7.11.11.3
- Appendix 11-4 – iPCoD Modelling (Revision 2) (Tracked) – 7.11.11.4

[2] Section 149A of the 2008 Act

[3] https://www.gov.uk/planning-development/marine-licences

[4] http://infrastructure.planningportal.gov.uk/wp-content/uploads/2013/04/Advice-note-11-v2.pdf

1. Project Change Request 1: Environmental Assessment Update – C1.1

1.1. The removal of Gravity Based Structures (GBS) foundations.

1.2. Removal of Electrical Switching Platforms (ESP) from the Projects' Design Envelope

1.3. Reduction in number of offshore platforms in the Projects' Design Envelope, from eight to three within the array areas, including reductions in associated seabed preparation and scour protection.

1.4. Reduction of cabling within the array areas, plus associated seabed preparation and cable protection

1.5. Removal of the short trenchless crossing at landfall

2. Appendix A – Fish and Shellfish Ecology Environmental Statement Update – C1.1.1

2.1. The MMO welcomes the changes to the worst-case scenario footprint on temporary habitat disturbance to fish and shellfish from 62.4 kilometres squared (km2) to 58.7km2 as well as the reduction for all generation assets including the array, inter platform cables, offshore platforms and foundations from 24.2km2 to 21.9km2 and a reduction for all offshore transmission works from 38.2km2 to 36.8km2.

2.2. The MMO welcomes the changes to the worst-case scenario volume of sediment with the potential to cause an increase in suspended sediment concentrations (SSC) and sediment settlement associated with the construction phase of the projects would decrease from 76,618,434 metres cubed (m^3) to 75,153,734m^3.

2.3. When considering the impact of simultaneous pin piling events, the total number of pin piles to be installed would decrease from 864 across the Array Areas and Offshore Export Cable Corridor (ECC) to 824 across the Array Areas only, with no more than 12 piles being installed on a single day. Pin piling would no longer take place within the Offshore ECC. Modelling assumes each pile would take up to 190 minutes of piling to install, with 120 minutes being at the full 3,000 Kilojoules (kJ). This totals a piling time of 2,609.3 hours, which is fewer than the 2,736 hours required for the previous Projects' Design Envelope.

2.4. Total footprint of infrastructure within the Array Area for both Projects together (Dogger Bank South (DBS) East and DBS West) is revised from 8.28km2 (2.05km2) to 1.7km2, and from 3.14km2 (2.1km2) to 2.08km2 for the Offshore Export Cable Corridor (worst case values).

2.5. Due to the proposed changes, the worst-case scenario for permanent loss of habitat and / or change in habitat type as a result of changes in substrate composition associated with the operational phase of both Projects would decrease from 4.19km^2 to 3.79km^2. This represents approximately 0.014% of the total Fish and Shellfish Ecology Study Area. This is the worst-case habitat loss for the total Array Areas, which would decrease from 2.05km^2 to 1.71km^2, and the total Offshore ECC, which would decrease from 2.14km^2 to 2.08km^2.

2.6. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.

3. Appendix B – Marine Mammal Environmental Statement Update – C1.1.2

3.1. In Chapter 11 Marine Mammals [APP-095] impacts from piling were assessed for the Array Areas as well as the Offshore ECC. Due to the proposed changes as detailed in Project Change Request 1 – Environmental Assessment Update [document reference: C1.1]; there would be no piling in the Offshore ECC, therefore, the underwater noise modelling for the Projects has been updated. Based on the proposed removal of the electrical switching platform (ESP) in the Offshore ECC, there will no longer be three concurrent (12 sequential) jacket pin piles. Appendix 11-3 Underwater Noise Modelling Report (Revision 2) [document reference: 7.11.11.3] presents impact ranges for two concurrent (four sequential) jacket pin piles per Array Area for both Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS).

3.2. The population modelling was redone to include the proposed reduction in number of offshore platforms, and therefore a reduction in piling days, and the proposed removal of the ESP in the Offshore ECC for both Projects in Isolation and for the cumulative effects assessment.

3.3. The interim population of consequences of disturbance (iPCoD) modelling was based on the number of harbour porpoise to be disturbed and at risk of PTS for every piling day with a piling schedule of four years. The worst-case total number of potentially 17,334 harbour porpoise disturbed within the Environmental Statement (ES) would be reduced to 9,393.2, and a total of 276 individuals at risk of PTS; reduced from 601.5 in the ES.

