DOGGER BANK D WIND FARM

Preliminary Environmental Information Report

Volume 2
Appendix 12.5 Marine Mammals Cumulative Assessment Screening

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Glossary

Term	Definition
Additional Mitigation	Measures identified through the EIA process that are required as further action to avoid, prevent, reduce or, if possible, offset likely significant adverse effects to acceptable levels (also known as secondary (foreseeable) mitigation). All additional mitigation measures adopted by the Project are provided in the Commitments Register.
Design	All of the decisions that shape a development throughout its design and pre-construction, construction / commissioning, operation and, where relevant, decommissioning phases.
Development Consent Order (DCO)	A consent required under Section 37 of the Planning Act 2008 to authorise the development of a Nationally Significant Infrastructure Project, which is granted by the relevant Secretary of State following an application to the Planning Inspectorate.
Effect	An effect is the consequence of an impact when considered in combination with the receptor's sensitivity / value / importance, defined in terms of significance.
Environmental Impact Assessment (EIA)	A 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 and includes the publication of an Environmental Statement.
Environmental Statement (ES)	A document reporting the findings of the EIA which describes the measures proposed to mitigate any likely significant effects.
Evidence Plan Process (EPP)	A voluntary consultation process with technical stakeholders which includes a Steering Group and Expert Topic Group (ETG) meetings to encourage upfront agreement on the nature, volume and range of supporting evidence required to inform the EIA and HRA process.
Expert Topic Group (ETG)	A forum for targeted technical engagement with relevant stakeholders through the EPP.
Impact	A change resulting from an activity associated with the Project, defined in terms of magnitude.
Mitigation	Any action or process designed to avoid, prevent, reduce or, if possible, offset potentially significant adverse effects of a development. All mitigation measures adopted by the Project are provided in the Commitments Register.

Term	Definition
Offshore Development Area	The area in which all offshore infrastructure associated with the Project will be located, including any temporary works area during construction, which extends seaward of Mean High Water Springs. There is an overlap with the Onshore Development Area in the intertidal zone.
Offshore Export Cables	Cables which bring electricity from the Offshore Platform(s) to the transition joint bays at landfall.
Offshore Platform(s)	Fixed structures located within the DBD Array Area that contain electrical equipment to aggregate and, where required, convert the power from the wind turbines, into a more suitable voltage for transmission through the export cables to the Onshore Converter Station. Such structures could include (but are not limited to): Offshore Converter Station(s) and an Offshore Switching Station.
Project Design Envelope	A range of design parameters defined where appropriate to enable the identification and assessment of likely significant effects arising from a project's worst-case scenario. The Project Design Envelope incorporates flexibility and addresses uncertainty in the DCO application and will be further refined during the EIA process.
Scoping Opinion	A written opinion issued by the Planning Inspectorate on behalf of the Secretary of State regarding the scope and level of detail of the information to be provided in the Applicant's Environmental Statement. The Scoping Opinion for the Project was adopted by the Secretary of State on 02 August 2024.
Scoping Report	A request by the Applicant made to the Planning Inspectorate for a Scoping Opinion on behalf of the Secretary of State. The Scoping Report for the Project was submitted to the Secretary of State on 24 June 2024.
The Applicant	SSE Renewables and Equinor acting through 'Doggerbank Offshore Wind Farm Project 4 Projco Limited'.
The Project	Dogger Bank DOffshore Wind Farm Project, also referred to as DBD in this PEIR.
Wind Turbines	Power generating devices located within the DBD Array Area that convert kinetic energy from wind into electricity.

12.5 Marine Mammals Cumulative Assessment Screening

12.5.1 Introduction

1. This appendix to the Dogger Bank D (DBD) Offshore Wind Farm (the Project) Preliminary Environmental Information Report (PEIR) supports **Volume 1, Chapter 12 Marine Mammals and Underwater Noise**.

2. The cumulative effects of the Project have been addressed in **Volume 1, Chapter 12 Marine Mammals and Underwater Noise** of the PEIR. The purpose of this appendix is to set out the Cumulative Effects Assessment (CEA) screening process and results as part of the offshore development of the Project during the construction, operation and maintenance (O&M), and decommissioning phases. The offshore elements of the Project will include wind turbines, inter-array cables, offshore export cables and the offshore platform. A full description of the Project is provided in **Volume 1, Chapter 4 Project Description**.

3. The identification of which individual impacts assessed for the Project have the potential for a cumulative effect on marine mammal receptors (impact screening) is set out in **Section 12.7.1** of **Volume 1, Chapter 12 Marine Mammals and Underwater Noise**.

4. This Appendix sets out the screening process undertaken to identify other plans, projects and activities that may result in cumulative effects for inclusion in the CEA (described as 'project screening'). This includes additional information to support the screening out of certain industries and activities from the marine mammal CEA.

5. **Section 12.7** of **Volume 1, Chapter 12 Marine Mammals and Underwater Noise** provides the results of the marine mammal CEA, considering the projects, plans and activities screened into the CEA process as set out in this Appendix.

12.5.2 Approach to Cumulative Assessment Screening

6. The Cumulative Assessment Screening has been prepared in accordance with the methodology and guidance set out in the following:

   - Natural England Offshore Wind Phase III Guidance (Parker *et al.* 2022); and
   - Planning Inspectorate (PINS) (2024) Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment.

7. The assessment methodology has been developed to cover the cumulative assessment screening (including the screening of projects and activities, and potential pathways for effect) during all phases of the Project (construction, operation, and decommissioning).

8. The cumulative assessment screening follows the below approach:

- Defining the screening area for each marine mammal species, within which other projects and activities may have a cumulative effect on the same population as individuals that may be affected by DBD.
- Defining a list of potential effect pathways as a result of other projects and activities being undertaken at the same time as construction, operation and decommissioning of DBD.
- Developing a long-list of other projects / activities by Tier;
  - Defining a list of other industries and activity type for consideration; and
  - Establishing a list of other projects, within those other industries and activity types, that are (i) present within the relevant screening area for each marine mammal species, and (ii) may be undertaken over the same time frame as DBD (including those that are now or will be operational before the construction of DBD, but were not at the onset of baseline surveys.
- Defining the short-list (based on step 3) of other projects / activities taken forward for further assessment, based on the other projects and activities that will be undertaken at the same time DBD.

12.5.2.1 Project Screening Process

9. The CEA project screening involved the identification of an initial list of projects, plans and activities with the potential to interact with the Project, based on the mechanism of interaction and spatial extent of the reference population for each marine mammal species (as outlined in **Section 12.2** of **Chapter 12 Marine Mammals and Underwater Noise**). At a high level, the projects, plans and activities that were included in the CEA were:

- Projects, plans and activities within the agreed reference population boundary for the given receptor;
- Offshore projects and developments, if there was the potential for cumulative effects during the construction, operational and maintenance, or decommissioning phases of the proposed projects; and
- Offshore wind farm (OWF) developments, if the construction and /or piling period could overlap with the proposed construction and /or piling period of the Project, based on best available information on when the OWF developments are likely to be constructed.

10. A wide range of data sources and information has been used for the CEA project screening, including, but not limited to:

- Developer websites;
- 4C Offshore Wind Farm Database (http://www.4coffshore.com/offshorewind/);
- Renewable UK website (http://www.renewableuk.com);
- The Crown Estate website;
- Oil and gas (O&G) United Kingdom (UK) licensing rounds website (https://www.gov.uk/guidance/oil-and-gas-licensing-rounds#past-licensing-rounds);
- Cefas (Centre for Environment, Fisheries and Aquaculture Science) website (Cefas, 2022);
- PINS National Infrastructure Planning website;
- The Marine Management Organisation (MMO) public register;
- The Scottish Government Marine licence register;
- European Marine Observation and Data Network (EMODnet) data;
- Hydrogen UKs project map (https://projectmap.hydrogen-uk.org/); and
- North Sea Transition Authority (NSTA) Open Data.

11. The initial project screening process has been based on the estimated offshore construction dates for the Project, with the earliest start of offshore construction in 2029, with a construction to take place to 2034. Any plans or projects that were operational prior to the start of the Project baseline aerial surveys (which began in October 2021) have not been taken forward in the CEA, as they were considered to be part of the baseline environment.

12. The list of initial projects was then refined based on the level of information available for the projects to enable further assessment and consideration of potential interactions of effects. The CEA considered projects, plans and activities which had sufficient information available to undertake the assessment. Insufficient information would preclude a meaningful quantitative assessment, and it was not appropriate to make assumptions about the detail of future projects under such circumstances.

13. Given the fast-moving nature of offshore development, it is likely that new projects relevant to the assessment will arise throughout the pre-application period. In order to finalise the CEA for PEIR, a cut-off period at six months prior to the submission of the PEIR (after which no more projects/activities have been included) has been applied. This screening process will be updated prior to DCO submission.

14. For the marine mammal assessment, the different stages (maturity) of project development, especially for other offshore wind farm projects have been taken into account within the CEA. In line with extant Natural England guidance on CEA for offshore wind (Parker *et al.* (2022)) the approach taken has been to categorise projects, plans and activities within pre-defined Tiers of development as defined in **Table 12.5-1**.

Table 12.5-1 Description of Tiers, Taken from Parker et al. (2022)

Tier Description		
Consenting or construction stage		**Data availability**
Tier 1	Built and operational projects should be included within the cumulative assessment where they have not been included within the environmental characterisation survey, i.e. they were not operational when baseline surveys were undertaken, and /or any residual impact may not have yet fed through to and been captured in estimates of "baseline" conditions, such as "background" distribution or mortality rate for birds*	Pre-construction (and possibly post-construction) survey data from the built project(s) and environmental characterisation survey data from proposed project (including data analysis and interpretation within the ES for the Project).
Tier 2	Tier 1 + projects under construction.	As Tier 1 but not including post-construction survey data.
Tier 3	Tier 2 + projects that have been consented (but construction has not yet commenced)	Environmental characterisation survey data from proposed project (including data analysis and interpretation within the ES for the project) and possibly pre-construction survey data from built project.
Tier 4	Tier 3 + projects that have an application submitted to the appropriate regulatory body that have not yet been determined.	Environmental characterisation survey data from proposed project (including data analysis and interpretation within the ES for the project).
Tier 5	Tier 4 + projects that have produced a PEIR and have characterisation data within the public domain.	Environmental characterisation survey data from proposed project (including data analysis and interpretation within the ES for the project) as well as information provided within the PEIR.
Tier 6	Tier 5 + projects that the regulatory body are expecting an application to be submitted for determination (e.g. projects listed under the PINS programme of projects).	Possibly environmental characterisation survey data (but strong likelihood that this data will not be publicly available at this stage).
Tier 7	Tier 6 + projects that have been identified in relevant strategic plans or programmes.	Historic survey data collected for other purposes/by other projects or industries or at a strategic level. See Parker *et al.* (2022) for advice on the use of existing datasets.

** Or if there are ongoing impacts that are greater than predicted where there is no evidence that the impacts will dissipate over the lifetime of the project, e.g. displacement of red-throated diver.*

12.5.2.2 Screening Area Considered in the CEA

15. The Screening Area for marine mammals has been defined on the basis that marine mammals are highly mobile and transitory in nature. It is, therefore, necessary to examine species occurrence not only within the Offshore Development Area, but also over the wider area.

16. For the marine mammal species in the assessments, the following Screening Areas have been defined, based on the relevant Management Units (MUs) (Inter-Agency Marine Mammal Working Group (IAMMWG), 2023) and current knowledge, and understanding of the biology of each species (see **Appendix 12-2 Marine Mammals Technical Report**):

- Harbour porpoise *Phocoena phocoena*: North Sea (NS) MU;
- Bottlenose dolphin *Tursiops truncatus*: Greater North Sea (GNS) MU or the Coastal East Scotland (CES) MU;
- Common dolphin *Delphinus delphis,* white-beaked dolphin *Lagenorhynchus albirostris* and minke whale *Balaenoptera acutorostrata*: Celtic and Greater North Sea (CGNS) MU; and
- Grey seal *Halichoerus grypus* and harbour seal *Phoca vitulina*: south-east (SE) England and north-east (NE) England Mus.

17. Information and maps of the relevant MU areas are provided in **Appendix 12-2 Marine Mammals Technical Report** (**Figures 12.2-1**, **12.2-2** and **12.2-3**) .

18. Note that, due to the large size of the CGNS MU for common dolphin, white-beaked dolphin and minke whale, which extends to the North Sea, English Channel, and Celtic and Irish Seas, only projects and plans on the East coast of the UK or in the wider North Sea (i.e. those located within the harbour porpoise NS MU) were considered in order to provide a more realistic, while still precautionary, list of projects that may have an impact on the same population as the Project (see **Figure 12.5-1**).

12.5.2.3 Summary of Species Densities

19. Where a quantitative assessment has been possible, the potential magnitude of disturbance caused by projects has been based on the publicly available project-specific density estimates (i.e. those presented in published PEIRs or ESs, or other relevant consenting documents).

20. For those screened-in projects where project-specific densities were not available, for cetacean species, a worst-case density was derived from the Small Cetaceans in the European Atlantic and North Sea (SCANS)-IV relevant survey block. If a certain species was not recorded in the projects specific survey block, then it is assumed that species is not present in significant enough number to require assessment and is therefore not considered for that specific project. For seal species, a density was derived from Carter *et al.* (2022), using the same method as outlined in **Sections 12.2.5.6.1.2.1** and **12.2.5.7.1.2.1** of **Appendix 12.2 Marine Mammal Technical Report**.

21. Where the location of the project was unknown, for harbour porpoise, the NS AU density of 0.55/km^2 was used (Gilles *et al.* 2023) then the according SCANS-IV block was used. For other cetacean species, the density estimate is based on Waggitt *et al.* (2019) over the relevant MU (or over the NS MU where relevant). For grey and harbour seal, densities are calculated for the entire area of the relevant MU, based on the grid cells that overlap with the area, using the most recent grey and harbour seal population estimates to convert the Carter *et al.* (2022) relative densities to absolute densities.

22. Therefore, the worst-case densities used to inform the assessment, where the project or activity location is unknown, are:

- Harbour porpoise: 0.55/km^2 (based on the SCANS-IV NS MU density estimate; Gilles *et al.* (2022)).
- Bottlenose dolphin: 0.0019/km^2 (based on Waggitt *et al*. (2019) over the CES MU for projects and activities within the CES MU, or 0.0037/km^2 (based on Waggitt *et al*. (2019) over the GNS MU for projects and activities within the GNS MU.
- Common dolphin: 0.031/km^2 (based on Waggitt *et al*. (2019) over the CGNS MU for projects and activities within the CGNS MU.
- White-beaked dolphin: 0.052/km^2 (based on Waggitt *et al*. (2019) over the CGNS MU for projects and activities within the CGNS MU.
- Minke whale: 0.0063/km^2 (based on Waggitt *et al*. (2019) over the CGNS MU for projects and activities within the CGNS MU.
- Grey seal: 0.245/km^2 (based on Carter *et al*. (2022) over the SE & NE MUs for projects and activities within either the SE or NE MU.
- Harbour seal: 0.034/km^2 (based on Carter *et al*. (2022) over the SE & NE MUs for projects and activities within either the SE or NE MU.

12.5.3 Identification of Potential Cumulative Effects

23. The first step in the CEA is the identification of the impacts assessed for The Project that have the potential for a cumulative effect with other plans, projects and activities (described as 'effect screening') .

24. Initially the potential pathways for cumulative effects were considered for:

- The risk of permanent change in hearing sensitivity (Permanent Threshold Shift (PTS)) from underwater noise;
- The risk of temporary change in hearing sensitivity (Temporary Threshold Shift (TTS)) from underwater noise;
- Disturbance from underwater noise;
- Barrier effects due to OWFs;
- Vessel collision risk;
- Disturbance at seal haul-out sites;
- Changes to water quality; and
- Changes to prey availability.

12.5.3.1 Permanent Auditory Injury due to Underwater Noise

25. PTS could occur as a result of pile driving during OWF installation, pile driving during oil and gas platform installation, underwater explosives (used occasionally during the removal of underwater structures and unexploded ordnance (UXO) clearance) and seismic surveys (Joint Nature Conservation Committee (JNCC), 2010a, 2010b). However, if there is the potential for any PTS, from any project, suitable mitigation would be put in place to reduce any risk to marine mammals. Other activities such as dredging, drilling, rock placement, vessel activity, operational OWFs, oil and gas installations or, wave and tidal sites will emit broadband noise in lower frequencies and PTS from these activities is very unlikely.

26. Therefore, the potential risk of PTS in marine mammals from cumulative effects has been screened out from further consideration in the CEA.

27. It should be noted that PTS (due to OWF piling) has been included within the population modelling as standard for the relevant species, regardless of this screening conclusion.

12.5.3.2 Temporary Auditory Injury and Disturbance from Underwater Noise

28. TTS is a short-term auditory change that is caused by noise exposure and typically resolves within hours to days after the exposure ends. Disturbance is likely to have greater effect ranges and areas than the modelled TTS, and the risk of TTS will be within the disturbance ranges for marine mammals. The effects of either TTS or disturbance in marine mammals are temporary.

29. Therefore, the potential risk of TTS in marine mammals from cumulative effects has been screened out, as the assessment of temporary underwater noise effects would be greater for that of disturbance than for TTS.

30. The potential for disturbance to marine mammals from underwater noise has been screened into the CEA.

12.5.3.3 Barrier Effects due to Disturbance from Offshore Wind

31. As outlined in **Section 12.7.1.5** of **Volume 1, Chapter 12 Marine Mammals and Underwater Noise**, given the location of DBD in relation to the rest of the North Sea, and that there are no known migration pathways, no significant effects are expected due to barrier effects from the Project. Therefore, the potential for a barrier effect to marine mammals, due to the cumulative underwater noise of multiple OWFs, has been screened out of the CEA.

12.5.3.4 Vessel Collision Risk

32. The potential for an increase in vessel collision risk, due to an increase in vessels across cumulative projects, has been screened into the CEA. This is due to the result of the Project alone assessment (see **Section 12.7.1.7** of **Chapter 12 Marine Mammals and Underwater Noise**).

12.5.3.5 Disturbance at Seal Haul-Out Sites

33. The potential for disturbance at seal haul-out sites has been screened into the CEA. This is due to the result of the Project alone assessment (see **Section 12.7.1.6** of **Chapter 12 Marine Mammals and Underwater Noise**).

12.5.3.6 Changes to Water Quality

34. No significant effects with regard to water quality are expected as a result of the Project (**Section 12.7.1.9** of **Chapter 12 Marine Mammals and Underwater Noise**).

35. Aggregate and dredging projects have the potential for increased sediment suspension (and therefore impacts to marine mammal species). However, any changes to water quality as a result of aggregate extraction and dredging would be very localised and temporary. Therefore, no potential for cumulative effect on marine mammal populations as a result of changes to water quality is predicted.

36. Given the above information, changes to water quality (including from aggregate extraction and dredging) have been screened out from further consideration in the CEA.

12.5.3.7 Changes to Prey Availability

37. The potential for changes to prey availability has been screened into the CEA. This is due to the result of the Project alone assessment (see **Section 12.7.1.8** of **Chapter 12 Marine Mammals and Underwater Noise**).

