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# Hewett CCS Appraisal Well

Appropriate Assessment



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**RECORD OF THE HABITATS REGULATIONS ASSESSMENT UNDERTAKEN  
UNDER REGULATION 5 OF THE OFFSHORE PETROLEUM ACTIVITIES  
(CONSERVATION of HABITATS) REGULATIONS 2001 (As Amended).**

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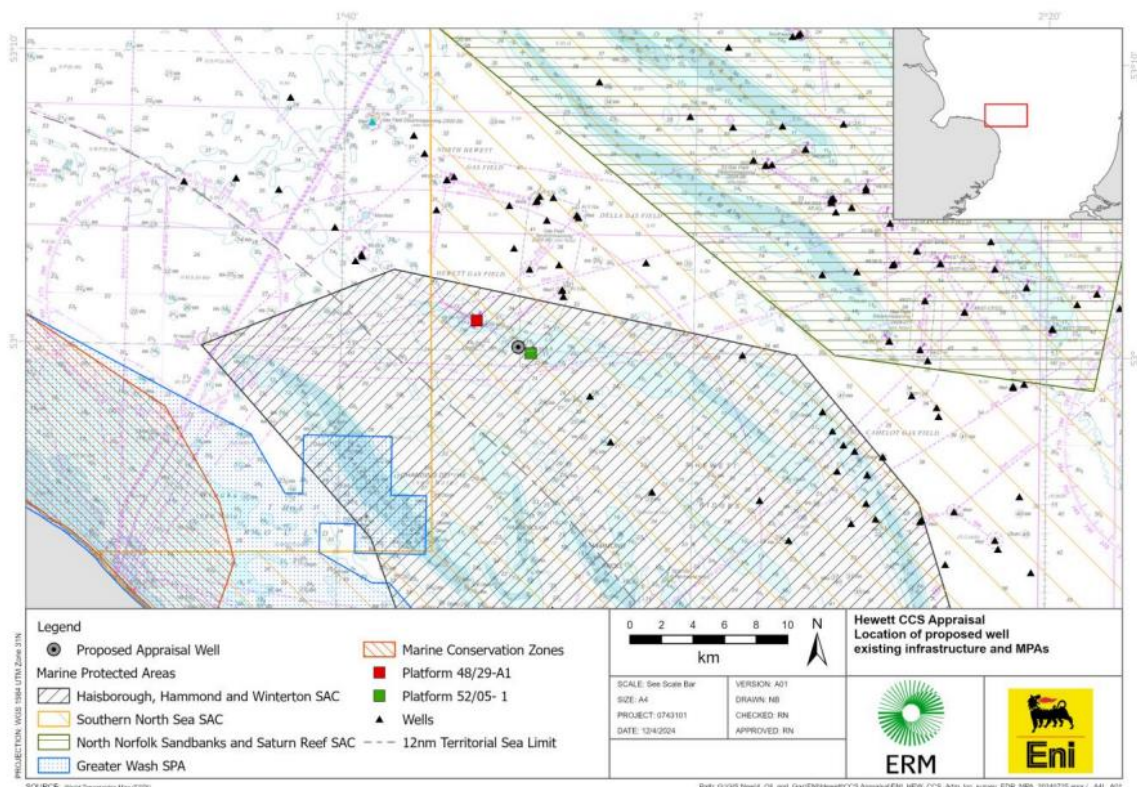
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## 1. Description of the Activity

ENI UK Limited have applied to drill a Carbon Capture and Storage (CCS) Appraisal Well (AW) at the Hewett field. The proposed drilling works will be undertaken using the Valaris 72, a Mobile Offshore Drilling Unit (MODU), specified as a Jack-up Vessel (JUV). The purpose of the AW is to gather information regarding the mechanical and lithological properties in the overburden (Haisborough, Bunter shale) and the reservoir (Bunter and Hewett Sandstone), as well as postproduction conditions to de-risk the CCS project. The proposed C48/30 AW is planned as a “stand alone” vertical well to be permanently plugged and abandoned (P&A) after data acquisition.