3.4. The iPCoD modelling was based on the number of minke whale to be disturbed and at risk of PTS for every piling day with a piling schedule of four years. The worst-case total number of potentially 142 minke whale disturbed within the ES would be reduced to 85, and a total of 15 individuals at risk of PTS; reduced from 45 in the ES.

3.5. The iPCoD modelling was based on the number of grey seals to be disturbed and at risk of PTS for every piling day with a piling schedule of four years. The worst-case total number of potentially 14,601 grey seal disturbed within the ES would be reduced to 5,502.9, and a total of up to three individuals at risk of PTS; reduced from 15 in the ES.

3.6. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.

4. Appendix C – Marine Mammal Report to Inform Appropriate Assessment Update – C1.1.3

4.1. Updated underwater noise modelling for the concurrent piling of the jacket pin piles (Appendix 11-3 Underwater Noise Modelling Report (Revision 2) [document reference: 7.11.11.3]) shows that there is a reduction in the potential impact range for harbour porpoise. In the Report to Inform Appropriate Assessment (RIAA) Habitats Regulations Assessment (HRA) Part 3 of 4 [APP-047] the impact range used for the assessment was 3,700km2, with the proposed removal of the ESP in the Offshore ECC, the impact range would be reduced to 1,800km2 (Table 2-1)

4.2. The effective implementation of the Marine Mammal Mitigation Protocol (MMMP) and the In Principle Site Integrity Plan (SIP) for piling will reduce the risk of PTS to harbour porpoise during piling at the Projects. This mitigation alongside less than 1% of the population being

affected, means there would be no adverse effect on the integrity of the Southern North Sea (SNS) Special Area of Conservation (SAC) in relation to the conservation objectives for harbour porpoise due to auditory injury from underwater noise during construction (piling) of the Projects together.

4.3. The population affected by disturbance from underwater noise at the Projects remains less than 5%. Therefore, there would be no adverse effect on the integrity of the SNS SAC in relation to the conservation objectives for harbour porpoise due to disturbance or behaviour effects from increased underwater noise during construction (piling) for the Projects alone or the Projects together.

4.4. The results from the population modelling show that there would be no adverse effect on the integrity of the SNS SAC in relation to the conservation objectives for harbour porpoise due to disturbance or behaviour effects from increased underwater noise during construction (piling) for the Projects constructed in-combination with other offshore wind farms (OWF)s.

4.5. The proposed removal of the ESP in the Offshore ECC significantly reduces the numbers of grey seal to be disturbed, in particular within the Humber Estuary SAC population. However, the proposed removal of the ESP in the Offshore ECC does not change the conclusions of no adverse of effect of the site integrity on the SACs as presented in the RIAA HRA Part 3 of 4 [APP-047].

4.6. The proposed reduction of piling days would not cause any significant changes to the original results from the population modelling with in the RIAA HRA Part 3 of 4 [APP047]. However, the proposed reduction of piling days would result in the in-combination assessment of disturbance from piling at other OWF schemes being reduced to below the seasonal threshold of 10% for the SNS SAC.

4.7. For the in-combination assessment of disturbance due to underwater noise from other piling projects for the Humber Estuary SAC, an error was corrected to use the worst-case numbers for DBS West. The conclusion presented in paragraph 659 in RIAA HRA Part 3 of 4 [APP-047] still remains valid. Based on the population modelling there is no potential for adverse effect on integrity of the Humber Estuary SAC in relation to the conservation objectives for grey seal for in-combination with piling at the Projects and other OWFs.

4.8. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.

5. Appendix 8-3 – Marine Physical Process Modelling Technical Report (Revision 2) (Tracked) – 7.8.8.3

5.1. MMO welcomes the updates to modelling which reflects the updated project design envelope.

5.2. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.

6. Appendix 11-3 – Underwater Noise Modelling Report (Revision 2) (Tracked) – 7.11.11.3

6.1. The MMO welcomes the additional modelling results for non-impulsive noise impacts as well as updated to modelling which reflects the updated project design envelope.

6.2. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.

7. Appendix 11-4 – iPCoD Modelling (Revision 2) (Tracked) – 7.11.11.4

7.1. The MMO welcomes the updating modelling which reflects the updated project design envelope as well as the addition of population modelling for the RIAA.

7.2. The MMO is currently reviewing this document alongside the additional submissions from the applicant and a full response will be provided at deadline 1.