12.5.4 Screening Out of Certain Industries and Activities

38. The types of plans, projects and activities initially considered in this CEA screening are:

- Other OWFs:
  - Construction: (i) piling and (ii) other construction activities, including vessel presence.
  - O&M phase:
    - Maintenance activities.
    - Underwater noise from operational wind turbines.
    - Vessel presence.
  - Decommissioning phase.
- Marine renewable (wave and tidal) developments;
- Geophysical surveys (such as those associated with OWFs);
- Oil and gas installations:
  - Construction.
  - Operation.
  - Decommissioning.
- Oil and gas seismic surveys;
- Aggregate extraction and dredging;
- Licenced disposal sites;

- Sub-sea cables and pipelines;
- UXO clearance;
- Other industries - gas storage, offshore mines, and carbon capture projects;
- Coastal developments, such as ports and harbours;
- Shipping; and
- Commercial fisheries.

39. The noise levels associated with some activities at an industry level are such that there is no potential for cumulative effects and therefore these activities were screened out of the CEA. These activities are described below.

40. The remaining projects and activities further considered in the CEA project screening are set out in **Section 12.5.5**.

12.5.4.1 Underwater Noise from Maintenance Activities for Operational Offshore Wind Farms

41. Maintenance activities at operational OWFs, such as additional rock placement or cable reburial/replacement, would be very localised, short in duration and temporary. Noise levels from such activities would be below injury range and barely audible above vessel noise (further information has been provided in **Appendix 12-2 Underwater Noise Modelling Report** regarding noise source levels).

42. Additionally, the potential for cumulative noise impacts arising from operational and maintenance activities, would be less than the cumulative impacts assessed for construction activities (including construction activities when piling was not occurring) at other OWFs. The noise impacts of the construction phase of other OWFs have been screened into the CEA, as set out in **Section 12.5.5.1**.

43. Underwater noise from OWFs operational and maintenance activity has therefore been screened out from further consideration within the CEA screening.

12.5.4.2 Underwater Noise from Operational Offshore Wind Turbines

44. The noise levels associated with operational OWF wind turbines is relatively low, with recorded levels of between 141 and 146dB re 1µPs-m (RMS SPL) at four UK OWFs (MMO, 2015; Cheesman *et al.* 2016), and levels of 106 and 126dB re 1µPa-m (RMS SPL) at three operational OWFs in Sweden and Denmark, which was not audible for harbour porpoise at a distance of 70m from a wind turbine (Tougaard *et al.* 2009). It has also been predicted that within a few hundred metres of a wind turbine, noise would be comparable to background noise levels (MMO, 2015). While the wind turbines at DBD have the potential to be larger in size and in generation capacity than these studies, Bellman *et al.* (2023) found that noise levels from larger turbines were no greater for larger newer turbines than that of existing and smaller turbines.

45. Due to the low noise levels associated with operational OWFs, the Department for Business, Energy & Industrial Strategy (BEIS) (2020) Review of Consents (RoC) Habitats Regulation Assessment (HRA) for the Southern North Sea Special Area of Conservation (SAC) concluded that there would no potential for significant effect from the operation of OWFs, alongside the construction of OWFs (BEIS, 2020).

46. Therefore, operational OWFs are screened out from further consideration within the CEA screening.

47. The potential for cumulative effects from operational wind turbines at the Project with other projects and activities has also been screened out from further consideration within the CEA screening.

12.5.4.3 Underwater Noise from Offshore Wind Farm Decommissioning Activities

48. Given their age and expected operational lifetime, the decommissioning of UK and European OWFs built between 2005 and 2009 could overlap with the Project's construction activities. However, no information was available at the time of assessment on any OWFs that could be decommissioned during the construction phase of the Project (no EIA applications for decommissioning were registered on the MMO and the Marine Scotland registers at the time of writing). Decommissioning impacts of OWFs has therefore been screened out from further consideration within the CEA screening. This activity will be considered further for final DCO submission.

49. The potential for cumulative impacts during the decommissioning of the Project were unknown at the time of the assessment. The potential impacts for the decommissioning of the Project, including CEA, would be assessed prior to any decommissioning activities. Decommissioning impacts of the Project have therefore also been screened out from further consideration within this CEA screening.

12.5.4.4 Underwater Noise and Increase of Collision Risk due to Decommissioning of Oil and Gas Infrastructure

50. Based on currently available information, underwater noise during decommissioning of oil and gas installations would be less than levels for PTS to occur and any disturbance would be localised and not be significantly greater than that arising from vessels (Fernandez-Betelu *et al*. 2024). Therefore, potential cumulative effects from decommissioning activities, such as cutting equipment has been screened out from further consideration in the CEA.

51. The potential for cumulative effects from vessels associated with the decommissioning of oil and gas installations has also been screened out from further consideration in the CEA. As the potential effects of any vessels associated with the decommissioning of oil and gas installations is unlikely to be significantly greater than vessel activity at these sites during the operational phase of the oil and gas installations. Therefore, potential cumulative effects from vessels during decommissioning of oil and gas installations has been screened out from further consideration in the CEA.

12.5.4.5 Underwater Noise and Increase of Collision Risk due to Shipping

52. Shipping is considered to be part of the baseline environment. Accordingly, all shipping has been screened out from further consideration in the CEA.

53. This approach was in accordance with the PINS (2024) Advice on Cumulative Effects Assessment, which stated that:

> "*Where other existing and, or approved developments are expected to be completed before construction of the proposed NSIP*[1] *and the effects are fully determined, effects arising from them should be considered as part of the baseline"*.

[1] Nationally Significant Infrastructure Project (NSIP)

12.5.4.6 Commercial Fishing

54. Commercial fishing has been screened out of the CEA, as it is an ongoing activity that is considered to be part of the baseline environment. Further detail on the reasoning for this screening decision is provided below.

55. Commercial fisheries within the North Sea have the potential to cause a cumulative impact on marine mammals directly, by accidentally catching marine mammals as by-catch in their fishing nets, and indirectly by reducing the fish available for marine mammals to eat. Furthermore, there are potential underwater noise disturbance impacts from fisheries vessel presence.

56. By-catch as a result of commercial fisheries is recognised as a historic and continuing cause of harbour porpoise mortality (OSPAR, 2017) and has therefore been a factor in shaping the size of the latest NS MU population. The available prey resource for harbour porpoise has also been influenced by historic and ongoing commercial fishing. Noise from fishing vessels has also been considered to be part of the baseline conditions.

57. This approach was in accordance with the PINS (2024) Advice on Cumulative Effects Assessment, as stated in paragraph 53 above.

58. No specific guidance exists for the North Sea, however the potential for cumulative impacts associated with commercial fisheries within the Southern North Sea (SNS) SAC site was considered in the RoC HRA (BEIS), 2020). With regard to effects on habitats, the RoC HRA stated:

"*18.120 There have been no quantified assessments undertaken on the extent impacts from commercial fishing may have within the SAC and therefore information to inform this assessment is not available.*

18.122 Without knowing the extent of impact on the seabed arising from the fishing industry …it is not possible to undertake an in-combination assessment that addresses all the potential impacts on the habitats within the SAC."

59. With regard to direct effects on harbour porpoise, the RoC HRA (BEIS, 2020) also stated that:

"*18.203 Commercial fishing has occurred within the SAC for many years and has had, and will continue to have, direct and indirect impacts on harbour porpoise, their habitat and prey within the SAC. As the conservation status of harbour porpoise in UK waters and the SAC is considered favourable (Joint Nature Conservation Committee (JNCC), 2019; JNCC and Natural England, 2019) current and historical levels of fishing in the SAC are not considered to have affected the conservation status of the species.*

18.210 There are no known plans to suggest that the level of fishing within the SAC will significantly increase over the period the consented wind farms are planned to be constructed, such that, it is predicted that the current level of impacts from fishing on harbour porpoise within the SAC will not increase."

60. Natural England's Deadline 4 Response to the Examining Authority's Further Written Questions and Requests for information for the Hornsea Project 3 (15th January 2019) (page 46, Q 2.2.73) was that:

"*Where there is ongoing fishing activity in the site, it is important that the impacts of the activity are captured within the assessment in the context of the conservation objectives of the affected designated site(s). This assessment will likely take place as part of the baseline characterisation of the development area, however, as fishing activity is mobile, variable, and subject to change, there may be instances whereby fishing impacts are not adequately captured in the baseline characterisation and therefore may need to be considered as part of the in-combination assessment. This could be due to a change in effort; change in management; or a change in legislation amongst other things, and fishery managers (i.e., Marine Management Organisation (MMO)) would be best placed to advise on this.*

In relation to the assessment of impacts on the SNS SAC, Natural England..... are not currently aware of anything that would have significantly altered the levels of fishing activity within the site; any current plans for new fisheries, or changes to existing fisheries that have not been captured, but we would look to fisheries managers to advise more definitively on these points."

61. It is noted that the use of bottom towed fishing gear within the Dogger Bank Special Area of Conservation (SAC) was prohibited in June 2022 through the '*The Dogger Bank Special Area of Conservation (Specified Area) Bottom Towed Fishing Gear Byelaw 2022*'. While the baseline surveys began in October 2021, and therefore prior to the byelaw, the byelaw reduces the level of fishing in the area, rather than increasing it (although it should be noted some fishing will be offset to other areas of the North Sea, and therefore there may be a minimal reduction in fishing over the wider area). Therefore, this change in fishing activity would not alter previous advice on the inclusion of commercial fishing within cumulative effect assessments.

62. The RoC HRA (BEIS, 2020) suggested that by-catch had not affected a population considered to be in Favourable Conservation Status (FCS), whilst the above response from Natural England acknowledged that there was then no evidence to suggest that the existing levels of fishing would significantly alter in the future.

63. The potential impacts from commercial fishing (including by-catch and loss of prey species) and from the underwater noise associated with vessels were therefore considered to be a part of the environmental baseline for marine mammals of the North Sea, including for harbour porpoise, and have therefore been screened out of further assessment.

12.5.5 CEA Project Screening

12.5.5.1 Other Offshore Wind Farms

64. Where the construction phases of other OWFs could overlap with the construction phase of the Project, and where sufficient information and certainty in project programmes allowed for a meaningful assessment, then these OWF projects have been considered for potential cumulative effects. This included consideration of projects for which consent applications were in preparation.

65. Where possible, known dates of OWF construction were used to assess whether there was the potential for construction periods to overlap with the Project. Where construction dates were not known, it was assumed that there was no overlap with either Project construction or operation as the information was too limited to make assumptions on the OWF's timelines. For all OWF projects where the consent application had been submitted, the possible construction or piling windows assumed in the CEA were based on the best available information. This will be updated prior to DCO submission.

66. The initial screening process identified the OWF projects in Europe and UK as detailed in **Table 12.5-2**.

67. For floating OWF projects, it is not expected that there would be any potential for monopiling. There is however the potential for pin piling (for any required offshore substations) and for anchor pin piles for the mooring systems. Therefore, for any floating projects taken forward for assessment that have the potential for an overlap in construction programmes with DBD, the potential for pin piling is considered to be worst-case.

68. OWFs were considered part of the baseline if they were operational at the time when Project site-specific surveys commenced (in October 2021). For the Tier 1 OWFs, the majority were considered part of the baseline as were operational prior to the commencement of the baseline surveys and are therefore screened out at this stage. The remaining Tier 1 OWFs are considered further in paragraph 75.

69. The majority of the Tier 2 projects are likely to have completed their piling programmes prior to piling activities at the Project, and would be operational by the time the Project commences construction, however, operational effects from a number of these Tier 2 OWFs are considered further in paragraph 75.

70. Of the Tier 3 OWF projects, none would have an overlap with piling or other construction activities at the Project and are therefore screened out of further assessment for construction related effects. A number of these Tier 3 OWFs have the potential for operational effects and are considered further in paragraph 75.

71. Of the Tier 4 OWFs, a number of projects have a potential for overlap in construction windows with DBD, and are therefore screened in for assessment against the Projects construction phase;

- Caledonia, screened in for all cetacean species;
- Dogger Bank South (East), screened in for all species;
- Dogger Bank South (West), screened in for all species;
- Dudgeon Extension, screened in for all species;
- Five Estuaries, screened in for all species;
- Nordsee Cluster B - N-3.5, screened in for all cetacean species;
- Nordsee Cluster B - N-3.6, screened in for all cetacean species;
- North Falls, screened in for all species;
- Outer Dowsing, screened in for all species;
- Rampion 2, screened in for all cetacean species;
- Sheringham Shoal Extension, screened in for all species; and
- West of Orkney, screened in for all cetacean species.

72. The remaining Tier 4 OWFs have the potential for operational effects and are considered further in paragraph 75.

73. No Tier 5 projects were identified during this screening process.

74. Of the OWFs at concept and early planning stage (i.e., Tier 6), a number are floating projects. A small number of the Tier 6 projects were identified with the potential for an overlap in construction periods with the Project's construction period, however, while there is some information available on the construction programmes for these projects, they are at an early stage of their planning and consenting process, and therefore there is a high level of uncertainty on (a) their construction programmes and project designs and (b) their potential for effect to marine mammal populations. All have therefore been screened out of further assessment. A number of Tier 6 OWFs are screened out as the construction programmes do not overlap with that of DBD. The remaining Tier 6 OWFs have been screened out due to a lack of programme information on the project.

75. Since the baseline surveys in October 2021, a larger number of projects (within Tiers 1 to 4) have either already become operational or would become operational during the construction phase of the Project and are therefore considered further. A large number of these are EU projects and located at considerable distance from the Project. As noted in **Section 12.5.4**, the only cumulative effects considered for the operational phase of OWFs is that of disturbance (and collision risk) from an increase in vessel presence. Given the localised nature of such effects, the other OWF projects considered within this assessment have been screened further to take account of those within the same general geographic area as the Project (i.e. those that are located in the UK portion of the central North Sea, and those that may have similar O&M port locations). Only projects not considered above for construction related effects are considered for operational effects in order to avoid any potential for 'double counting' effects from the same project in the resultant CEA. This reduced list of OWFs considered for O&M vessel related cumulative effects therefore considers the following projects:

- Dogger Bank A, screened in for all species;
- Dogger Bank B, screened in for all species;
- Dogger Bank C, screened in for all species;
- Hornsea Project Four, screened in for all species;
- Hornsea Project Three, screened in for all species;
- Hornsea Project Two, screened in for all species;
- Sofia, screened in for all species; and
- Triton Knoll, screened in for all species.

76. The results of the screening for UK OWFs are presented in **Table 12.5-2**.

Table 12.5-2 CEA Screening For All UK and European Offshore Wind Farms Within the Relevant Spatial Area for Each Species and Potential to Overlap with the Project Construction (2029-2034) (HP = Harbour Porpoise, BND = Bottlenose Dolphin, GS = Grey Seal, HS = Harbour Seal, N/A= Not Applicable/Available; MU = Management Unit; GNS = Greater North Sea; NS= North Sea; CGNS = Celtic & GNS)

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Tier 1 - Operational										
Aberdeen (EOWDC[3])	UK	✓	✓	×	✓	×	×	n/a	2018	No, included in baseline
Albatros	Germany	✓	✓	✓	×	×	×	n/a	2020	No, included in baseline
Alpha Ventus	Germany	✓	✓	✓	×	×	×	n/a	2009	No, included in baseline
Amrumbank West	Germany	✓	✓	✓	×	×	×	n/a	2015	No, included in baseline
Anholt	Denmark	×	✓	✓	×	×	×	n/a	2013	No, included in baseline
BARD Offshore 1	Germany	✓	✓	✓	×	×	×	n/a	2013	No, included in baseline

[2] Construction window from 2029 to 2034
[3] European Offshore Wind Deployment Centre (EOWDC)

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Beatrice	UK	✓	✓	×	✓	×	×	n/a	2018	No, included in baseline
Belwind Alstom Haliade Demonstration	Belgium	✓	✓	✓	×	×	×	n/a	2013	No, included in baseline
Belwind I	Belgium	✓	✓	✓	×	×	×	n/a	2010	No, included in baseline
Belwind II	Belgium	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Blyth Offshore Demonstrator - Phase 1	UK	✓	✓	✓	×	×	×	n/a	2018	No, included in baseline
Borkum Riffgrund 1	Germany	✓	✓	✓	×	×	×	n/a	2015	No, included in baseline
Borkum Riffgrund 2	Germany	✓	✓	✓	×	×	×	n/a	2018	No, included in baseline
Borssele 1 and 2	Netherlands	✓	✓	✓	×	×	×	n/a	2020	No, included in baseline
Borssele 3 and 4 - Blauwwind	Netherlands	✓	✓	✓	×	×	×	n/a	2020	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Borssele Site V - Leeghwater - Innovation Plot	Netherlands	✓	✓	✓	×	×	×	n/a	2021	No, included in baseline
Butendiek	Germany	✓	✓	✓	×	×	×	n/a	2015	No, included in baseline
Dan Tysk	Germany	✓	✓	✓	×	×	×	n/a	2015	No, included in baseline
Deutsche Bucht	Germany	✓	✓	✓	×	×	×	n/a	2020	No, included in baseline
Dudgeon	UK	✓	✓	✓	×	✓	✓	n/a	2017	No, included in baseline
East Anglia ONE	UK	✓	✓	✓	×	✓	✓	n/a	2020	No, included in baseline
Egmond aan Zee	Netherlands	✓	✓	✓	×	×	×	n/a	2007	No, included in baseline
Eneco Luchterduinen	Netherlands	✓	✓	✓	×	×	×	n/a	2015	No, included in baseline
ENOVA Ems Emden	Germany	✓	✓	✓	×	×	×	n/a	2004	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Fécamp	France	✓	✓	×	×	×	×	2020-2023	2023	No, O&M effects not considered due to distance
Frederikshavn	Denmark	✓	✓	✓	×	×	×	n/a	2003	No, included in baseline
Galloper	UK	✓	✓	✓	×	✓	✓	n/a	2018	No, included in baseline
Gemini	Netherlands	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Global Tech I	Germany	✓	✓	✓	×	×	×	n/a	2015	No, included in baseline
Gode Wind 1 and 2	Germany	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Greater Gabbard	UK	✓	✓	✓	×	✓	✓	n/a	2012	No, included in baseline
Gunfleet Sands I	UK	✓	✓	✓	×	✓	✓	n/a	2009	No, included in baseline
Gunfleet Sands II	UK	✓	✓	✓	×	✓	✓	n/a	2013	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Hohe See	Germany	✓	✓	✓	×	×	×	n/a	2019	No, included in baseline
Hollandse Kust Zuid Holland I and II	Netherlands	✓	✓	✓	×	×	×	2022-2023	2023	No, O&M effects not considered due to distance
Hollandse Kust Zuid Holland III and IV	Netherlands	✓	✓	✓	×	×	×	2022-2023	2023	No, O&M effects not considered due to distance
Horns Rev 1	Denmark	✓	✓	✓	×	×	×	n/a	2002	No, included in baseline
Horns Rev 2	Denmark	✓	✓	✓	×	×	×	n/a	2009	No, included in baseline
Horns Rev 3	Denmark	✓	✓	✓	×	×	✓	n/a	2019	No, included in baseline
Hornsea Project One	UK	✓	✓	✓	×	✓	✓	n/a	2019	No, included in baseline
Hornsea Project Two	UK	✓	✓	✓	×	✓	✓	n/a	2022	**Yes, included in operational scenario**
Humber Gateway	UK	✓	✓	✓	×	✓	✓	n/a	2015	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Hywind Scotland Pilot Park (floating)	UK	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Hywind Tampen (floating)	Norway	✓	✓	✓	×	×	×	n/a	2023	No, O&M effects not considered due to distance
Inner Dowsing	UK	✓	✓	✓	×	✓	✓	n/a	2009	No, included in baseline
Kaskasi	Germany	✓	✓	✓	×	×	✓	n/a	2022	No, O&M effects not considered due to distance
Kentish Flats	UK	✓	✓	✓	×	✓	✓	n/a	2005	No, included in baseline
Kentish Flats Extension	UK	✓	✓	✓	×	✓	✓	n/a	2016	No, included in baseline
Kincardine - Phase 1 (floating)	UK	✓	✓	✓	✓	×	×	n/a	2018	No, included in baseline
Kincardine - Phase 2 (floating)	UK	✓	✓	×	✓	×	×	n/a	2021	No, included in baseline
Levenmouth demonstration turbine	UK	✓	✓	×	✓	×	×	n/a	2013	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Lincs	UK	✓	✓	✓	×	✓	✓	n/a	2012	No, included in baseline
London Array	UK	✓	✓	✓	×	✓	✓	n/a	2012	No, included in baseline
Lynn	UK	✓	✓	✓	×	✓	✓	n/a	2009	No, included in baseline
Meerwind Süd/Ost	Germany	✓	✓	✓	×	×	×	n/a	2014	No, included in baseline
Merkur	Germany	✓	✓	✓	×	×	×	n/a	2019	No, included in baseline
Metcentre - SeaTwirl S1 (floating)	Sweden	✓	✓	✓	×	×	×	n/a	2015	No, included in baseline
Metcentre - TetraSpar Demo (floating)	Norway	✓	✓	✓	×	×	×	n/a	2021	No, included in baseline
Moray East	UK	✓	✓	✓	✓	×	×	n/a	2022	No, O&M effects not considered due to distance
Nissum Bredning Vind	Denmark	✓	✓	×	×	×	×	n/a	2018	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Nobelwind	Belgium	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Nordergründe	Germany	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Nordsee One	Germany	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Nordsee Ost	Germany	✓	✓	✓	×	×	×	n/a	2015	No, included in baseline
Norther	Belgium	✓	✓	✓	×	×	×	n/a	2019	No, included in baseline
Northwester 2	Belgium	✓	✓	✓	×	×	×	n/a	2020	No, included in baseline
Northwind	Belgium	✓	✓	✓	×	×	×	n/a	2014	No, included in baseline
Prinses Amaliawindpark	Netherlands	✓	✓	✓	×	×	×	n/a	2008	No, included in baseline
Race Bank	UK	✓	✓	✓	×	✓	✓	n/a	2018	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Rampion	UK	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Rentel	Belgium	✓	✓	✓	×	×	×	n/a	2018	No, included in baseline
Riffgat	Germany	✓	✓	✓	×	×	×	n/a	2014	No, included in baseline
Rønland	Denmark	✓	✓	✓	×	×	×	n/a	2003	No, included in baseline
SamsØ	Denmark	×	✓	✓	×	×	×	n/a	2003	No, included in baseline
Sandbank	Germany	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Scroby Sands	UK	✓	✓	✓	×	✓	✓	n/a	2003	No, included in baseline
Seagreen	UK	✓	✓	✓	×	×	×	n/a	2022	No, O&M effects not considered due to distance
Seamade (Mermaid)	Belgium	✓	✓	✓	×	×	×	n/a	2021	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Seamade (SeaStar)	Belgium	✓	✓	✓	×	×	×	n/a	2020	No, included in baseline
Sheringham Shoal	UK	✓	✓	✓	×	✓	✓	n/a	2012	No, included in baseline
Teesside	UK	✓	✓	✓	×	✓	✓	n/a	2013	No, included in baseline
Thanet	UK	✓	✓	✓	×	✓	✓	n/a	2010	No, included in baseline
Thornton Bank - Phase I	Belgium	✓	✓	✓	×	×	×	n/a	2009	No, included in baseline
Thornton Bank - Phase II	Belgium	✓	✓	✓	×	×	×	n/a	2012	No, included in baseline
Thorton Bank - Phase III	Belgium	✓	✓	✓	×	×	×	n/a	2013	No, included in baseline
Trianel Windpark Borkum I	Germany	✓	✓	✓	×	×	×	n/a	2015	No, included in baseline
Trianel Windpark Borkum II	Germany	✓	✓	✓	×	×	×	n/a	2020	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Triton Knoll	UK	✓	✓	✓	×	✓	✓	n/a	2022	**Yes, operational during Project construction**
TunØ Knob	Denmark	×	✓	✓	×	×	×	n/a	1995	No, included in baseline
UNITECH Zefryos by Hywind Technology (Karmoy / Hywind) (floating)	Norway	✓	✓	✓	×	×	×	n/a	2012	No, included in baseline
Veja Mate	Germany	✓	✓	✓	×	×	×	n/a	2017	No, included in baseline
Vesterhav Nord/Syd	Denmark	✓	✓	✓	×	×	×	2022-2023	2023	No, O&M effects not considered due to distance
Westermeerwind	Netherlands	✓	✓	✓	×	×	×	n/a	2016	No, included in baseline
Westermost Rough	UK	✓	✓	✓	×	✓	✓	n/a	2014	No, included in baseline
Windpark Fryslân	Netherlands	✓	✓	✓	×	×	×	n/a	2021	No, included in baseline

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Windplanblauw	Netherlands	✓	✓	✓	×	×	×	2021-2023	2023	No, O&M effects not considered due to distance
Tier 2 – Under Construction										
Borkum Riffgrund 3	Germany	✓	✓	✓	×	×	×	2023-2025	2025	No, O&M effects not considered due to distance
Calvados	France	✓	✓	✓	×	×	×	2022-2024	2024	No, O&M effects not considered due to distance
Dieppe -Le Treport	France	✓	✓	✓	×	×	×	2023-2026	2026	No, O&M effects not considered due to distance
Dogger Bank A	UK	✓	✓	✓	×	✓	✓	2022-2023	2024	**Yes, operational during Project construction**
Dogger Bank B	UK	✓	✓	✓	×	✓	✓	2023-2024	2025	**Yes, operational during Project construction**

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Dogger Bank C	UK	✓	✓	✓	×	✓	✓	2024-2025	2026	**Yes, operational during Project construction**
East Anglia Three	UK	✓	✓	✓	×	✓	✓	2022-2026	2026	No, O&M effects not considered due to distance
EnBW He Dreiht	Germany	✓	✓	✓	×	×	×	2024-2025	2025	No, O&M effects not considered due to distance
Gode Wind 3	Germany	✓	✓	✓	×	×	×	2023-2024	2024	No, O&M effects not considered due to distance
Hollandse Kust Noord	Netherlands	✓	✓	✓	×	×	×	2022-2023	2023	No, O&M effects not considered due to distance
Hollandse Kust West VI	Netherlands	✓	✓	✓	×	×	×	2023-2026	2026	No, O&M effects not considered due to distance
Moray West	UK	✓	✓	×	✓	×	×	2023-2025	2025	No, O&M effects not considered due to distance

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Neart na Gaoithe	UK	✓	✓	×	✓	×	×	2020-2024	2024	No, O&M effects not considered due to distance
Sofia	UK	✓	✓	✓	×	✓	✓	2024-2026	2026	**Yes, operational during Project construction**
Tier 3 – Consented / Pre-Construction										
Atlantis I	Germany	✓	✓	✓	×	×	×	2024	2028	No, construction does not overlap / O&M effects not considered due to distance
Blyth Offshore Demonstrator - Phase 2	UK	✓	✓	✓	×	✓	✓	2025	2025	No, O&M effects not considered due to distance
Culzean Floating Wind Pilot Project (floating)	UK	✓	✓	✓	×	×	×	2024	2024	No, insufficient information
Dudgeon Extension	UK	✓	✓	✓	×	✓	✓	2028-2030	2030	**Yes, included in construction scenario**
East Anglia ONE North	UK	✓	✓	✓	×	✓	✓	2024-2025	2027	No, O&M effects not considered due to distance

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
East Anglia TWO	UK	✓	✓	✓	×	✓	✓	2024-2025	2027	No, O&M effects not considered due to distance
Forthwind Offshore Wind Demonstration Project - Phase 1	UK	✓	✓	×	✓	×	×	2024	2024	No, O&M effects not considered due to distance
Green Volt	UK	✓	✓	✓	×	×	×	2024-2026	2027	No, O&M effects not considered due to distance
Hollandse Kust West VII	Netherlands	✓	✓	✓	×	×	×	Unknown	2027	No, O&M effects not considered due to distance
Hollandse Kust West VII	Netherlands	✓	✓	✓	×	×	×	Unknown	2027	No, O&M effects not considered due to distance
Hornsea Project Four	UK	✓	✓	✓	×	✓	✓	2026-2028	2028	**Yes, operational during Project construction**
Hornsea Project Three	UK	✓	✓	✓	×	✓	✓	2024-2027	2027	**Yes, operational during Project construction**

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Inch Cape	UK	✓	✓	✓	✓	×	×	2023-2026	2026	No, O&M effects not considered due to distance
Metcentre - SeaTwirl S2 (Floating)	Norway	✓	✓	✓	×	×	×	2023-??	Unknown	No, O&M effects not considered due to distance
Nordsee Cluster A - N-3.7	Germany	✓	✓	✓	×	×	×	2026-2027	2027	No, O&M effects not considered due to distance
Nordsee Cluster A - N-3.8	Germany	✓	✓	✓	×	×	×	2026-2027	2027	No, O&M effects not considered due to distance
Nordsee Cluster B - N-3.5	Germany	✓	✓	✓	×	×	×	2028-2029	2029	**Yes, included in construction scenario**
Nordsee Cluster B - N-3.6	Germany	✓	✓	✓	×	×	×	2028-2029	2029	**Yes, included in construction scenario**
Norfolk Boreas	UK	✓	✓	✓	×	✓	✓	Unknown	Unknown	Unknown, pre-construction surveys underway (July 2024)

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Norfolk Vanguard (East & West)	UK	✓	✓	✓	×	✓	✓	2024-2028	2029	No, O&M effects not considered due to distance
Pentland	UK	✓	✓	×	✓	×	×	2024	2026	No, O&M effects not considered due to distance
Pentland Floating Demo	UK	✓	✓	✓	×	×	×	2024	2026	No, O&M effects not considered due to distance
Seagreen Phase 1A	UK	✓	✓	✓	×	×	×	2026-2027	2027	No, O&M effects not considered due to distance
Sheringham Shoal Extension	UK	✓	✓	✓	×	✓	✓	2028-2030	2030	**Yes, included in construction scenario**
Thor	Denmark	✓	✓	✓	×	×	×	2025-2026	2026	No, construction does not overlap / O&M effects not considered due to distance
Tier 4 – Application Submitted										

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Avalon	UK	✓	✓	✓	×	×	×	2025	Unknown	No, O&M effects not considered due to distance
Berwick Bank	UK	✓	✓	✓	×	×	×	2024	2027	No, O&M effects not considered due to distance
Caledonia Offshore Wind	UK	✓	✓	✓	×	×	×	2028-2030	2030	**Yes, included in construction scenario**
Dogger Bank South (East)	UK	✓	✓	✓	×	✓	✓	2027-2031	2033	**Yes, included in construction scenario**
Dogger Bank South (West)	UK	✓	✓	✓	×	✓	✓	2027-2031	2033	**Yes, included in construction scenario**
Dunkerque	France	✓	✓	×	×	×	×	2026-2028	2028	No, O&M effects not considered due to distance
Five Estuaries	UK	✓	✓	✓	×	✓	✓	2028-2030	2030	**Yes, included in construction scenario**
North Falls	UK	✓	✓	✓	×	✓	✓	2027-2030	2030	**Yes, included in construction scenario**

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Ossian (floating)	UK	✓	✓	✓	×	×	×	2024-2028	2028	No, O&M effects not considered due to distance
Outer Dowsing	UK	✓	✓	✓	×	✓	✓	2026-2030	2030	**Yes, included in construction scenario**
Rampion 2	UK	✓	✓	✓	×	×	×	2027-2030	2030	**Yes, included in construction scenario**
Salamander (floating)	UK	✓	✓	✓	×	×	×	2026-2028	2029	No, O&M effects not considered due to distance
Vindpark Falkenpark	Sweden	×	✓	✓	×	×	×	2023	2024	No, O&M effects not considered due to distance
West Of Orkney	UK	✓	✓	✓	×	×	×	2028-2029	2029	**Yes, included in construction scenario**
Tier 6 – Concept and Early Planning										
Arven (floating)	UK	✓	✓	✓	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Arven (South)	UK	✓	✓	✓	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance
Aspen (floating)	UK	✓	✓	✓	×	×	×	2025-2028	2028	No, construction does not overlap / O&M effects not considered due to distance
Ayre (floating)	UK	✓	✓	✓	×	×	×	2029-2033	2033	No, insufficient information / O&M effects not considered due to distance
Beech (floating)	UK	✓	✓	✓	×	×	×	2024-2028	2028	No, construction does not overlap / O&M effects not considered due to distance
Bellrock (floating)	UK	✓	✓	✓	×	×	×	Unknown	2030	No, insufficient information / O&M effects not considered due to distance

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Bowdun	UK	✓	✓	✓	×	×	×	2029-2033	2033	No, insufficient information / O&M effects not considered due to distance
Broadshore	UK	✓	✓	✓	×	×	×	2024	2028	No, construction does not overlap / O&M effects not considered due to distance
Buchan Offshore Wind (floating)	UK	✓	✓	✓	×	×	×	2028-2032	2032	No, insufficient information / O&M effects not considered due to distance
CampionWind	UK	✓	✓	×	×	×	×	2024	2028	No, construction does not overlap / O&M effects not considered due to distance
Cedar (floating)	UK	✓	✓	✓	×	×	×	2024-2028	2028	No, construction does not overlap / O&M effects not considered due to distance

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Cenos (floating)	UK	✓	✓	✓	×	×	×	2027-2030	2030	No, insufficient information / O&M effects not considered due to distance
Dolphyn Project - Full Scale (floating)	UK	✓	×	×	✓	×	×	Unknown	2034	No, insufficient information / O&M effects not considered due to distance
Dolphyn Project - Pre-Commercial (floating)	UK	✓	×	×	✓	×	×	Unknown	2027	No, construction does not overlap / O&M effects not considered due to distance
Flora	UK	✓	✓	✓	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance
Freya	Denmark	✓	×	×	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Jammerland Bugt	Denmark	×	✓	✓	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance
Judy	UK	✓	✓	✓	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance
Jyske Banke Nord	Denmark	✓	×	×	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance
MarramWind (floating)	UK	✓	✓	✓	×	×	×	2026-2030	2030	No, construction does not overlap / O&M effects not considered due to distance
Morven	UK	✓	✓	✓	×	×	×	2027-2030	2030	No, construction does not overlap / O&M effects not considered due to distance

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Muir Mhor (floating)	UK	✓	✓	✓	×	×	×	2027-2030	2030	No, construction does not overlap / O&M effects not considered due to distance
Nordlicht I	Germany	✓	✓	✓	×	×	×	2024	2027	No, construction does not overlap / O&M effects not considered due to distance
Normandie	France	✓	✓	×	×	×	×	2026-2031	2031	No, insufficient information / O&M effects not considered due to distance
Odin	Denmark	✓	✓	✓	×	×	×	2026-2027	2028	No, construction does not overlap / O&M effects not considered due to distance
Scaraben	UK	✓	✓	✓	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance

Name of Project	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Construction / Piling window	Date operational	Potential for overlap of OWF operation / construction with Project construction[2]?
				GNS	CES					
Sinclair	UK	✓	✓	✓	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance
Stoura (floating)	UK	✓	✓	✓	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance
Stromar (floating)	UK	✓	✓	✓	×	×	×	2024	2028	No, construction does not overlap / O&M effects not considered due to distance
Vigsø Bay	Denmark	✓	×	×	×	×	×	Unknown	Unknown	No, insufficient information / O&M effects not considered due to distance

12.5.5.2 Marine Renewable Energy (Wave and Tidal)

77. Both UK and European Marine Renewable Energy (MRE) schemes (e.g. wave and tidal) have been considered in the CEA screening, however, due to a lack of information on European MRE schemes, these have not been assessed.

78. Piling is highly unlikely to be used during the installation of wave and tidal projects. The installation of wave/tidal projects has typically been carried out using drilled pins or gravity bases. Given percussive piling is not anticipated to be used as an installation method for these projects, the noise impacts during construction would have a very limited impact range, especially compared to offshore wind farms.

79. The construction of wave or tidal developments is highly unlikely to significantly contribute to the cumulative impacts of the disturbance of marine mammals from underwater noise sources at DBD given the distance between any wave or tidal project and DBD. However, any projects within the CEA Screening Areas which have the potential for overlap in construction windows with that of the Project have been screened in for further assessment.

80. MRE projects have also been considered for potential operational cumulative effects, if this phase could overlap with the proposed construction of the Project, and if sufficient information was available to determine this. Including operational MREs is a precautionary approach as O&M activities are unlikely to contribute to the cumulative effects of the disturbance of marine mammals from underwater noise sources.

81. Potential impacts during the operation of tidal projects include collision risk. However, tidal projects would be required to have effective mitigation and monitoring in place to reduce the collision risk for marine mammals. Wave energy devices have fewer submerged moving parts, and are mostly located above the water surface, thus presenting a much lower risk to marine mammals (Greaves *et al.* 2016). Collision risk from tidal and wave devices have therefore been screened out of the CEA.

82. Where no information was known on the potential construction phases of the other MRE projects, it was assumed that all projects currently operational, under construction, or consented would have completed construction prior to the construction of the Project.

83. Projects that had been cancelled or were inactive were not screened into the CEA.

84. The European Marine Energy Centre (EMEC) in Orkney provides pre-consented, grid-connected test sites for testing smaller scale technologies, subsystems and components. These testing programmes are usually short-term (less than one year) and host a range of developers. Examples of current and past occupants are:

- Blue X @ EMEC Scapa Flow; started November 2021 (6 months).
- Orbital 02 @ EMEC Fall of Warness; started 2021.
- Magallanes Renovables @ EMEC Fall of Warness; started 2021.
- Aquantis Lt. @ EMEC Shapinsay Sound; started 2023 (6 months).
- Blue Horizon 250 @ Billia Croo; starting 2025.

85. Provided that the EMEC sites Billia Croo, Fall of Warness, Scapa Flow and Shapinsay Sound are pre-consented, and the testing windows are relatively short (approximately 6 months to 1 year) all new installations of tidal and wave at these four sites will be screened out from further consideration.

86. The MRE projects that have been operational since the commencement of the Project baseline surveys (in October 2021) are considered part of the baseline and screened out from further consideration in the CEA.

87. All Tier 3 projects are consented, but timelines are unknown, and construction has not yet begun. It is assumed that the construction of these MRE projects would be complete prior to the construction of DBD, and all are therefore screened out of further assessment.

88. The remaining projects are Tier 6 and 7 and have been screened out of further assessment due to a lack of information on the construction window.