Conclusion

The MMO welcomes the updated documents as submitted by Dogger Bank South (East) Limited and Dogger Bank South (West) Limited. The MMO are currently reviewing these documents alongside the additional submissions from the applicant and a full response will be provided at deadline 1.

The MMO reserves the right to make further comments on the Project throughout the examination process and may modify its present advice or opinion in view of any additional information that may come to our attention.

If you require any further information, please do not hesitate to contact me using the details provided below.

Yours Sincerely,

[redacted]

[redacted]
Marine Licencing Case Officer

D: [redacted]
E: [redacted]@marinemanagement.org.uk

Annex 1

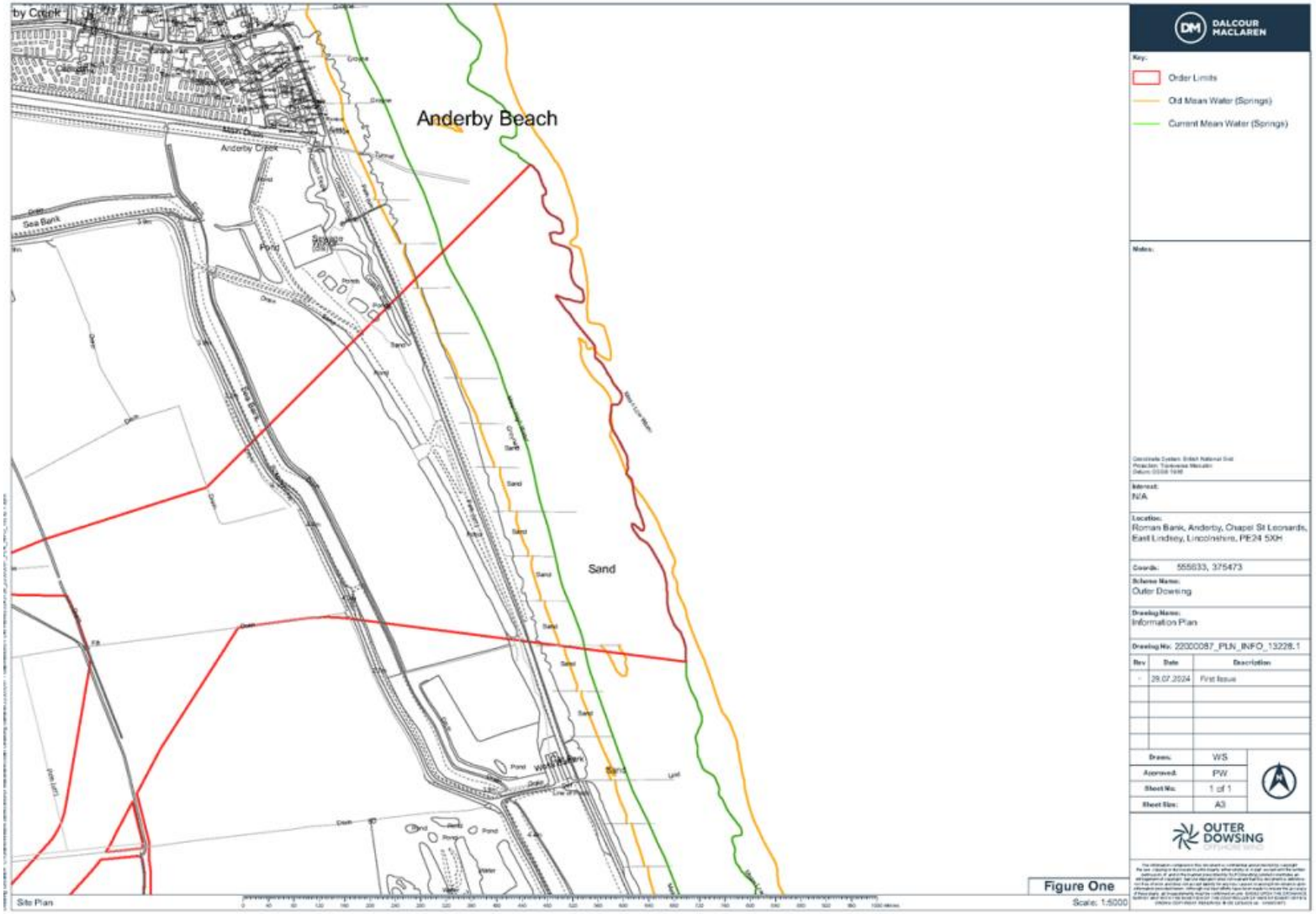


Figure 1: Change in Onshore Order Limits. Taken from the 'Applicant's Approach to Ordinance Survey mapping Update, Document Reference 13.3.'