89. The results of the MRE project screening are presented in **Table 12.5-3**.

Table 12.5-3 CEA Screening for all UK and European Marine Renewable Energy Projects Within The Relevant Spatial Area For Each Species And Potential To Overlap With The Project Construction (2029-2034) (HP = harbour porpoise, BND = bottlenose dolphin, GS = grey seal, HS = harbour seal, n/a= not applicable/available; MU = Management Unit; GNS = Greater North Sea; NS= North Sea; CGNS = Celtic & GNS; EMEC = European Marine Energy Centre)

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Construction / Piling window	Date operational	Potential for overlap of MRE operation / construction with Project construction[4]?
					GNS	CES					
Tier 1											
EMEC Billia Croo (test site)	Wave	Active / in operation	✓	✓	×	✓	×	×	n/a	2003	No, included in baseline
EMEC Fall of Warness (test site)	Tidal	Active / in operation	✓	✓	×	✓	×	×	n/a	2005	No, included in baseline
EMEC Scapa Flow (test site)	Wave	Active / in operation	✓	✓	×	✓	×	×	n/a	2011	No, included in baseline
EMEC Shapinsay Sound (test site)	Tidal	Active / in operation	✓	✓	×	✓	×	×	n/a	2011	No, included in baseline

[4] Project construction 2029 - 2034

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Construction / Piling window	Date operational	Potential for overlap of MRE operation / construction with Project construction[4]?
					GNS	CES					
MeyGen Inner Sound Phase 1	Tidal	Active / in operation	✓	✓	×	✓	×	×	n/a	2014	No, included in baseline
Mocean Energy M100P	Wave	Active / in operation	✓	✓	×	✓	×	×	n/a	2021	No, included in baseline
Nova Innovation Shetland Tidal Array[5]	Tidal	Active / in operation	✓	✓	✓	×	×	×	n/a	2016	No, included in baseline
Tier 3											
MeyGen Inner Sound Phase 2	Tidal	Consented	✓	✓	×	✓	×	×	n/a	2028	No, insufficient information

[5] Initially granted a licence for a total of six turbines. Three turbines were set up in 2016, with the following three installed in 2018, 2020 and 2023. The three initial turbines were decommissioned in October 2023.

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Construction / Piling window	Date operational	Potential for overlap of MRE operation / construction with Project construction[4]?
					GNS	CES					
Perpetuus Tidal Energy Centre (PTEC)	Tidal	Pre-construction	✓	✓	×	×	×	×	n/a	Unknown	No, insufficient information
Tier 6											
Brims Tidal Array	Tidal	In Development	✓	✓	×	✓	×	×	n/a	Unknown	No, insufficient information
Nova Innovation Yell Sound Array	Tidal	Concept & Early Planning	✓	✓	✓	×	×	×	n/a	Unknown	No, insufficient information
Orbital Projects 6 Ness of Duncansby	Tidal	Concept & Early Planning	✓	✓	×	✓	×	×	n/a	Unknown	No, insufficient information
Seagen Brough Ness	Tidal	In Development	✓	✓	×	✓	×	×	n/a	Unknown	No, insufficient information

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Construction / Piling window	Date operational	Potential for overlap of MRE operation / construction with Project construction[4]?
					GNS	CES					
Westray South Phase 1/2	Tidal	In Development	✓	✓	×	✓	×	×	n/a	Unknown	No, insufficient information
Tier 7											
MeyGen Inner Sound - future phases	Tidal	Concept & Early Planning	✓	✓	×	✓	×	×	n/a	Unknown	Unknown

12.5.5.3 Aggregate and Dredging

90. Aggregate extraction and dredging projects considered during the CEA screening included operational projects (production agreement areas) and those UK based projects expected to be used in the future (exploration and option areas) (see **Table 12.5-4**).

91. No European projects were screened into the CEA due to a lack of information on project locations, phases, and programmes. Furthermore, it was assumed that the impact ranges from such activities would only cause localised effects on short, perhaps medium-term behavioural reactions and masking of low-frequency calls in baleen whales and seals (Todd *et al.* 2015).

92. Dredging activities could cause local displacement as demonstrated in a study on bottlenose dolphins in Aberdeen harbour. The study found that if dredging intensity increased, dolphins spent less time in the harbour, despite high baseline levels of disturbance and the presence of a qualitative foraging habitat (Pirotta *et al.* 2013). Indications that harbour porpoise were displaced within 600m of dredging operations was evident through more qualitative data (Diederichs *et al.* 2010), as outlined in the BEIS (2020) RoC HRA for the SNS SAC.

93. When in transit, noise arising from dredging vessels is comparable with that from similar sized vessels and can therefore be considered as part of the baseline noise levels.

94. When undertaking dredging activities, higher levels of broadband noise at frequencies above 1kHz are produced due to the impact or abrasion of aggregate material passing through the draghead, suction pipe and pump. The overall level of noise was found to be higher when extracting gravel compared to when extracting sand (Robinson *et al.* 2011).

95. Taking into account the small potential noise impact ranges and distances of the aggregate extraction and dredging projects from the Project, the potential for contribution to cumulative impacts is very small. Therefore, risk of PTS or TTS for all marine mammal species from aggregate extraction and dredging has been screened out from further consideration in the CEA.

96. Given marine mammals have the potential to be disturbed from such activities, as a worst-case, dredging and extraction projects that have an overlap with the construction period of the Project were screened in for disturbance effects.

97. All aggregate extraction and dredging projects were considered to be part of the existing baseline environment if operational prior to the start of the baseline surveys for the Project, in October 2021. Out of the initial list of aggregate schemes within the CEA Screening Area, the majority were initially screened out as being operational prior to the baseline surveys in October 2021. A small number of Scottish projects were screened out as the dredging would be completed by the time the Project offshore construction begins.

98. The following aggregate projects became operational just after the baseline surveys and have been screened in for assessing disturbance in the CEA:

- Greenwich Light East 473/1 (is one project area, co-owned by CEMEX UK Marine and Hanson Aggregates Marine Ltd.);
- Greenwich Light East 473/2 (one project area, co-owned by CEMEX UK Marine and Hanson Aggregates Marine Ltd.);
- Inner Dowsing 481/1-2;
- Inner Owers North 488;
- Thames D 524;
- West Bassurelle 458; and
- West Bassurelle 464.

99. The results of the screening of aggregate extraction and dredging projects are presented in **Table 12.5-4**.

Table 12.5-4 CEA Screening For UK Aggregate and Dredging Projects within The Relevant Spatial Area For Each Species and Potential to Overlap with The Project Construction (2029-2034) (HP = Harbour Porpoise, BND = Bottlenose Dolphin, GS = Grey Seal, HS = Harbour Seal, N/A= Not Applicable/Available; MU = Management Unit; GNS = Greater North Sea; NS= North Sea; CGNS = Celtic & GNS; ML = Marine Licence)

Name of Project	Area number	Status (at the time of assessment)	Licence start date	Licence end date	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Potential for overlap of aggregate extraction with Project construction?
							GNS	CES			
England											
Area 1 South	478	Production Agreement Area	07/12/2012	15/04/2024	✓	✓	×	×	✓	✓	No, included in baseline
Colbart	530	Exploration & Option area	01/08/2017	31/07/2024	✓	✓	×	×	✓	✓	No, included in baseline
Cross Sands	242 -361	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
East Orford Ness	1809	Exploration & Option area	01/09/2019	01/08/2024	✓	✓	✓	×	✓	✓	No, included in baseline
EEC 1 (former 503)	529	Exploration & Option area	01/08/2017	31/07/2024	✓	✓	×	×	✓	✓	No, included in baseline
EEC 5 South	1806	Exploration & Option area	01/09/2019	31/08/2025	✓	✓	×	×	✓	✓	No, included in baseline
EEC 5 South	1807	Exploration & Option area	01/09/2019	31/08/2025	✓	✓	×	×	✓	✓	No, included in baseline

Name of Project	Area number	Status (at the time of assessment)	Licence start date	Licence end date	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Potential for overlap of aggregate extraction with Project construction?
							GNS	CES			
Greenwich Light East	473/1	Production Agreement Area	06/11/2021	05/11/2036	✓	✓	×	×	✓	✓	**Yes**[6]
Greenwich Light East	473/2	Production Agreement Area	06/11/2021	05/11/2036	✓	✓	×	×	✓	✓	**Yes**[6]
Greenwich Light East	473/1	Production Agreement Area	06/11/2021	05/11/2036	✓	✓	×	×	✓	✓	**Yes**[6]
Greenwich Light East	473/2	Production Agreement Area	06/11/2021	05/11/2036	✓	✓	×	×	✓	✓	**Yes**[6]
Humber 1	514/1	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Humber 2	514/2	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Humber 3	514/3	Production Agreement Area	01/01/2016	31/12/2030	✓	✓	✓	×	✓	✓	No, included in baseline
Humber 3	484	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline

[6] In total, these four projects are co-owned by CEMEX UK Marine and Hanson Aggregates Marine Ltd. and are two (not four) separate areas.

Name of Project	Area number	Status (at the time of assessment)	Licence start date	Licence end date	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Potential for overlap of aggregate extraction with Project construction?
							GNS	CES			
Humber 4	514/4	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Humber 4 and 7	506	Production Agreement Area	01/04/2017	31/03/2032	✓	✓	✓	×	✓	✓	No, included in baseline
Humber 5	483	Production Agreement Area	01/04/2018	31/03/2033	✓	✓	✓	×	✓	✓	No, included in baseline
Humber Estuary	106/1	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Humber Estuary	106/2	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Humber Estuary	106/3	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Humber Estuary	400	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Humber Overfalls	493	Production Agreement Area	01/01/2017	31/12/2031	✓	✓	✓	×	✓	✓	No, included in baseline
Inner Dowsing	1805	Exploration & Option area	01/09/2019	31/08/2025	✓	✓	✓	×	✓	✓	No, included in baseline

Name of Project	Area number	Status (at the time of assessment)	Licence start date	Licence end date	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Potential for overlap of aggregate extraction with Project construction?
							GNS	CES			
Inner Dowsing	481/1-2	Production Agreement Area	08/07/2015	07/07/2030	✓	✓	✓	×	✓	✓	No, included in baseline
Inner Dowsing	481/1-2	Production Agreement Area	03/01/2023	02/01/2038	✓	✓	✓	×	✓	✓	**Yes**
Inner Owers	396/1-2	Production Agreement Area	01/04/2017	07/07/2030	✓	✓	×	×	×	×	No, included in baseline
Inner Owers	435/1-2	Production Agreement Area	01/04/2017	07/07/2030	✓	✓	×	×	×	×	No, included in baseline
Inner Owers North	488	Production Agreement Area	05/01/2023	04/01/2038	✓	✓	×	×	×	×	**Yes**
Longsand	508	Production Agreement Area	01/04/2014	31/03/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Longsand	509/1-3	Production Agreement Area	22/06/2015	21/06/2030	✓	✓	✓	×	✓	✓	No, included in baseline
Longsand	510/1-2	Production Agreement Area	01/07/2015	30/06/2030	✓	✓	✓	×	✓	✓	No, included in baseline
Lowestoft	511, 512, 513/1&2	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline

Name of Project	Area number	Status (at the time of assessment)	Licence start date	Licence end date	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Potential for overlap of aggregate extraction with Project construction?
							GNS	CES			
Lowestoft Extension	1804	Exploration & Option area	01/09/2019	31/08/2025	✓	✓	✓	×	✓	✓	No, included in baseline
Median Deep	461	Production Agreement Area	06/09/2021	05/09/2036	✓	✓	×	×	✓	✓	No, included in baseline
Needles Isle of Wight	137	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	×	×	×	×	No, included in baseline
North Cross Sands	494	Production Agreement Area	01/01/2017	31/12/2031	✓	✓	✓	×	✓	✓	No, included in baseline
North Falls East	501	Production Agreement Area	01/07/2017	30/06/2032	✓	✓	✓	×	✓	✓	No, included in baseline
North Inner Gabbard	498	Production Agreement Area	30/01/2015	29/01/2030	✓	✓	✓	×	✓	✓	No, included in baseline
North Inner Gabbard	498	Production Agreement Area	30/01/2015	29/01/2030	✓	✓	✓	×	✓	✓	No, included in baseline
Off Great Yarmouth	254	Production Agreement Area	01/10/2018	30/09/2033	✓	✓	✓	×	✓	✓	No, included in baseline
Off Great Yarmouth	228	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline

Name of Project	Area number	Status (at the time of assessment)	Licence start date	Licence end date	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Potential for overlap of aggregate extraction with Project construction?
							GNS	CES			
Off Great Yarmouth Extension	240	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Off Saltfleet	197	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Off Selsey Bill	395/1-2	Production Agreement Area	06/03/2013	05/03/2028	✓	✓	×	×	×	×	No, included in baseline
Off Selsey Bill	395/1-2	Production Agreement Area	06/03/2013	05/03/2028	✓	✓	×	×	×	×	No, included in baseline
Outer Dowsing	515/1-2	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Outer OTE	528/2	Exploration & Option area	01/08/2017	31/07/2024	✓	✓	✓	×	✓	✓	No, included in baseline
Owers Extension	453	Production Agreement Area	01/04/2017	31/03/2032	✓	✓	×	×	×	×	No, included in baseline
Shipwash	507/1-6	Production Agreement Area	01/10/2016	30/09/2031	✓	✓	✓	×	✓	✓	No, included in baseline
South East Isle of Wight	340	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	×	×	×	×	No, included in baseline

Name of Project	Area number	Status (at the time of assessment)	Licence start date	Licence end date	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Potential for overlap of aggregate extraction with Project construction?
							GNS	CES			
South East Isle of Wight	351	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	×	×	×	×	No, included in baseline
South East Isle of Wight	340	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	×	×	×	×	No, included in baseline
South East Isle of Wight	351	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	×	×	×	×	No, included in baseline
South Hastings	460	Production Agreement Area	09/01/2013	08/01/2028	✓	✓	×	×	✓	✓	No, included in baseline
South Hastings	460	Production Agreement Area	09/01/2013	08/01/2028	✓	✓	×	×	✓	✓	No, included in baseline
South Hastings	460	Production Agreement Area	09/01/2013	08/01/2028	✓	✓	×	×	✓	✓	No, included in baseline
South of Needles Channel	500/3	Production Agreement Area	01/04/2017	31/03/2032	✓	✓	×	×	×	×	No, included in baseline
South West Isle of Wight	500/4	Production Agreement Area	01/04/2017	31/03/2032	✓	✓	×	×	×	×	No, included in baseline
South West Isle of Wight	127	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	×	×	×	×	No, included in baseline

Name of Project	Area number	Status (at the time of assessment)	Licence start date	Licence end date	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Potential for overlap of aggregate extraction with Project construction?
							GNS	CES			
South Wight	500/1-2	Production Agreement Area	01/04/2017	31/03/2032	✓	✓	×	×	×	×	No, included in baseline
Southwold East	430	Production Agreement Area	07/12/2012	16/11/2025	✓	✓	✓	×	✓	✓	No, included in baseline
Southwold East	430	Production Agreement Area	07/12/2012	16/11/2025	✓	✓	✓	×	✓	✓	No, included in baseline
St Catherine's	407	Production Agreement Area	24/03/2013	23/03/2028	✓	✓	×	×	×	×	No, included in baseline
St Catherine's	451	Production Agreement Area	01/04/2013	31/03/2028	✓	✓	×	×	×	×	No, included in baseline
Thames D	524	Production Agreement Area	01/01/2022	31/12/2036	✓	✓	✓	×	✓	✓	**Yes**
West Bassurelle	458 & 464	Production Agreement Area	18/09/2022	17/09/2037	✓	✓	×	×	✓	✓	**Yes**
West Bassurelle	458 & 464	Production Agreement Area	18/09/2022	17/09/2037	✓	✓	×	×	✓	✓	**Yes**
West Bassurelle Extension	1803	Exploration & Option area	01/09/2019	31/08/2025	✓	✓	×	×	✓	✓	No, included in baseline

Name of Project	Area number	Status (at the time of assessment)	Licence start date	Licence end date	HP - NS MU	CGNS	BND		GS MUs	HS MUs	Potential for overlap of aggregate extraction with Project construction?
							GNS	CES			
West Wight	522	Production Agreement Area	28/09/2021	27/09/2036	✓	✓	×	×	×	×	No, included in baseline
Yarmouth	401/2A	Production Agreement Area	01/01/2015	31/12/2029	✓	✓	✓	×	✓	✓	No, included in baseline
Scotland											
Scapa Deep Water Quay	-	Application for ML submitted	01/09/2024	30/09/2028	✓	✓	×	✓	×	×	No, project ended before.
Ardersier Nairn	-	Application for ML submitted	unknown	30/09/2025	✓	✓	×	✓	×	×	No, project ended before.

12.5.5.4 Licenced Disposal Sites

100. The licenced marine disposal sites that have been screened cover the whole of the UK, which includes data from England, Wales, Scotland, Northern Ireland as well as Jersey, Guernsey and Isle of Man (Cefas, 2022).

101. No European projects were screened in due to a lack of information and range of effect.

102. Of the licensed disposal sites identified in the NS MU, approximately half were closed or not for waste disposal. A small proportion are considered 'disused', indicating that there were no disposals made in more than 5 years and were therefore screened out.

103. Of the 'open' sites, many disposal sites were considered to be part of the existing baseline environment, as they were all operational prior to the start of the Project baseline surveys in October 2021 and have been screened out from further assessment.

104. Of the 'open' disposal sites, the majority had no information listed regarding dates when the sites became first operational. Due to a lack of information, consideration of pathways and assumption that many would have been operational prior to the 2021 surveys, these sites have not been considered further in the assessment. The remaining 'open' disposal sites were opened after 2022:

- Gridlink East Site TH156;
- Gridlink West Site TH157; and
- Milford-on-Sea Beach WI083.

105. The construction for Gridlink, an electricity interconnector between Dunkerque and Kent, is expected to end by early 2025. The GridLink Marine Environmental Report states that the impact on water quality was not assessed for marine mammals. The sediment samples identified no significances in siltation rate changes, including smothering, changes in suspended solids, transitional elements and organo-metal contamination. There were no adverse effects identified for fish and shellfish species (Intertek, 2020). Thus, the disposal sites are screened out from the CEA.

106. The project at Milford-on-Sea requires the deposition of 9,000 tonnes of material in the beach recharge area each year (for five years) for storm protection. As per information in the marine licence (MLA/2022/00064) the disposal site is the beach recharge area and will therefore not affect marine mammals. Thus, the disposal site is screened out from the CEA.