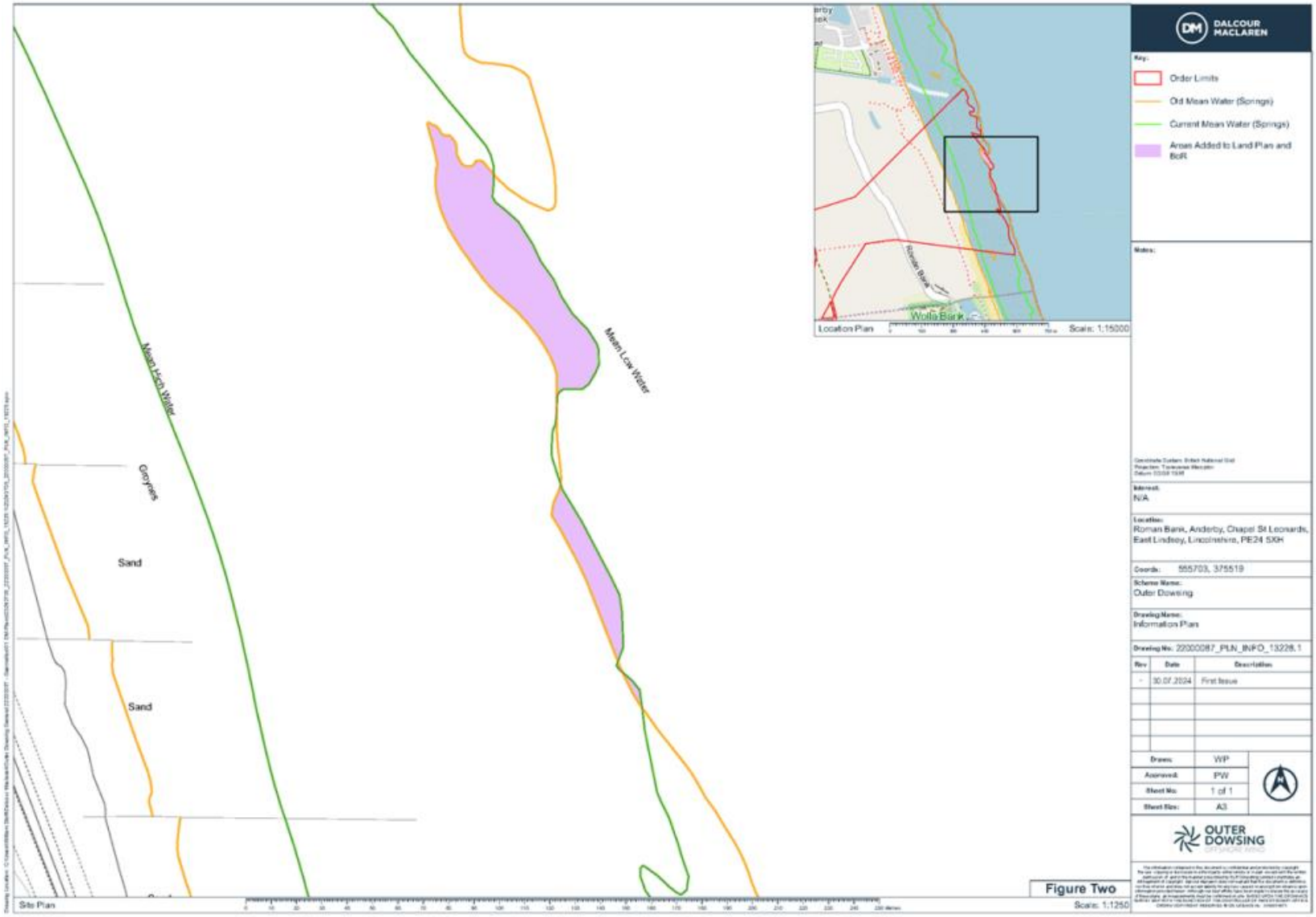


Figure 2: Enlarged image of Figure 1 above. Taken from the 'Applicant's Approach to Ordinance Survey mapping Update, Document Reference 13.3.'