107. Therefore, no disposal sites were screened into the CEA.

108. The results of the screening of the 'open' licenced disposal sites are presented in **Table 12.5-5**.

Table 12.5-5 'Open' Licences Disposal Sites in the Relevant Spatial Area for Each Species and Potential To Overlap with the Project Construction (2029-2034) (HP = Harbour Porpoise, BND = Bottlenose Dolphin, GS = Grey Seal, HS = Harbour Seal, N/A= Not Applicable / Available; MU = Management Unit; GNS = Greater North Sea; NS= North Sea; CGNS = Celtic & GNS)

Name of Project	Reference	Opened	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operational prior to baseline surveys in 2021?
					GNS	CES			
SUTORS	CR019	<1982	✓	✓	×	✓	×	×	Yes
BURGHEAD	CR030	n/a	✓	✓	×	✓	×	×	Unknown
Lossiemouth Harbour	CR034	n/a	✓	✓	×	✓	×	×	Unknown
BUCKIE	CR040	n/a	✓	✓	×	✓	×	×	Unknown
MACDUFF	CR050	n/a	✓	✓	×	✓	×	×	Unknown
FRASERBURGH	CR060	n/a	✓	✓	×	✓	×	×	Unknown
NORTH BUCHANNESS	CR080	n/a	✓	✓	×	✓	×	×	Unknown
ABERDEEN	CR110	n/a	✓	✓	×	✓	×	×	Unknown
Nairn	CR121	n/a	✓	✓	×	✓	×	×	Unknown
River Brora	CR180	n/a	✓	✓	×	✓	×	×	Unknown
DOVER	DV010	<1982	✓	✓	×	×	✓	✓	Yes
DOVER - EMERGENCY SITE	DV011	n/a	✓	✓	×	×	✓	✓	Unknown
Lydd Ranges	DV031	2021	✓	✓	×	×	✓	✓	Yes
EASTBOURNE	DV040	<1982	✓	✓	×	×	✓	✓	Yes
Eastbourne Frontage	DV046	n/a	✓	✓	×	×	✓	✓	Unknown

Name of Project	Reference	Opened	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operational prior to baseline surveys in 2021?
					GNS	CES			
MONTROSE	FO010	<1982	✓	✓	×	✓	×	×	Yes
ARBROATH	FO020	n/a	✓	✓	×	✓	×	×	Unknown
NARROW DEEP B	FO038	n/a	✓	✓	×	✓	×	×	Unknown
OXCARS MAIN	FO041	n/a	✓	✓	×	✓	×	×	Unknown
OXCARS EXT A	FO042	n/a	✓	✓	×	✓	×	×	Unknown
OXCARS EXT B	FO043	n/a	✓	✓	×	✓	×	×	Unknown
BO'NESS	FO044	n/a	✓	✓	×	✓	×	×	Unknown
METHIL	FO048	n/a	✓	✓	×	✓	×	×	Unknown
Granton	FO054	n/a	✓	✓	×	✓	×	×	Unknown
Water of Girvan	FO056	n/a	✓	✓	×	✓	×	×	Unknown
Maidens	FO057	n/a	✓	✓	×	✓	×	×	Unknown
St Monans	FO058	n/a	✓	✓	×	✓	×	×	Unknown
EYEMOUTH	FO080	n/a	✓	✓	✓	×	×	×	Unknown
BRIDLINGTON A	HU015	<1982	✓	✓	✓	×	✓	✓	Yes
HUMBER 1A	HU080	<1982	✓	✓	✓	×	✓	✓	Yes
Sunk Dredge Channel Window C	HU083	2012	✓	✓	✓	×	✓	✓	Yes
Race Bank OWF	HU126	n/a	✓	✓	✓	×	✓	✓	Unknown
Boston Deep	HU128	n/a	✓	✓	✓	×	✓	✓	Unknown

Name of Project	Reference	Opened	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operational prior to baseline surveys in 2021?
					GNS	CES			
WEST STONES	HU143	n/a	✓	✓	✓	×	✓	✓	Unknown
GREAT YARMOUTH	HU150	<1982	✓	✓	✓	×	✓	✓	Yes
Wells outer harbour site A	HU152	n/a	✓	✓	✓	×	✓	✓	Unknown
Wells outer harbour site C	HU154	n/a	✓	✓	✓	×	✓	✓	Unknown
Well Beneficial use site2	HU156	n/a	✓	✓	✓	×	✓	✓	Unknown
Wells Outer Harbour B1	HU157	n/a	✓	✓	✓	×	✓	✓	Unknown
BOSTON 7	HU170	n/a	✓	✓	✓	×	✓	✓	Unknown
Cross Sands 2	HU176	n/a	✓	✓	✓	×	✓	✓	Unknown
Hornsea Disposal Area 1	HU205	2019	✓	✓	✓	×	✓	✓	Yes
EAOW3	HU212	n/a	✓	✓	✓	×	✓	✓	Unknown
Norfolk Vanguard ECC 1	HU213	n/a	✓	✓	✓	×	✓	✓	Unknown
Norfolk Vanguard ECC 2	HU214	n/a	✓	✓	✓	×	✓	✓	Unknown
Norfolk Vanguard East	HU215	n/a	✓	✓	✓	×	✓	✓	Unknown
Norfolk Vanguard West	HU216	n/a	✓	✓	✓	×	✓	✓	Unknown

Name of Project	Reference	Opened	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operational prior to baseline surveys in 2021?
					GNS	CES			
Norfolk Boreas Array	HU217	n/a	✓	✓	✓	×	✓	✓	Unknown
Iceni Disposal 1	HU218	2020	✓	✓	✓	×	✓	✓	Yes
Iceni Disposal 2	HU219	2020	✓	✓	✓	×	✓	✓	Yes
Iceni Disposal 3	HU220	n/a	✓	✓	✓	×	✓	✓	Unknown
Iceni Disposal 4	HU221	n/a	✓	✓	✓	×	✓	✓	Unknown
Iceni Disposal 5	HU222	n/a	✓	✓	✓	×	✓	✓	Unknown
NeuConnect North Site	HU224	n/a	✓	✓	✓	×	✓	✓	Unknown
LOWESTOFT CIRCULAR NORTH	TH005	n/a	✓	✓	✓	×	✓	✓	Unknown
East Anglia One	TH023	2018	✓	✓	✓	×	✓	✓	Yes
Harwich Haven	TH027	2014	✓	✓	✓	×	✓	✓	Yes
INNER GABBARD	TH052	n/a	✓	✓	✓	×	✓	✓	Unknown
INNER GABBARD EAST	TH056	n/a	✓	✓	✓	×	✓	✓	Unknown
NeuConnect Disposal Site 1	TH059	n/a	✓	✓	✓	×	✓	✓	Unknown
NeuConnect Disposal Site 2	TH067	n/a	✓	✓	✓	×	✓	✓	Unknown

Name of Project	Reference	Opened	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operational prior to baseline surveys in 2021?
					GNS	CES			
NeuConnect South Site	TH068	n/a	✓	✓	✓	×	✓	✓	Unknown
NeuConnect Lower Mid Site	TH069	n/a	✓	✓	✓	×	✓	✓	Unknown
SOUTH FALLS	TH070	<1982	✓	✓	✓	×	✓	✓	Yes
WHITSTABLE C	TH073	n/a	✓	✓	✓	×	✓	✓	Unknown
NeuConnect Upper Mid Site	TH074	n/a	✓	✓	✓	×	✓	✓	Unknown
Mercator Disposal	TH081	n/a	✓	✓	×	×	✓	✓	Unknown
PEGWELL BAY	TH140	<1982	✓	✓	×	×	✓	✓	Yes
Nemo Disposal Site A	TH150	n/a	✓	✓	×	×	✓	✓	Unknown
Nemo Disposal Site B	TH151	n/a	✓	✓	×	×	✓	✓	Unknown
TEOW Disposal site 1	TH153	n/a	✓	✓	×	×	✓	✓	Unknown
TEOW Disposal site 2	TH154	n/a	✓	✓	×	×	✓	✓	Unknown
TEOW Disposal site 3	TH155	n/a	✓	✓	×	×	✓	✓	Unknown

Name of Project	Reference	Opened	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operational prior to baseline surveys in 2021?
					GNS	CES			
Gridlink East Site	TH156	2022	✓	✓	×	×	✓	✓	No – screened out due to minimal effects
Gridlink West Site	TH157	2022	✓	✓	×	×	✓	✓	No – screened out due to minimal effects
EA One Route EC-1	TH220	2018	✓	✓	✓	×	✓	✓	Yes
EA One Route EC-2	TH221	2018	✓	✓	✓	×	✓	✓	Yes
EA One Route EC-3	TH222	2018	✓	✓	✓	×	✓	✓	Yes
EA One Route EC-4	TH223	2018	✓	✓	✓	×	✓	✓	Yes
EA One Route EC-5	TH224	2018	✓	✓	✓	×	✓	✓	Yes
Horsey	TH230	2020	✓	✓	✓	×	✓	✓	Yes
BLYTH A + B	TY042	<1982	✓	✓	✓	×	✓	✓	Yes
Blyth OWF Demo	TY043	2014	✓	✓	✓	×	✓	✓	Yes
NORTH TYNE	TY070	<1982	✓	✓	✓	×	✓	✓	Yes
SOUTER POINT (OUTER)	TY081	<1982	✓	✓	✓	×	✓	✓	Yes
SUNDERLAND	TY090	<1982	✓	✓	✓	×	✓	✓	Yes
NOSES POINT	TY130	<1982	✓	✓	✓	×	✓	✓	Yes

Name of Project	Reference	Opened	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operational prior to baseline surveys in 2021?
					GNS	CES			
TEES BAY C	TY150	<1982	✓	✓	✓	×	✓	✓	Yes
TEES BAY A	TY160	<1982	✓	✓	✓	×	✓	✓	Yes
WHITBY	TY180	<1982	✓	✓	✓	×	✓	✓	Yes
CLEVELAND POTASH OUTFALL	TY181	n/a	✓	✓	✓	×	✓	✓	Unknown
SCARBOROUGH ROCK	TY190	<1982	✓	✓	✓	×	✓	✓	Yes
NEWHAVEN	WI010		✓	✓	×	×	×	×	Yes
BRIGHTON / ROTTINGDEAN	WI020	<1982	✓	✓	×	×	×	×	Yes
SHOREHAM	WI031	n/a	✓	✓	×	×	×	×	Unknown
TRELOAR HOLE	WI046	n/a	✓	✓	×	×	×	×	Unknown
Aquind cable Site A	WI048	n/a	✓	✓	×	×	×	×	Unknown
Aquind cable Site B	WI049	n/a	✓	✓	×	×	×	×	Unknown
NAB TOWER	WI060	<1982	✓	✓	×	×	×	×	Yes
Langstone Harbour	WI063	2021	✓	✓	×	×	×	×	Yes
Newtown Harbour	WI069	2021	✓	✓	×	×	×	×	Yes
Hill Head	WI072	2016	✓	✓	×	×	×	×	Yes
HURST FORT	WI080	<1982	✓	✓	×	×	×	×	Yes

Name of Project	Reference	Opened	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operational prior to baseline surveys in 2021?
					GNS	CES			
Milford-on-Sea Beach	WI083	2022	✓	✓	×	×	×	×	No – screened out due to location
Boiler Marsh	WI086		✓	✓	×	×	×	×	Unknown
Ventnor Harbour	WI087	2016	✓	✓	×	×	×	×	Yes
NEEDLES	WI090	<1982	✓	✓	×	×	×	×	Yes
SWANAGE BAY	WI110	<1982	✓	✓	×	×	×	×	Yes
Rampion OWF	WI117	2019	✓	✓	×	×	×	×	Yes

12.5.5.5 Oil and Gas

109. Existing oil and gas projects were considered to be part of the baseline, noting that O&M activities would be of minimal magnitude, spatially confined and temporary. oil and gas construction and decommissioning projects could have the potential for cumulative impacts during the construction of the Project. UK plans or projects considered during the CEA screening were either operational or those with either construction or decommissioning currently underway, consented, or with an application submitted.

110. No European projects were assessed due to a lack of information on project locations, phases, and programme.

111. Projects were initially considered for potential cumulative impacts if those projects could temporally overlap with the construction of the Project.

112. As outlined in the BEIS (2020) RoC HRA for the SNS SAC, the use of cutting equipment was predicted to be required primarily during decommissioning activities. There was limited information on the level of noise arising from cutting equipment. However, one published study measured the level of noise from a diamond wire cutter at an offshore gas platform (Pangerc *et al*. 2016). The results indicated that increases in noise of between 4dB and 15dB at frequencies predominantly above 5kHz could be attributed to the cutting equipment. There was no increase in sound above that from the associated vessels detected at lower frequencies.

113. A most recent paper by Fernandez- Betelu *et al*. (2024) investigated harbour porpoise responses, using echolocation detectors (C-PODs), during the decommissioning of the Jacky Wellhead oil and gas platform and the Beatrice Bravo oil and gas platform. The mean daily Sound Pressure Level increased by 30-40dB (in the frequency range from 100Hz to 48kHz) during decommissioning compared to the five days before. During decommissioning activities, small levels of harbour porpoise was displaced less than 2km but returned immediately after vessel departure.

114. Based on information available at the time of assessment, underwater noise during decommissioning of oil and gas infrastructure would be less than levels for PTS to occur (e.g. a 5-day average of 108.3dB re 1 µPa before to 141.0dB re 1 µPa during decommissioning activities; Fernandez- Betelu *et al.* 2024), and any disturbance to marine mammals would be localised and not be significantly greater than that arising from vessels. Therefore, potential cumulative impacts from oil and gas decommissioning activities, such as cutting equipment have been screened out from further consideration in the CEA.

115. The potential impacts of vessels associated with the decommissioning of oil and gas infrastructure are unlikely to be significantly greater than vessel activity during the operational phase. Therefore, potential cumulative impacts from vessels during decommissioning of oil and gas installations have been screened out from further consideration in the CEA.

116. Of the oil and gas projects considered, the majority are decommissioning schemes that were active prior to the October 2021 baseline surveys. A small number do not have construction dates that overlap with the DBD construction window. These projects were therefore screened out.

117. Of the remaining decommissioning schemes, only a small number have expected activities that potentially fall within the construction time window of the Project. However, as noted above, it is not expected that there would be any cumulative effect pathways from decommissioning projects, and these have therefore not been considered further.

118. The results of the oil and gas project screening are presented in **Table 12.5-6**.

Table 12.5-6 CEA Screening For Oil And Gas Schemes (Both Decommissioning and Production Schemes Are Included) Within Relevant Spatial Areas and With The Potential to Overlap With the Projects Construction (2029-2034) (HP = Harbour Porpoise, BND = Bottlenose Dolphin, GS = Grey Seal, HS = Harbour Seal, N/A= Not Applicable/Available; MU = Management Unit; GNS = Greater North Sea; NS= North Sea; CGNS = Celtic & GNS)

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Tier 2										
Alma & Galia	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2021-2027	No, included in baseline
Amethyst A1D, A2D, B1D & C1D Topsides	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2021-2026	No, included in baseline
Anglia Field	Decommissioning	Underway	✓	✓	✓	×	×	×	2020-2022	No, included in baseline
Ann and Alison	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2020 - 2023	No, included in baseline
Audrey	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2019 - 2023	No, included in baseline
BALMORAL	Decommissioning	Underway	✓	✓	✓	×	×	×	2021-2027	No, included in baseline

[7] Construction window from 2029 to 2034

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Brae Bravo Topsides, Flare Bridge, Flare Tower and Flare Jacket and Substructure	Decommissioning	Underway / completed	✓	✓	✓	×	×	×	2019-2020	No, included in baseline
BRENDA	Decommissioning	Underway	✓	✓	✓	×	×	×	2021-2027	No, included in baseline
BRENT ALPHA JACKET	Decommissioning	Underway	✓	✓	✓	×	×	×	2018-2025	No, included in baseline
Brent Alpha, Bravo and Charlie Topsides	Decommissioning	Underway	✓	✓	✓	×	×	×	2018 - 2024	No, included in baseline
Brent Field	Decommissioning	Underway	✓	✓	✓	×	×	×	2020-2024	No, included in baseline
Brynhild	Decommissioning	Underway / completed	✓	✓	✓	×	×	×	2019-2021	No, included in baseline
BUCHAN & HANNAY	Decommissioning	Underway	✓	✓	✓	×	×	×	2019-2025	No, included in baseline
Caister	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2019-2022	No, included in baseline

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Cavendish	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2019-2022	No, included in baseline
Conrie, Don SW, W Don and Ythan Decommissioning Programmes	Decommissioning	Underway	✓	✓	✓	×	×	×	2021-2029	No, included in baseline
CORMORANT ALPHA Derrick Structure Removal & MDR Installation	Decommissioning	Underway / completed	✓	✓	✓	×	×	×	2020-2021	No, included in baseline
Curlew B&D and Curlew C	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2019-2023	No, included in baseline
Devenick	Decommissioning	Underway	✓	✓	✓	×	×	×	2024 - 2030	No, included in baseline
Dunlin Alpha	Decommissioning	Underway	✓	✓	✓	×	×	×	2016-2026	No, included in baseline
Eider	Decommissioning	Underway	✓	✓	✓	×	×	×	2019-2028	No, included in baseline

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
FOINAVEN FPSO OFFSTATION DECOMMISSIONING PROGRAMMES	Decommissioning	Underway	✓	✓	×	×	×	×	2021-2022	No, included in baseline
Fulmar & Auk North	Decommissioning	Underway / completed	✓	✓	✓	×	✓	✓	2017-2021	No, included in baseline
GLAMIS	Decommissioning	Underway	✓	✓	✓	×	×	×	2021-2027	No, included in baseline
Goldeneye	Decommissioning	Underway	✓	✓	✓	×	×	×	2018-2024	No, included in baseline
GUINEVERE	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2018-2022	No, included in baseline
Heather Topsides Decommissioning Programme	Decommissioning	Underway	✓	✓	✓	×	×	×	2021-2026	No, included in baseline
HUNTINGTON	Decommissioning	Underway	✓	✓	✓	×	×	×	2021-2028	No, included in baseline
Huntington	Decommissioning	Underway / completed	✓	✓	✓	×	×	×	2020	No, included in baseline

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Juliet	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2019-2021	No, included in baseline
Ketch	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2018 - 2022	No, included in baseline
Kingfisher Decommissioning Programme	Decommissioning	Underway	✓	✓	✓	×	×	×	2019-2024	No, included in baseline
LOGGS PR, LOGGS PC, LOGGS PP, LOGGS PA, North Valiant PD, & Associated Pipelines – LDP5	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2020-2024	No, included in baseline
LOGGS Satellites Jupiter Area	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2020-2023	No, included in baseline
LOGGS Satellites Jupiter Area: LDP3b	Decommissioning	Underway / completed	✓	✓	✓	×	✓	✓	2020-2021	No, included in baseline
LOGGS Satellites Vulcan UR, Viscount VO, Vampire OD - LDP1	Decommissioning	Underway / completed	✓	✓	✓	×	✓	✓	TBC by end of 2021.	No, included in baseline

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
MacCulloch	Decommissioning	Underway	✓	✓	✓	×	×	×	2019-2025	No, included in baseline
Minke	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2019-2022	No, included in baseline
NEVIS N11 WELLHEAD	Decommissioning	Underway / completed	✓	✓	✓	×	×	×	2019-2020	No, included in baseline
NICOL	Decommissioning	Underway	✓	✓	✓	×	×	×	2021-2027	No, included in baseline
NINIAN NORTHERN PLATFORM	Decommissioning	Underway	✓	✓	✓	×	×	×	2020-2025	No, included in baseline
NORTH CORMORANT	Decommissioning	Underway	✓	✓	✓	×	×	×	2020-2028	No, included in baseline
Northern Producer FPF Float-off and Disconnection of Risers and pipelines	Decommissioning	Underway	✓	✓	✓	×	×	×	2021-2022	No, included in baseline
Pickerill Alpha (A) and Pickerill Bravo (B)	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2019-2022	No, included in baseline

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Pickerill Alpha (A) and Pickerill Bravo (B)	Decommissioning	Underway / completed	✓	✓	✓	×	✓	✓	2018-2019	No, included in baseline
PL301 Heimdal to Brae Pipeline Decommissioning Programme	Decommissioning	Underway	✓	✓	✓	Y	×	×	2021-2026	No, included in baseline
Rev Decommissioning Programme	Decommissioning	Underway	✓	✓	✓	×	×	×	Q4 2019 - Q4 2022	No, included in baseline
Rockrose Energy	Decommissioning	Underway	✓	✓	✓	×	×	×	2019-2027	No, included in baseline
Rockrose Energy	Decommissioning	Underway	✓	✓	✓	×	×	×	2020-2021	No, included in baseline
Saturn (Annabel)	Decommissioning	Underway / completed	✓	✓	✓	×	✓	✓	Q2 2018 - Q2 2021	No, included in baseline
SCHOONER	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2018-2022	No, included in baseline
STIRLING	Decommissioning	Underway	✓	✓	✓	×	×	×	2021-2027	No, included in baseline

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
TERN TOPSIDE	Decommissioning	Underway	✓	✓	✓	×	×	×	2020-2028	No, included in baseline
Thistle Alpha Platform	Decommissioning	Underway	✓	✓	✓	×	×	×	2019-2022	No, included in baseline
Topaz	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2021-2024	No, included in baseline
TYNE	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2018-2022	No, included in baseline
Viking	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2016-2024	No, included in baseline
Viking Satellites CD, DD, ED, GD, HD Pipelines	Decommissioning	Underway / completed	✓	✓	✓	×	✓	✓	Programme states TBC by end of 2019 (but no close out report).	No, included in baseline
Viking satellites KD, LD, AR	Decommissioning	Underway / completed	✓	✓	✓	×	✓	✓	2016-2021	No, included in baseline
Windermere	Decommissioning	Underway	✓	✓	✓	×	✓	✓	2019-2023	No, included in baseline

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Tier 3										
Abigail Field Development	Production licence	Appl. submitted	✓	✓	✓	×	✓	✓	Application submitted July 2021. Construction 2022 & 2024.	No
Affleck Re-development	Production licence	Appl. submitted	✓	✓	✓	×	✓	✓	Construction Q2 2023 - Q2 2024	No
Alwyn East Development	Production licence	Appl. submitted	✓	✓	✓	×	×	×	Construction spring 2022, completion by September 2022.	No
Banff and Kyle Decommissioning Programmes	Decommissioning	Approved	✓	✓	✓	×	×	×	2022-2026	No

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Beatrice	Decommissioning	Approved	✓	✓	✓	✓	×	×	2022-2030	Yes, however the noise and disturbance levels were not considered to have a cumulative effect and were therefore screened out.
Caledonia	Decommissioning	Approved	✓	✓	✓	×	×	×	2022-2028	No
Captain EOR Stage 2 Phase II Development	Production licence	X	✓	✓	✓	×	×	×	Construction Q1 2023 - Q2 2024	No
CDP3 Decommissioning Programmes for Murdoch Installations and Trunk Pipelines, CDP3	Decommissioning	Consented	✓	✓	✓	×	✓	✓	2021 - 2027	No, included in baseline

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Chestnut Phase 2	Decommissioning	X	✓	✓	✓	×	×	×	2022 - 2029	Yes, however the noise and disturbance levels were not considered to have a cumulative effect and were therefore screened out.
Cormorant Alpha Topsides	Decommissioning	Approved	✓	✓	✓	×	×	×	2022-2028	No
Decommissioning Programmes Caister-Murdoch System III Installations for and Pipelines, CDP2	Decommissioning	Consented	✓	✓	✓	×	✓	✓	Construction Q1 2021 - Q4 2027	No
Ensign installation DP	Decommissioning	Approved	✓	✓	✓	×	✓	✓	2022-2026	No

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Fulmar and Auk North Topsides, Sub-sea Facilities and Pipelines Decommissioning Programme	Decommissioning	Approved	✓	✓	✓	×	✓	✓	2026-2033	Yes, however the noise and disturbance levels were not considered to have a cumulative effect and were therefore screened out.
Gaupe Decommissioning Programme	Decommissioning	Approved	✓	✓	✓	×	×	×	2022-2031	
Heather Upper Jacket	Decommissioning	X	✓	✓	×	✓	×	×	2025 - 2032	
HEWETT PLATFORMS	Decommissioning	Approved	✓	✓	✓	×	✓	✓	2022-2029	
Hummingbird FPSO Sailaway and Chestnut riser disconnection	Decommissioning	Approved	✓	✓	✓	×	×	×	2022-2028	No
Hunter & Rita Decommissioning Programme	Decommissioning	Approved	✓	✓	✓	×	✓	✓	2021-2025	No, included in baseline

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Indefatigable 18A Topsides Decommissioning Programme	Decommissioning	Approved	✓	✓	✓	×	✓	✓	2022-2029	Yes, however the noise and disturbance levels were not considered to have a cumulative effect and were therefore screened out.
Jackdaw Field Development	Production licence	Approved	✓	✓	✓	×	×	×	Construction 2023-2024, operational by 2024	No
Jacky	Decommissioning	Approved	✓	✓	✓	✓	×	×	2022 - 2023	No
Leman 27H and 27J Topsides	Decommissioning		✓	✓	✓	×	✓	✓	2023 - 2024	No
LOGGS Satellites - Mimas MN, Saturn ND and Tethys TN, and Associated Infield Pipelines – LDP2	Decommissioning	Approved	✓	✓	✓	×	✓	✓	2022-2028	No

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
LOGGS Satellites V-Fields Area - Vanguard QD, North Valiant SP, South Valiant TD and Vulcan RD, and Associated Infield Pipelines - LDP4	Decommissioning	Approved	✓	✓	✓	×	✓	✓	2022-2027	No
Murlach Field Development (redevelopment of Skua, part of the Marnock-Skua field)	Production licence	Approved	✓	✓	✓	×	✓	✓	well drill 2024; production 2025	No
Rhum Production Increase	Production increase	Approved	✓	✓	✓	Y	×	×	Re-opening a production well only - no additional infrastructure to be built. Planned to commence in July 2021, but not yet consented.	No

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Rosebank Field Development	Production licence	Approved	✓	✓	✓	×	✓	✓	Construction 2024, 2025 and 2026	No
Sean	Decommissioning	Unknown	✓	✓	✓	×	✓	✓	2023-2028	No
Southwark Pipeline Installation Project	Pipeline installation	Application submitted	✓	✓	✓	×	✓	✓	Application submitted April 2021; Construction originally planned for 2021, but not yet consented	No
Talbot Field Development	Production licence	Application submitted	✓	✓	✓	Y	✓	✓	Construction Q4 2022 - Q3 2024	No
Teal West Development	Production licence	Approved	✓	✓	✓	×	×	×	Construction Q3 2023 - Q1/Q2 2027	No
Thistle Topsides	Decommissioning	Approved	✓	✓	✓	×	×	×	2022-2027	No

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Tolmount East Development	Production licence	Approved	✓	✓	✓	×	✓	✓	Application submitted April 2021, and consented August 2021. operational by 2023	No
Victoria	Decommissioning	Approved	✓	✓	✓	×	✓	✓	2022-2025	No
Victory Field Development	Production licence	Approved	✓	✓	✓	×	×	×	Construction May - Oct 2024	No
Wenlock	Decommissioning	Approved	✓	✓	✓	×	✓	✓	2023-2025	No
Tier 4										
Atlantic and Cromarty	Decommissioning	Application submitted	✓	✓	✓	×	×	×	2017-2021	No, included in baseline
Avalon	Production licence	Application submitted	✓	✓	✓	×	×	×	Construction Q1 2024, completion by Q3 2025.	No

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Brae Alpha, Brae Bravo, Central Brae, West Brae and Sedgwick	Decommissioning	Application submitted	✓	✓	✓	×	×	×	2019-2029	Yes, however the noise and disturbance levels were not considered to have a cumulative effect and were therefore screened out.
Brent	Decommissioning	Application submitted	✓	✓	✓	×	×	×	2022-2026	No
Buchan redevelopment	Production licence	Application submitted	✓	✓	✓	×	×	×	Drilling Q2 2025 - Q4 2026; Commissioning Q2-Q4 2026;Operations Q4 2026	No

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Cambo Phase 1 Field Development	Production licence	Application submitted	✓	✓	✓	×	×	×	Application submitted June 2021.Construction planned for 2021-2025 (but not yet consented), operational by 2025	No
Causeway and Fionn	Decommissioning	Application submitted	✓	✓	✓	×	×	×	2022-2027	No
DUART DECOMMISSIONING PROGRAMMES	Decommissioning	Application submitted	✓	✓	✓	×	×	×	Decomm 2029-2034	No, insufficient information
Dunlin Alpha Field	Decommissioning	Application submitted	✓	✓	✓	×	×	×	2021-2026	No, included in baseline
Hewett Area Sub-sea Installations	Decommissioning	Application submitted	✓	✓	✓	×	✓	✓	2022-2028	No

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
JOHNSTON Decommissioning Programmes	Decommissioning	Application submitted	✓	✓	✓	×	✓	✓	Decom 2027-2029	Yes, however the noise and disturbance levels were not considered to have a cumulative effect and were therefore screened out.
Lancaster Field FPSO Decommissioning Programme	Decommissioning	Application submitted	✓	✓	✓	×	×	×	Decom 2024	No
Pegasus West Development	Production licence	Application submitted	✓	✓	✓	×	✓	✓	Application submitted October 2021.; Construction Q2/3 2023, operational by Q1-3 2024	No

Name of Project	Type of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Expected date activity	Potential for overlap of oil and gas activities with Project construction[7]?
					GNS	CES				
Saltire A Topsides and Saltire Area Sub-sea Infrastructure Decommissioning Programmes	Decommissioning	Application submitted	✓	✓	✓	×	×	×	Decom 2027 - 2031	No, insufficient information
Scoter & Merganser Fields Decommissioning Programmes	Decommissioning	Application submitted	✓	✓	✓	×	×	×	Decom 2024 - 2026	No
Tartan Sub-sea – Tartan North Terrace (TNT) & Tartan Satellite (TS) DECOMMISSIONING PROGRAMMES	Decommissioning	Application submitted	✓	✓	✓	×	×	×	Decomm 2029 - 2034	No, insufficient information
TARTAN TOPSIDES DECOMMISSIONING PROGRAMME	Decommissioning	Application submitted	✓	✓	✓	×	×	×	Decomm 2029 - 2032	No, insufficient information

12.5.5.6 Sub-sea Cables and Pipelines

119. Sub-sea cables that were operational, had construction underway, were consented, or had a planning application submitted were part of the initial screening process.

120. Existing projects prior to the baseline surveys (October 2021) have been considered as part of the baseline. Only those sub-sea cables and pipelines with potential to contribute to cumulative impacts with the Project during their construction phase have been considered in the CEA.

121. Of the sub-sea cable projects initially identified in the screening, many had project timelines available in the public domain and were therefore not considered further. For all other projects where dates were unknown, the project status was derived from the 4C Offshore website, and it was concluded that these projects that were 'commissioned', 'pre-construction', or 'under construction' would have finalised all construction activities prior to the commencement of construction at DBD. Some projects had unknown timelines as the project was halted or an application is to be expected prior to Project construction in 2029. SeaLink has the potential for an overlap in construction programmes with the Project and is therefore screened in for further assessment. Two projects (Eastern Green Link 3 and 4) have the potential to overlap with Project construction, as construction is anticipated to commence in 2028. However, both projects are still in early development (Tier 6) and current timelines may change over time. As such, the projects are **screened out** at the current stage due to a lack of information.

122. Therefore, all sub-sea cables have been screened out from the CEA with the exception of SeaLink. The results of the CEA screening for sub-sea cables are in **Table 12.5-7**.

123. This section also includes the screening results of all pipelines that are classed as 'active' in the CEA Screening area. The methodology for this involved retrieving data from the NSTA (UK Continental Shelf (UKCS) Lease Agreements) website (provided via an ArcGIS (Graphic Information System) viewer). The data for all 'NSTA Offshore Infrastructure Pipelines Linear' was filtered for pipeline as type of infrastructure that had the status of 'active'. The filtered list returned 1,044 entries of which only 353 had known start dates, ranging between the years 1977-2023.

124. Due to the large number of entries in the search results and the absence of known construction start dates for the pipelines, the results were not included in this report and are therefore also **screened out** from the CEA.

Table 12.5-7 CEA Screening For Sub-sea Cables And Pipelines) Within Relevant Spatial Areas and With The Potential to Overlap With The Construction (2029-2034) (HP = Harbour Porpoise, BND = Bottlenose Dolphin, GS = Grey Seal, HS = Harbour Seal, N/A= Not Applicable/Available; MU = Management Unit; GNS = Greater North Sea; NS= North Sea; CGNS = Celtic & GNS, UK = United Kingdom; NL = Netherlands , BE= Belgium; DK = Denmark; FR= France; DE =Germany, NO=Norway; IS = Iceland; US= United States of America)

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Cables										
Atlantic Crossing-1	Brookhaven, US	Whitesands Bay, UK; Sylt, DE; Beverwijk, NL	✓	✓	✓	×	✓	✓	1998	No, included in baseline
BT Highlands and Islands	Orkney, UK	Orkney, UK	✓	✓	✓	×	×	×	2014	No, included in baseline
Caithness Moray	Noss Head, UK	Tannachy, UK	✓	✓	✓	✓	×	×	Commissioned	No, construction completed prior to Project construction

[8] Construction window from 2029 to 2034

[9] Where operation dates were unknown, project status was retrieved from https://map.4coffshore.com/offshorewind/ (accessed 27th June 2024) and assumed as having no overlapping effects with Project construction.

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
CANTAT-3	Blaabjerg, DK	South Arne, DK	✓	✓	✓	×	×	×	1994	No, included in baseline
Circe North	Lowestoft, UK	Zandvoort, NL	✓	✓	✓	×	✓	✓	1999	No, included in baseline
Circe South	Pevensey Bay, UK	Cayeux-sur-Mer, FR	✓	✓	✓	×	✓	✓	1999	No, included in baseline
COBRAcable	Eemshaven, NL	Endrup, DK	✓	✓	✓	×	×	×	2019	No, included in baseline
Concerto	Sizewell, UK	Zandvoort, NL; Zeebrugge, BE	✓	✓	✓	×	✓	✓	1999	No, included in baseline
Continental Link Multi-Purpose Interconnector	Holderness Coast, UK	NO	✓	✓	✓	×	✓	✓	Expected application submission in 2029	Unknown
Cromarty Firth	UK	UK	✓	✓	✓	✓	✓	✓	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
CrossChannel Fibre	Brighton, UK	Veules-les-Roses, FR	✓	✓	✓	×	×	×	2021	No, included in baseline
Dagebull - Langeness	Dagebull, DE	Langeness, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Dagebull - Oland	Dagebull, DE	Oland, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
DANICE	Blaabjerg, DK	Landeyjar, IS	✓	✓	✓	×	×	×	2009	No, included in baseline
Eastern Green Link 1	East Lothian, UK	County Durham, UK	✓	✓		✓	×	×	2027	No, construction completed prior to Project construction
Eastern Green Link 2	Peterhead, UK	Drax, UK	✓	✓	✓	✓	✓	✓	2029	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Eastern Green Link 3	Peterhead, UK	Aberdeenshire, UK	✓	✓	×	✓	×	×	After 2033	Yes, but project is a Tier 6 and timelines may change.
Eastern Green Link 4	Fife, UK	Norfolk, UK	✓	✓	✓	✓	✓	✓	After 2033	Yes, but project is a Tier 6 and timelines may change.
Eday - Sanday	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Eday - Westray	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
ElecLink	Folkestone, UK	Les Mandarins, FR	✓	✓	✓	×	✓	✓	2022	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Emmelsull - Horsbull - Föhr	Emmelsull-Horsebull, DE	Föhr, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Energinet Laeso-Varberg	DK	Sweden	✓	✓	×	×	×	×	2011	No, included in baseline
Eviny Digital	Bergen, NO	Kårstø, NO	✓	✓	×	×	×	×	2020	No, included in baseline
FARICE-1	Seydisfjordur, IS	Funningsfjordur, Faroe Islands	✓	✓	×	✓	×	×	2004	No, included in baseline
Farland North	Aldeburgh, UK	Domburg, NL	✓	✓	✓	✓	×	×	1998	No, included in baseline
Föhr - Amrum	Föhr, DE	Amrum, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
GlobalConnect 2 (GC2)	DK	Sweden	✓	✓	×	×	×	×	2001	No, included in baseline

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Gridlink	Kingsnorth, UK	Dunkerque, FR	✓	✓	✓	×	✓	✓	Halted since 2022	Unknown
Harlingen-Vlieland	NL	NL	✓	✓	✓	×	✓	✓	Commissioned	No, construction completed prior to Project construction
Havfrue/AEC-2	Wall Township, US	Blaabjerg, DK; Lecanvey, IS	✓	✓	✓	×	✓	✓	2020	No, included in baseline
Havhingsten/North Sea Connect (NSC)	Newcastle, UK	Houstrup, DK	✓	✓	✓	×	✓	✓	2022	No, construction completed prior to Project construction
Helgoland	Helgoland, DE	Sankt Peter-Ording, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Hoy - Flotta	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Hoy - Orkney Mainland (centre)	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Hoy - Orkney Mainland (north)	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Hoy - Orkney Mainland (south)	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Hronn	Fano, DK	TotalEnergies Halfdan, DK	✓	✓	✓	×	×	×	2022	No, construction completed prior to Project construction
Iceni	Winterton-on-Sea, UK	Callantsoog, NL	✓	✓	✓	×	✓	✓	2024	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Interconnexion France-Angleterre 2	Merville, FR	Monks Hill Beach, UK	✓	✓	✓	×	✓	✓	2021	No, included in baseline
IOEMA	Dumpton Gap, UK	DK, NL, NO, DE	✓	✓	✓	×	✓	✓	2027	No, construction completed prior to Project construction
Kattegat 2	DK	Sweden	✓	✓	✓	×	×	×	2001	No, included in baseline
Leif Erikson	Goose Bay, NL, Canada	Kristiansand, NO	✓	✓	✓	×	×	×	2026	No, construction completed prior to Project construction
Mainland Orkney-Hoy (Centre) Replacement Cable	UK	UK	✓	✓	✓	×	×	×	Pre-construction	No, construction assumed to be completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Mainland Orkney-Hoy (North) Replacement Cable	UK	UK	✓	✓	✓	×	×	×	Pre-construction	No, construction assumed to be completed prior to Project construction
Mercator	Broadstairs, UK	Ostend, BE	✓	✓	✓	×	✓	✓	2023	No, construction completed prior to Project construction
Mossbank - Yell North	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Mossbank - Yell South	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
N0r5ke Viking	Bergen, NO	Various, NO	✓	✓	✓	×	×	×	2023	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
N0r5ke Viking 2	Bergen, NO	Various, NO	✓	✓	✓	×	×	×	2022	No, construction completed prior to Project construction
Nautilus Interconnector	Suffolk, UK	BE	✓	✓	✓	×	✓	✓	Application expected to be submitted 2024	Unknown
NeuConnect	UK	DE	✓	✓	✓	×	✓	✓	2028	No, constructed before Project
Nordlink	Büsum, DE	Ertsmyra, NO	✓	✓	✓	×	×	×	2021	No, included in baseline
Nordstrand - Pellworm	Nordstrand, DE	Pellworm, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Nordstrandischmoor - Pellworm	Nordstrandischmoor, DE	Pellworm, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Norfest	Stavanger, NO	Various, NO	✓	✓	✓	×	×	×	2023	No, construction completed prior to Project construction
NorNed	Freda, NO	Eemshaven, NL	✓	✓	✓	×	✓	✓	Commissioned	No, construction completed prior to Project construction
North Ness - South Ness	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
North Sea Link	Hylsfjorden, NO	Blyth, UK	✓	✓	✓	×	✓	✓	Commissioned	No, construction completed prior to Project construction
Northern Lights	Skaill, UK	Dunnet Head, UK	✓	✓	✓	×	×	×	2008	No, included in baseline
NO-UK	Newcastle, UK	Stavanger, NO	✓	✓	✓	×	✓	✓	2021	No, included in baseline

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Oland - Langeness	Oland, DE	Langeness, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Oresund 400kV	Kristinelundveien, NO	DK	✓	✓	✓	×	×	×	Pre-construction	No, construction assumed to be completed prior to Project construction
Oresund 400kV replacement cable	Kristinelundveien, NO	DK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Orkney - Graemsay	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Orkney - Rousay	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Orkney - Shapinsay	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Orkney AC Link	Thruso, UK	Orkney, UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Orseund 132kV replacement cable	Kristinelundveien, NO	DK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Pan European Crossing (UK-BE)	Dumpton Gap, UK	Bredene, BE	✓	✓	✓	×	✓	✓	1999	No, included in baseline
Pellworm - Hooge	Pellworm, DE	Hooge, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
R100 North	Shetland, UK	Orkney, UK	✓	✓	✓	✓	×	×	2023	No, construction completed prior to Project construction
Rossie Island - Ferryden	UK	UK	✓	✓	✓	✓	×	×	Pre-construction	No, construction assumed to be completed prior to Project construction
Rousay - Egilsay	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Rousay - Wyre	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Schluttsiel - Grode	Ockholm, DE	Grode, DE	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
SeaLink	Sizewell, UK	Kent, UK	✓	✓	✓	×	✓	✓	2030	**Yes, included in construction scenario**
SeaMeWe-3	Ostend, BE	Goonhilly Downs, UK	✓	✓	✓	×	×	×	1999	No, included in baseline
Shapinsay – Stronsay Replacement Cable	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Shetland - West Linga	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Shetland - Whalsay	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Shetland 2 HVDC link	Shetland, UK	Buckie, UK	✓	✓	✓	✓	×	×	Pre-construction	No, construction assumed to be completed prior to Project construction
Shetland HVDC link	Shetland, UK	Wick, UK	✓	✓	✓	×	×	×	Under construction	No, construction assumed to be completed prior to Project construction
SkagenFiber West	Hirtshals, DK	Larvik, NO	✓	✓	✓	×	×	×	2022	No, construction completed prior to Project construction
Skagerrak 1 and 2	Kristiansand, NO	Tjele, DK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Skagerrak 3	Kristiansand, NO	Tjele, DK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Skagerrak 4	Kristiansand, NO	DK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Stronsay – Sanday replacement cable	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
VikingLink Corridor	Bicker Fen, UK	Revsing, DK	✓	✓	✓	×	✓	✓	2023	No, construction completed prior to Project construction
Weisdale Voe	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
West Linga - Whalsay	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Westray - Papa Westray	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Whalsay - Out Skerries	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Yell - Fetlar 1	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Yell - Fetlar 2	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

Name of Project	Landfall Point 1	Landfall Point 2	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Operation	Potential for overlap of cable / pipeline construction with Project construction[8,9] ?
					GNS	CES				
Yell - Unst 1	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction
Yell - Unst 2	UK	UK	✓	✓	✓	×	×	×	Commissioned	No, construction completed prior to Project construction

12.5.5.7 Coastal Developments

125. Coastal development projects include construction of ports, harbours and coastal defence schemes. All marine licences in England are registered on the Marine Case Management System (MCMS). All coastal developments that were completed prior to October 2021 were considered to be part of the baseline.