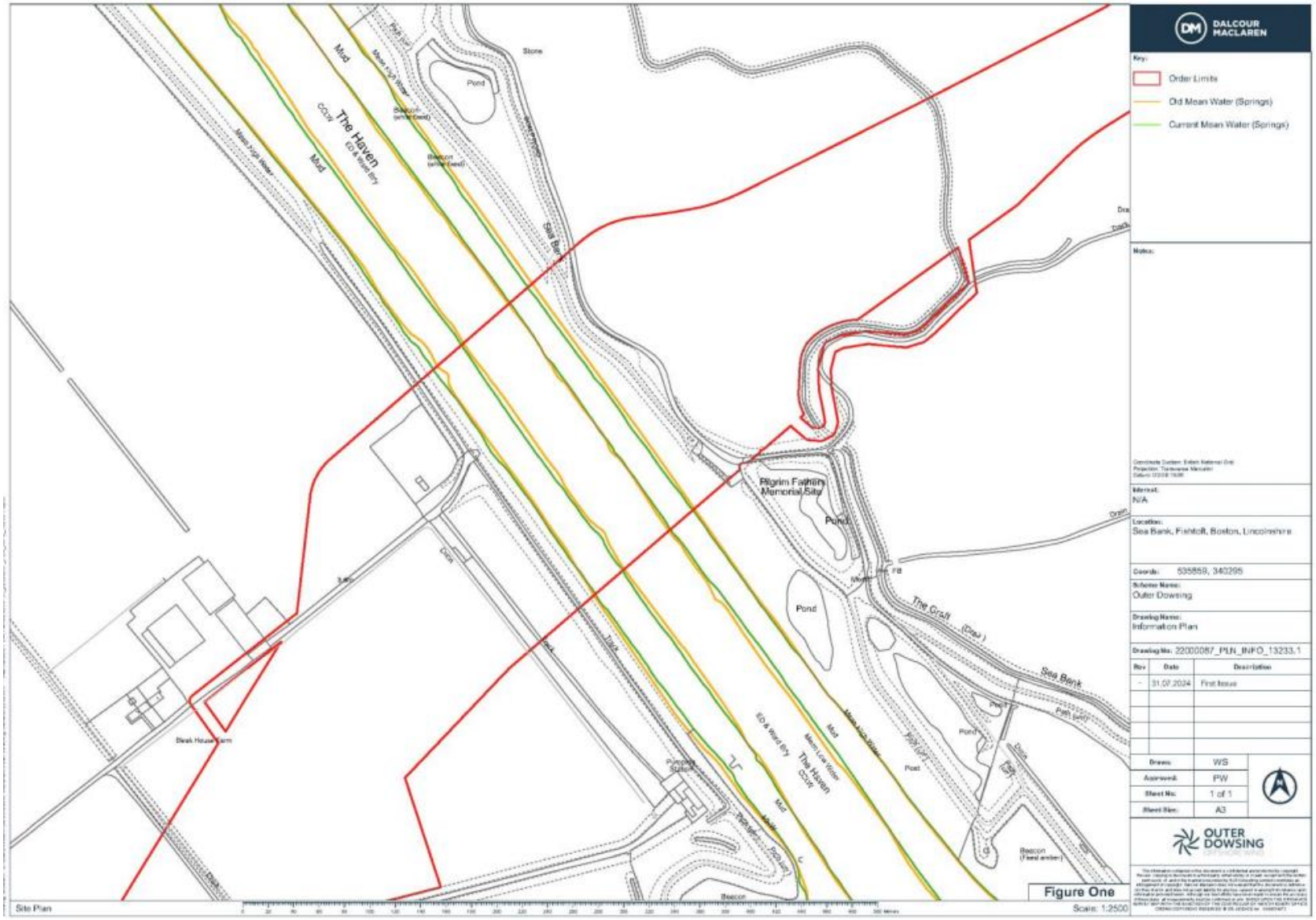


Figure 2: The Order Limits at The Haven. Taken from the 'Applicant's Approach to Ordinance Survey mapping Update, Document Reference 13.3.'

RWE Renewables UK Dogger Bank
South (West) Limited

RWE Renewables UK Dogger Bank
South (East) Limited

Windmill Business Park
Whitehill Way
Swindon
Wiltshire, SN5 6PB