126. Those projects that started after the Project baseline surveys were screened for the activities under the type 'construction of new works' and 'construction of other works' in the relevant marine areas ('East', 'Humber', 'North East', 'Northern', 'South East' and 'Southern').

127. Other projects such as domestic seawall, jetty, pontoon or footbridge constructions; intertidal restoration schemes; or schemes in the Thames River near London City have been screened out when filtering through the results on the MCMS.

128. The marine licences in Scotland registered on the Marine Scotland website were screened, but only two activities were found in the relevant part of the Screening Area, of which both were in pre-application stage and timeframes of construction were uncertain.

129. No coastal development projects in Europe were considered due to a lack of available information and negligible impact ranges.

130. **Table 12.5-8** provides the screening results for coastal developments.

131. The construction of the Cromer Phase 2 Coastal Management Scheme is anticipated to have ended by 2024 and would not overlap with the Project construction. Additionally, the Environmental Statement (ES) (Mott MacDonald, 2024) indicated that effects to marine mammals from the Scheme were assessed as not significant (in EIA terms). All other screened projects were not taken forward as the construction dates do not overlap with that of DBD.

132. Therefore, no coastal development projects were taken forward for the assessment.

Table 12.5-8 CEA Screening For UK Coastal Developments With An Approved Status (Such As Ports, Harbour, Coastal Defence Schemes) Within The Relevant Spatial Area For Each Species And Potential To Overlap With The Project Construction (2029-2034) (HP = Harbour Porpoise, BND = Bottlenose Dolphin, GS = Grey Seal, HS = Harbour Seal, N/A= Not Applicable/Available; MU = Management Unit; GNS = Greater North Sea; NS= North Sea; CGNS = Celtic & GNS)

Name of Project	Type of project	Marine Licence number	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Marine Licence dates	Potential for overlap with the Project construction[10]?
					GNS	CES				
England										
Stallingborough Phase 3 Sea Defence Improvement Scheme - Stage 2	Coastal defense	MLA/2023/00379	✓	✓	✓	×	✓	✓	Sept 2023 - Nov 2023	No, construction completed prior to Project construction
Cromer Phase 2 Coastal Management Scheme	Coastal defense	MLA/2023/00141	✓	✓	✓	×	✓	✓	March 2024 - March 2034	No, construction expected to finish by 2024. Effects to marine mammals were assessed as not significant in EIA terms.
Hull River Defences Phase 3	Coastal defense	MLA/2022/00452	✓	✓	✓	×	✓	✓	January 2024- Jan 2026	No, construction completed prior to Project construction

[10] Project construction 2029 - 2034

Name of Project	Type of project	Marine Licence number	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Marine Licence dates	Potential for overlap with the Project construction[10]?
					GNS	CES				
TEAM2100 - Canvey Island - Southern Shoreline Revetment Replacement	Coastal defense	MLA/2022/00429/1	✓	✓	✓	×	✓	✓	April 2023 - April 2027	No, construction completed prior to Project construction
Great Yarmouth - New Flood Defence Quay Wall (WP10 Wall 112)	Coastal defense	MLA/2021/00483	✓	✓	✓	×	✓	✓	May 2022 - May 2023	No, construction completed prior to Project construction
Seaham Artificial Nesting Structures	New construction	MLA/2023/00309	✓	✓	✓	×	✓	✓	March 2024 - December 2066	No, construction (summer 2024) completed prior to Project construction. Licence is for monitoring during lifespan of Hornsea 3 offshore wind farm.
North Shields Ferry Landing Relocation to Fish Quay	Coastal defense	MLA/2022/00406	✓	✓	✓	×	✓	✓	May 2023 - December 2027	No, construction completed prior to Project construction

Name of Project	Type of project	Marine Licence number	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Marine Licence dates	Potential for overlap with the Project construction[10]?
					GNS	CES				
Stonehill Wall Rock Revetment Extension	Coastal defense	MLA/2022/00289	✓	✓	✓	×	✓	✓	October 2023 - October 2024	No, construction completed prior to Project construction
Littlehampton - West Beach Groyne Reinstatement	Coastal defense	MLA/2023/00038	✓	✓	✓	×	×	×	March 2023 - March 2024	No, construction completed prior to Project construction
Weston Shore Emergency Coast Protection	Coastal defense	MLA/2022/00094	✓	✓	✓	×	×	×	August 2022 - August 2023	No, construction completed prior to Project construction
Dover Harbour Board - Outer Wave Screen	Coastal defense	MLA/2021/00448	✓	✓	✓	×	✓	✓	July 2022 - July 2023	No, construction completed prior to Project construction
Scotland										
Screening - Breakwater Construction – Lerwick Marina - SCR-0083	Coastal defense	Pre-application	✓	✓	✓	×	×	×	Pre-application	No, construction is anticipated in summer 2024 (subject to obtaining a marine licence).

Name of Project	Type of project	Marine Licence number	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Marine Licence dates	Potential for overlap with the Project construction[10]?
					GNS	CES				
Screening - Construction of Flood Defences – Lower Largo Peir, Fife - SCR-0085	Coastal defense	Pre-application	✓	✓	✓	×	×	×	Pre-application	Unknown

12.5.5.8 Other Offshore Industries

133. The results of the CEA screening for gas storage and offshore mines are presented in **Table 12.5-9.** Carbon and capture and storage (CCS) and hydrogen storage projects are presented in **Table 12.5-10**.

12.5.5.8.1 Gas Storage

134. Rough Gas Storage was reopened after significant engineering upgrades in 2022 (Centrica, 2023) and therefore no construction would coincide with the Project construction. The only other gas storage projects screened were already operational prior to the baseline surveys in October 2021. Hence, gas storage schemes have been screened out from further consideration in the CEA.

12.5.5.8.2 Offshore Mining

135. All offshore mining projects screened have been operational for several years prior to the baseline surveys for the Projects. These schemes are therefore considered part of the current baseline and therefore not considered further in the CEA.

136. No European schemes were considered due to a lack of information on scheme locations, phases, and programmes.

12.5.5.8.3 Carbon Capture and Storage and Hydrogen Storage Projects

137. CCS projects considered in the CEA screening are operational, under construction, or in early / advanced development. There was limited information on the projects in the early / advanced development phase, and as such have been assigned a range of Tiers. The majority of data for CCS projects comes from the Global CCS Map and a report on the Global Status of CCS 2023 (Global CCS Institute, 2023) and includes all countries with boundaries to the CEA Screening Area.

138. Hydrogen storage projects initially screened are at the final design or concept stages, however there is limited information available on these projects. The information provided below has been obtained from Hydrogen UKs project map.

139. A number of projects were already operational before the baseline surveys have commenced in October 2021. For the projects already under construction, it is assumed that the construction would be finished by the time DBD would begin construction, and there are no anticipated effects from operational CCS infrastructure. Therefore, all operational or under construction projects are screened out of further assessment.

140. Some of the screened CCS projects have the status 'advanced development' as per the CCS 2023 report. These were described to having "*received significant funds for engineering development, are demonstrating a higher level of commitment, and have a higher probability of moving to funding approval and construction*" (Global CCS Institute, 2023). Provided that the projects will be operational at the dates provided below, there would be no overlap in construction periods with the Project. Only one CCS project has the potential for an overlapping construction programme with the Project; the BASF Antwerp (Kairos@C) project.

141. The 'early development' CCS projects would encompass the Natural England (2022) Tiers 6 to 7, and there is limited information on these projects. These projects are still in the planning phase at the time of the screening/assessment and timelines are likely to change and were therefore screened out from further assessment.

142. Carbon capture schemes are unlikely to contribute significantly to any potential cumulative impacts for underwater noise, as most construction work will be on land and use existing offshore infrastructure. Therefore, all carbon capture schemes have been screened out of the CEA.

143. All hydrogen storage projects are screened out of further assessment, on the basis that they will not overlap with the DBD construction programme, however it should be noted that the majority are also in an early phase of development, and therefore there is limited information available in order to inform an assessment.

Table 12.5-9 CEA Screening for other Industries (Offshore Mines and Gas Storage Carbon Capture and Storage Projects within the Relevant Spatial Area for each Species and Potential to Overlap with the Project Construction (2029-2034) (HP = harbour porpoise, BND = bottlenose dolphin, GS = grey seal, HS = harbour seal, n/a= not applicable/available; MU = Management Unit; GNS = Greater North Sea; NS= North Sea; CGNS = Celtic & GNS)

Name of Project	Status (at the time of assessment)	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
				GNS	CES				
Gas Storage									
Rough	Operational	✓	✓	✓	×	✓	✓	2022	No overlap.
Atwick	Operational	✓	✓	✓	×	✓	✓	1979	No, part of the baseline
Aldbrough	Operational	✓	✓	✓	×	✓	✓	2012	No, part of the baseline
Offshore Mining									
Hundale Potash Mine	Operational	✓	✓	✓	×	✓	✓	2016	No, part of the baseline
Boulby Potash Mine	Operational	✓	✓	✓	×	✓	✓	1998	No, part of the baseline

[11] Project construction 2029 - 2034

Table 12.5-10 CEA Screening for Carbon Capture and Storage and Hydrogen Storage Projects within the Relevant Spatial Area for each Species and Potential to Overlap with the Project Construction (2029-2034) (HP = harbour porpoise, BND = bottlenose dolphin, GS = grey seal, HS = harbour seal, n/a= not applicable/available; MU = Management Unit; GNS = Greater North Sea; NS= North Sea; CGNS = Celtic & GNS)

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Carbon Capture and Storage										
Wilhelmshaven Pilot Plant	Operational	DE	✓	✓	✓	×	×	×	2012	No, part of baseline
Project Greensand	Operational	DK	✓	✓	✓	×	×	×	2021	No, part of baseline
K12-B	Operational	NL	✓	✓	✓	×	×	×	2004	No, part of baseline
Sleipner	Operational	NO	✓	✓	✓	×	×	×	1996	No, part of baseline
Snohvit	Operational	NO	✓	✓	✓	×	×	×	2008	No, part of baseline
Technology Centre Mongstad	Operational	NO	✓	✓	✓	×	×	×	2012	No, part of baseline
Killingholme	Operational	UK	✓	✓	✓	×	✓	✓	2016	No, part of baseline
Scottish Carbon Capture & Storage	Operational	UK	✓	✓	×	✓	×	×	2005	No, part of baseline

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Amager Bakke Waste to Energy	Under construction	DK	✓	✓	✓	×	×	×	2025	No, construction completed prior to Project construction
Orsted Asnaes CHP Plant	Under construction	DK	✓	✓	✓	×	×	×	2025	No, construction completed prior to Project construction
Orsted Avedore CHP Plant	Under construction	DK	✓	✓	✓	×	×	×	2025	No, construction completed prior to Project construction
Project Greensand	Under construction	DK	✓	✓	✓	×	×	×	2025	No, construction completed prior to Project construction
Air Liquide Refinery Rotterdam Netherlands 2024	Under construction	NL	✓	✓	✓	×	×	×	2025	No, construction completed prior to Project construction
ExxonMobil Benelux Refinery	Under construction	NL	✓	✓	✓	×	×	×	2025	No, construction completed prior to Project construction
Porthos CO, Transport and Storage	Under construction	NL	✓	✓	✓	×	×	×	2026	No, construction completed prior to Project construction

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Shell Energy and Chemicals Park Rotterdam	Under construction	NL	✓	✓	✓	×	×	×	2024	No, construction completed prior to Project construction
Yara Sluiskil	Under construction	NL	✓	✓	✓	×	×	×	2025	No, construction completed prior to Project construction
Hafslund Oslo Celsio - Truck Route	Under construction	NO	✓	✓	✓	×	×	×	2025	No, construction completed prior to Project construction
Hafslund Oslo Celsio Waste-to-Energy Plant	Under construction	NO	✓	✓	✓	×	×	×	2024	No, construction completed prior to Project construction
Heidelberg Materials Brevik Cement Plant	Under construction	NO	✓	✓	✓	×	×	×	2024	No, construction completed prior to Project construction
Northern Lights	Under construction	NO	✓	✓	✓	×	×	×	2024	No, construction completed prior to Project construction
Northern Lights Transport and Storage	Under construction	NO	✓	✓	✓	×	×	×	2024	No, construction completed prior to Project construction

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
East Coast Cluster Humber Pipeline	Under construction	UK	✓	✓	✓	×	✓	✓	2025	No, construction completed prior to Project construction
East Coast Cluster Teesside Pipeline	Under construction	UK	✓	✓	✓	×	✓	✓	2025	No, construction completed prior to Project construction
Northern Endurance Storage Site	Under construction	UK	✓	✓	✓	×	✓	✓	2025	No, construction completed prior to Project construction
BASF Antwerp (Kairos@C)	Advanced development[12]	BE	✓	✓	✓	×	×	×	2030	Yes, however unlikely to have any significant effect on marine mammals and therefore screened out of assessment.
Stockholm Exergi BECC	Advanced development	SE	✓	✓	✓	×	×	×	2027	No, construction completed prior to Project construction

[12] Projects that have received significant funds for engineering development, are demonstrating a higher level of commitment, and have a higher probability of moving to funding approval and construction

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Stockholm Exergi BECCS Shipping Route	Advanced development	SE	✓	✓	✓	×	×	×	2027	No, construction completed prior to Project construction
BOC Teesside Hydrogen	Advanced development	UK	✓	✓	✓	×	✓	✓	2027	No, construction completed prior to Project construction
Harbour Energy Viking Transport and Storage	Advanced development	UK	✓	✓	✓	×	✓	✓	2027	No, construction completed prior to Project construction
Hydrogen to Humber Saltend	Advanced development	UK	✓	✓	✓	×	✓	✓	2027	No, construction completed prior to Project construction
Northern Endurance Partnership	Advanced development	UK	✓	✓	✓	×	✓	✓	2026-2027	No, construction completed prior to Project construction
Phillips 66 Humber Refinery	Advanced development	UK	✓	✓	✓	×	✓	✓	2027	No, construction completed prior to Project construction
Prax Lindsey Carbon Capture	Advanced development	UK	✓	✓	✓	×	✓	✓	2028	No, construction completed prior to Project construction

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
SSE Thermal Keadby 3 Power Station	Advanced development	UK	✓	✓	✓	×	✓	✓	2027	No, construction completed prior to Project construction
VPI Immingham Power Plant	Advanced development	UK	✓	✓	✓	×	×	×	2027	No, construction completed prior to Project construction
Borealis Antwerp	Early development	BE	✓	✓	✓	×	×	×	2027	No, Tier 6 & 7 have limited info available
Equinor North Sea Pipeline Zeebrugge	Early development	BE	✓	✓	✓	×	×	×	2025	No, Tier 6 & 7 have limited info available
Exxonmobil Antwerp Refinery	Early development	BE	✓	✓	✓	×	×	×	2030	No, Tier 6 & 7 have limited info available
Holcim GO4ZERO Obourg Plant	Early development	BE	✓	✓	✓	×	×	×	2027	No, Tier 6 & 7 have limited info available
Ineos Antwerp	Early development	BE	✓	✓	✓	×	×	×	2030	No, Tier 6 & 7 have limited info available
Carbon Clean CEMEX	Early development	DE	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available
CO_2 liquefaction and buffer storage in Wilhelmshaven	Early development	DE	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Heidelberg Materials GeZero Cement	Early development	DE	✓	✓	✓	×	×	×	2029	No, Tier 6 & 7 have limited info available
Wintershall Dea CO2nnectNow	Early development	DE	✓	✓	✓	×	×	×	2030	No, Tier 6 & 7 have limited info available
C4 – Carbon Capture Cluster Copenhagen	Early development	DK	✓	✓	✓	×	×	×	Unknown	No, Tier 6 & 7 have limited info available
Cementir Aalborg Plan	Early development	DK	✓	✓	✓	×	×	×	under evaluation	No, Tier 6 & 7 have limited info available
DUC Bifrost	Early development	DK	✓	✓	✓	×	×	×	2025	No, Tier 6 & 7 have limited info available
Fidelis Norne Carbon Storage Hu	Early development	DK	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available
Fjernvarme Fyn Odense CHP plant	Early development	DK	✓	✓	✓	×	×	×	under evaluation	No, Tier 6 & 7 have limited info available
Fortum Waste Nyborg	Early development	DK	✓	✓	✓	×	×	×	under evaluation	No, Tier 6 & 7 have limited info available
INEOS Greenport Scandinavia	Early development	DK	✓	✓	✓	×	×	×	2025	No, Tier 6 & 7 have limited info available

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Dartagnan	Early development	FR	✓	✓	✓	×	✓	✓	2025	No, Tier 6 & 7 have limited info available
DMX Demonstration in Dunkirk	Early development	FR	✓	✓	✓	×	✓	✓	2025	No, Tier 6 & 7 have limited info available
Air Liquide Zeeland Refinery Azur	Early development	NL	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available
Aramis Hub	Early development	NL	✓	✓	✓	×	×	×	2027	No, Tier 6 & 7 have limited info available
Carbon Connect Delta	Early development	NL	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available
CO2TransPorts	Early development	NL	✓	✓	✓	×	×	×	2023	No, Tier 6 & 7 have limited info available
Equinor Hydrogen 2 Magnum	Early development	NL	✓	✓	✓	×	×	×	2025	No, Tier 6 & 7 have limited info available
EVEREST Project Pilot 2	Early development	NL	✓	✓	✓	×	×	×	2021	No, Tier 6 & 7 have limited info available
EVEREST Project Full-scale	Early development	NL	✓	✓	✓	×	×	×	unknown	No, Tier 6 & 7 have limited info available

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Fluxys Ghent Carbon Hub	Early development	NL	✓	✓	✓	×	×	×	2027	No, Tier 6 & 7 have limited info available
Neptune Energy L10	Early development	NL	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available
Nuon Magnum	Early development	NL	✓	✓	✓	×	×	×	2024	No, Tier 6 & 7 have limited info available
Onyx Power Blue Hydrogen Production Plant	Early development	NL	✓	✓	✓	×	×	×	under evaluation	No, Tier 6 & 7 have limited info available
Port of Rotterdam Delta Corridor Pipeline Network	Early development	NL	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available
PORTHOS CCUS Project	Early development	NL	✓	✓	✓	×	×	×	intended 2024	No, Tier 6 & 7 have limited info available
Aker BP Poseidon	Early development	NO	✓	✓	✓	×	×	×	2025	No, Tier 6 & 7 have limited info available
Equinor Smeaheia (Norwa	Early development	NO	✓	✓	✓	×	×	×	2027	No, Tier 6 & 7 have limited info available
FREVAR Waste to Energy	Early development	NO	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Hafslund Oslo Celsio - Klemetsrud CCS Project	Early development	NO	✓	✓	✓	×	×	×	2026/2027	No, Tier 6 & 7 have limited info available
Horisont Energi Erra	Early development	NO	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available
Kvitebjørn Varme Kvitebjørn Waste to Energy	Early development	NO	✓	✓	✓	×	×	×	2026	No, Tier 6 & 7 have limited info available
Norcem Brevik	Early development	NO	✓	✓	✓	×	×	×	2024	No, Tier 6 & 7 have limited info available
Wintershall Dea Havstjerne	Early development	NO	✓	✓	✓	×	×	×	under evaluation	No, Tier 6 & 7 have limited info available
Wintershall Dea Luna	Early development	NO	✓	✓	✓	×	×	×	under evaluation	No, Tier 6 & 7 have limited info available
Cementa Slite Cement Plan	Early development	SE	✓	✓	✓	×	×	×	2030	No, Tier 6 & 7 have limited info available
Lysekil Refinery CCS	Early development	SE	✓	✓	✓	×	×	×	2027	No, Tier 6 & 7 have limited info available
Växjö Energi CHP Sandviksverke	Early development	SE	✓	✓	✓	×	×	×	2027	No, Tier 6 & 7 have limited info available

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
8 Rivers Whitetail Clean Energ	Early development	UK	✓	✓	✓	×	✓	✓	under evaluation	No, Tier 6 & 7 have limited info available
Acorn	Early development	UK	✓	✓	×	✓	×	×	2025	No, Tier 6 & 7 have limited info available
Acorn CO2 SAPLING PCI	Early development	UK	✓	✓	×	✓	×	×	unknown	No, Tier 6 & 7 have limited info available
Acorn Direct Air Capture	Early development	UK	✓	✓	×	✓	×	×	2026	No, Tier 6 & 7 have limited info available
BP H2Teesside	Early development	UK	✓	✓	✓	×	✓	✓	2027	No, Tier 6 & 7 have limited info available
C.GEN North Killingholme Power	Early development	UK	✓	✓	✓	×	✓	✓	under evaluation	No, Tier 6 & 7 have limited info available
Caledonia Clean Energy Project	Early development	UK	✓	✓	✓	✓	×	×	earliest 2023+	No, Tier 6 & 7 have limited info available
CF Fertilisers Billingham Ammonia CCS	Early development	UK	✓	✓	✓	×	✓	✓	2025	No, Tier 6 & 7 have limited info available
ExxonMobil Blue Hydrogen Fawley Refinery	Early development	UK	✓	✓	✓	×	×	×	2030	No, Tier 6 & 7 have limited info available

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Humber Zero	Early development	UK	✓	✓	✓	×	✓	✓	2027	No, Tier 6 & 7 have limited info available
Kellas Midstream H2NorthEast	Early development	UK	✓	✓	✓	×	✓	✓	2027	No, Tier 6 & 7 have limited info available
NET Power Plant	Early development	UK	✓	✓	-	-	-	-	2027	No, Tier 6 & 7 have limited info available
Net Zero Teesside - CCGT Facility	Early development	UK	✓	✓	✓	×	✓	✓	2025	No, Tier 6 & 7 have limited info available
NZT Power	Early development	UK	✓	✓	✓	×	✓	✓	2026	No, Tier 6 & 7 have limited info available
Peterhead Low Carbon CCGT Power Station Project	Early development	UK	✓	✓	×	✓	×	×	2026	No, Tier 6 & 7 have limited info available
RWE Stallingborough	Early development	UK	✓	✓	✓	×	✓	✓	under evaluation	No, Tier 6 & 7 have limited info available
RWE Straythorpe	Early development	UK	✓	✓	✓	×	✓	✓	under evaluation	No, Tier 6 & 7 have limited info available
Singleton Birch ZerCaL250	Early development	UK	✓	✓	✓	×	✓	✓	2025	No, Tier 6 & 7 have limited info available

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
SSE Thermal Peterhead Power Station	Early development	UK	✓	✓	×	✓	×	×	2027	No, Tier 6 & 7 have limited info available
Storegga Acorn Transport and Storage	Early development	UK	✓	✓	×	✓	×	×	2024	No, Tier 6 & 7 have limited info available
SUEZ Tees Valley Energy Recovery Facility	Early development	UK	✓	✓	✓	×	✓	✓	2026	No, Tier 6 & 7 have limited info available
Suez Waste to Energ	Early development	UK	✓	✓	✓	×	✓	✓	2027	No, Tier 6 & 7 have limited info available
Synergia Energy Damhead Pipeline	Early development	UK	✓	✓	✓	×	✓	✓	2026	No, Tier 6 & 7 have limited info available
Synergia Energy Damhead Power Station	Early development	UK	✓	✓	✓	×	✓	✓	2026	No, Tier 6 & 7 have limited info available
Synergia Energy Grain Power Station	Early development	UK	✓	✓	✓	×	✓	✓	2026	No, Tier 6 & 7 have limited info available
Synergia Energy Isle of Grain Transport	Early development	UK	✓	✓	✓	×	✓	✓	2026	No, Tier 6 & 7 have limited info available

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Synergia Energy Medway Transport and Storage	Early development	UK	✓	✓	✓	×	✓	✓	2026	No, Tier 6 & 7 have limited info available
Synergy Energy Medway Power Station	Early development	UK	✓	✓	✓	×	✓	✓	under evaluation	No, Tier 6 & 7 have limited info available
Uniper Humber Hub Blue Project	Early development	UK	✓	✓	✓	×	✓	✓	2027	No, Tier 6 & 7 have limited info available
Viking CCS	Early development	UK	✓	✓	✓	×	✓	✓	2026	No, Tier 6 & 7 have limited info available
Zero Carbon Humber	Early development	UK	✓	✓	✓	×	✓	✓	2026	No, Tier 6 & 7 have limited info available
Hydrogen Storage										
Aldbrough Hydrogen Pathway	Advanced development	UK	Y	Y	Y	N	Y	Y	2025	No, construction completed prior to Project construction
Dolphyn Hydrogen	Advanced development	UK	Y	Y	Y	Y	N	N	2025	No, construction completed prior to Project construction

Name of Project	Status (at the time of assessment)	Country	HP - NS MU	CGNS	BND		GS MUs	HS MUS	Date of operation	Potential for overlap with the Project construction[11]?
					GNS	CES				
Offshore Green Hydrogen - Centrica	Early development	UK	Y	Y	Y	N	Y	Y	2029	No, construction completed prior to Project construction
Salamander	Early development	UK	Y	Y	Y	N	N	N	2026	No, construction completed prior to Project construction

12.5.5.9 Future Potential Activities

12.5.5.9.1 Seismic Surveys

144. It was not possible to estimate the location or number of potential seismic surveys that could be undertaken at the same time as construction and potential piling activity at the Project. A marine licence exemption application is only required to be submitted at least 28 days prior to the start of a relevant survey (MMO, 2022). Seismic survey licences for oil and gas are issued separately through the NSTA.

145. It is noted that there is low certainty on the schedule of these activities and there are no active licence applications at the time of writing. For information purposes the potential for cumulative impacts from seismic surveys has been **screened in** to the CEA for further consideration.

146. Analysis of Marine Noise Registry (MNR) entries indicates that in the North Sea, during 2021, there were 20 seismic surveys carried out for a total of 475 days. This gives a potential for 1.7 seismic survey to be undertaken at any one time in the North Sea, therefore it is assumed, as a worst-case scenario, that there could be two seismic surveys undertaken at the same time as the construction of the Project.

147. For information purposes, the potential for cumulative impacts from seismic surveys has been screened into the CEA for further consideration. For the PEIR, it has been assumed, as a worst-case scenario, that there could be two seismic surveys undertaken at the same time as the construction of the Project.

12.5.5.9.2 Geophysical Surveys

148. Prior to construction, marine development projects (e.g. OWF, MRE and port expansions) conduct geophysical surveys to determine seabed conditions, check for debris and other anomalies.

149. These geophysical surveys can involve different equipment, such as:

- Sub-Bottom Profilers (SBP) (such as pingers, sparkers, boomers and CHIRP systems);
- Ultra-Short Baseline (USBL) systems;
- Multibeam Echo Sounder (MBES) system; and
- Side Scan Sonar (SSS).

150. Due to the high amplitude of MBES and SSS, there is the potential for injury to marine mammal species, however this is highly unlikely as an animal would need to be within very close proximity (only several meters) to the source.

151. It is also unlikely that the MBES and SSS could cause disturbance due to the operating frequencies being outside the audible range of marine mammals (JNCC 2010a). MBES and SSS surveys that are carried out in waters of less than 200m in depth are not considered to be a risk to marine mammals, as the higher frequencies typically used fall outside of their hearing ranges, and the sounds are likely to attenuate quickly due to the high frequencies used. Therefore, geophysical surveys using MBES and SSS have been screened out of the CEA.

152. The SBP and USBL frequency ranges are within marine mammal hearing range (JNCC, 2017) and would therefore be audible to the marine mammals that could be present in the area. Geophysical surveys using SBP and USBL have the potential to disturb marine mammals and have therefore been screened into the CEA.

153. Auditory injury effects from SBP and USBL were not predicted, as an animal would need to remain in the very small zone of ensonification for a prolonged period, which was highly unlikely (JNCC 2010a). Most of the sound energy generated by the SBP or USBL equipment would be directed towards the seabed and the pulse duration would be extremely short, with the continuous movement of the survey.

154. For geophysical surveys with SBP, it is realistic and appropriate to base the assessments on the potential impact area around the vessel, as the potential for disturbance would be around the vessel at any one time. Marine mammals would not be at risk throughout the entire area surveyed in a day, as animals would return once the vessel had passed, and the disturbance had ceased.

155. For the same reason as with seismic surveys, it was not possible to estimate the location or number of potential geophysical surveys that could be undertaken at the same time as construction and potential piling activity at the Project. It was therefore assumed, as a worst-case scenario, that there could potentially be up to two geophysical surveys in the North Sea at any one time during construction of the Project.

156. It is currently not possible to accurately estimate the location or number of potential geophysical surveys that could be undertaken at the same time as construction and potential piling activity at the Project. It is therefore assumed, as a worst-case scenario, that there could potentially be up to two geophysical surveys in the NS MU at any one time, during construction of the Project. Analysis of the activities reported to the MNR, indicated in the year 2021 in the North Sea, there was a total of 30 SBP surveys carried out for a total of 257 days. This gives a potential for 2.5 geophysical survey to occur at any one time within a year. Therefore, it is assumed, as a worst-case scenario, that there could be two geophysical surveys undertaken at the same time as the construction of the Project for the PEIR.

12.5.5.9.3 Unexploded Ordnance

157. As outlined in **Section 12.7** of **Volume 1, Chapter 12 Marine Mammals and Underwater Noise**, the potential risk of PTS in marine mammals from cumulative impacts has been screened out from further consideration in the CEA. This is because if there is the potential for any PTS, suitable mitigation would be put in place to reduce any risk to marine mammals.

158. The potential for cumulative disturbance effects from Unexploded Ordnance (UXO) clearance at other schemes during construction of the Project have been screened into the CEA.

159. Alternative methods for UXO clearance include the use of low-order clearance techniques, which could include a small donor charge, rather than full high-order detonation.

160. It is therefore highly unlikely that more than one UXO high-order detonation would occur at exactly the same time or on the same day as another UXO detonation, even if they had overlapping UXO clearance operation durations. The CEA is therefore based on potential for disturbance from one UXO high-order detonation without mitigation (worst-case), as well as one low-order clearance.

161. However, it is noted there is low certainty of the schedule for these activities and likelihood of temporal overlap. In 2021 there were six cases of UXO detonations reported to the MNR in the North Sea which occurred over a total of 16 days. This gives a potential for 0.5 UXO clearances to occur within a year at any one time in the North Sea. It is therefore highly unlikely that more than one UXO high-order detonation would occur at exactly the same time or on the same day as another UXO detonation, even if they had overlapping UXO clearance operation durations.

162. The CEA is therefore based on potential for disturbance from one UXO high-order detonation without mitigation (worst-case), and one low-order detonation. Therefore, one high order and one low-order UXO clearance is assessed in the CEA to occur at the same time as construction for the Projects.

12.5.6 Summary of CEA Project Screening

163. **Section 12.7** in **Volume 1, Chapter 12 Marine Mammals and Underwater Noise** provides information on the impacts screened into the marine mammal CEA. **Table 12.5-11** summarises the projects, plans and activities screened in and out of the marine mammal CEA.

Table 12.5-11 Summary of Projects, Plans and Activities Screened in to / Out of The Marine Mammal CEA

Impact	Cumulative Effect	Projects
Screened In		
Disturbance from underwater noise	Piling at other OWFs	OWFs that could be piling at the same time as the Project and screened into the CEA are: • Caledonia; • Dogger Bank South (East); • Dogger Bank south (West); • Dudgeon Extension; • Five Estuaries; • Nordsee Cluster B - N-3.5; • Nordsee Cluster B - N-3.6; • North Falls; • Outer Dowsing; • Rampion; • Sheringham Shoal Extension; and • West of Orkney.
	Other construction activities at OWFs (other than piling) including vessels, cable installation works, dredging, seabed preparation and rock placement	OWFs that could be undergoing construction at the same time as the Project and screened into the CEA are the same as those listed above for piling. However, as all projects are already included under the piling assessment above (which would represent the worst-case for disturbance), these projects are not considered separately for other construction related activities.
	Operational OWFs	OWFs that could have cumulative operational effects with the Project and screened into the CEA are: • Dogger Bank A; • Dogger Bank B; • Dogger Bank C; • Hornsea Project Four; • Hornsea Project Three; • Hornsea Project Two; • Sofia; and • Triton Knoll.

Impact	Cumulative Effect	Projects
		OWFs that are screened in for construction related effects above are screened out of operational effects in order to avoid any potential for 'double counting' effects from the same project in the resultant CEA.
	Aggregate extraction and dredging	Projects screened in for construction activities that could have cumulative effects with construction activities at the Project are: • Greenwich Light East 473/1; • Greenwich Light East 473/2; • Inner Dowsing 481/1-2; • Inner Owers North 488; • Thames D 524; • West Bassurelle 458; and • West Bassurelle 464.
	Sub-sea cables and pipelines	Projects screened in for construction activities that could have cumulative effects with construction activities at the Project are; • SeaLink.
	Seismic surveys	Unknown. There are currently no active licence applications for seismic surveys, however for information purposes, an assessment has been made based on the assumption that there would be at least **two** seismic surveys in the North Sea at any one time, during construction of the Project.
	Geophysical surveys using SBP and USBL	Unknown. It was therefore assumed, for information purposes, that there could potentially be up to **two** geophysical surveys at OWFs in the North Sea at any one time, during construction of the Project.
	UXO clearance	Unknown. It has been assumed UXO clearance would use low-order technique. However, for information purposes, the CEA included potential for **one** UXO high-order detonation and **one** low-order clearance (no mitigation) in the North Sea at the same time as piling at the Project. The likelihood of high order use and temporal overlap with the Project was low.
Screened Out		

Impact	Cumulative Effect	Projects
Disturbance from underwater noise	The activities and types of projects screened out of the CEA, as no potential for significant contribution to underwater noise cumulative impacts during the Project construction, were: Maintenance of operational OWFs (**Section 12.5.4.1**) Operational OWF turbines (**Section 12.5.4.2)** Decommissioning of OWFs (**Section 12.5.4.3**) Decommissioning of oil and gas infrastructure (**Section 12.5.4.4**) Shipping (**Section 12.5.4.5**) Commercial fishing (**Section 12.5.4.6**) Operational OWFs before October 2021 (**Section 12.5.5.1**) Marine Renewable Energy projects (**Section 12.5.5.2**) Licensed disposal sites (**Section 12.5.5.4**) Oil and gas infrastructure (construction, operation and decommissioning) (**Section 12.5.5.5**) Coastal developments (**Section 12.5.5.7**) Gas storage (**Section 12.5.5.8)** Offshore mining (**Section 12.5.5.8**) CCS (**Section 12.5.5.8**) Hydrogen storage (**Section 12.5.5.8**) Geophysical surveys using MBES and SSS (**Section 12.5.5.9**)	

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Acronyms

Acronym	Definition
BEIS	Business, Energy & Industrial Strategy
BND	Bottlenose Dolphin
CCS	Carbon and Capture and Storage
CEA	Cumulative Effects Assessment
CES	Coastal East Scotland
CGNS	Celtic and Greater North Sea
DBD	Dogger Bank D Offshore Wind Farm
DCO	Development Consent Order
EMEC	European Marine Energy Centre
ES	Environmental Statement
FCS	Favourable Conservation Status
GS	Grey Seal
GNS	Greater North Sea
HP	Harbour Porpoise
HRA	Habitats Regulation Assessment
HS	Harbour Seal
JNCC	Joint Nature Conservation Committee
MBES	Multibeam Echo Sounder
MCMS	Marine Case Management System
MMO	Marine Management Organisation
MNR	Marine Noise Registry
MRE	Marine Renewable Energy
MU	Management Units

Acronym	Definition
NE	North-East
NS	North Sea
NSIP	Nationally Significant Infrastructure Project
NSTA	North Sea Transition Authority
O&G	Oil and gas
O&M	Operation and Maintenance
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
PTS	Permanent Threshold Shift
RoC	Review of Consents
SAC	Special Area of Conservation
SBP	Sub-Bottom Profilers
SCANS	Small Cetaceans in the European Atlantic and North Sea
SE	South-east
SNS	Southern North Sea
SSS	Side Scan Sonar
TTS	Temporary Threshold Shift
UK	United Kingdom
UKCS	UK Continental Shelf
USBL	Ultra-Short Baseline
UXO	Unexploded Ordnance

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