Drilling of the C48/30 CCS Appraisal well will involve:

- Locating of a jack-up mobile drilling rig
- Drilling and Cementing Operations for the following well sections:
  - Drill 26” x 36” Section with WBM (Water Based Mud)
  - Drill 24” Section with WBM
  - Drill 8½” x 17½” Hole with LTOBM (Low Toxicity Oil Based Mud)
  - Drill 8½” x 14¾” Hole with LTOBM
  - Drill 8½” x 12¾” Hole with LTOBM
  - Drill 8½” Hole with LTOBM
  - Drill 6” Hole with LTOBM
- All LTOBM will be skipped and shipped to shore and there will be no discharge to the marine environment
- Install completion tubing, stimulation of reservoir with a mini frac operation, downhole reservoir test operations.
- Permanently Plug and Abandon (P&A) the well, including cutting and removing the conductor tubing at 3m below the seabed to ensure no structure remains proud of the seabed
- For safety purposes, in advance of the rig being located, there is the requirement for the placement of rock pads to stabilise the rig. Following an amendment to the rock density required from 1.6 tonnes/m<sup>3</sup> to 3.0 tonnes/m<sup>3</sup> the worst-case estimate is that will be required is the placement of 8,828 tonnes of rock on the seabed, covering an area of 2363m<sup>2</sup>. To reduce the impact on the seabed the Developer has reduced the area of seabed impacted by rock from their initial plan of 5000m<sup>2</sup>.



**Figure 1: Location of C48/30 Appraisal Well and Marine Protected Areas**

### Location

The proposed well is located at the Hewett field, in the Southern North Sea (SNS), in UKCS Block 48/30, approximately 28 kilometres (km) from the UK coastline, and 87 km from the UK/Netherlands Median Line, in a depth of approximately 24 metres (m).

The activity is within the following sites:

- Southern North Sea (SNS) SAC
- Haisborough, Hammond and Winterton SAC

### Timing

The proposed works are expected to be undertaken within the period April – 31<sup>st</sup> October 2025. Drilling operations are expected to take 121 days for the C48/30 AW. The rig is expected on location in May and the rock pads are planned for placement in April.



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## 2. Requirement for a Habitats Regulations Assessment

Regulation 5 of the Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001 (As amended) outlines that the Secretary of State (SoS), before agreeing to the grant of consent of any activity which is likely to have a significant effect on a relevant site, make an appropriate assessment of the implications for the site in view of its conservation objectives. This document is the record of the SoS appropriate assessment.

Where the term 'Site' is used within this document, it means any site forming the UK National Site Network site. The National Site Network is the UK network of protected sites on land and sea which were designated under the Habitats and Wild Birds directives namely Special Protection Areas (SPA) or Special Areas of Conservation (SAC).

The assessment will first determine what sites and protected features are likely to have conservation objectives which could be significantly affected by the activity and will then proceed to undertake an appropriate assessment of the implication of these effects on the site's integrity.

## 3. Stage 1: Test of likely Significant effects (LSE)

***Is the activity likely to have a significant effect on the site's conservation objectives?***

### 3.1 Pressures associated with the activity

The project is considered to exert the following pressures on the environment:

**Seabed Disturbance:** The drilling operation will be undertaken from a jack-up rig. The placement of the rig's spud cans, anchors and mooring chains will cause the disturbance and abrasion of the seabed sediments

**Deposition of hard substrate:** Prior to the arrival of the drilling rig, rock (2-8" grading) will be deposited on the seabed via a chute from a specialised vessel. This rock, in the form of small clasts, will form stable pads on the seabed, providing a level and stable surface upon which to place the rig's spud cans. Without the rock pads the rig could become dangerously unstable and the project would be unviable for safety reasons.

**Discharge of cuttings:** Drilling of the 2 uppermost sections of the well will be undertaken using water-based mud. Drill cuttings, consisting of fine rock particles, will be deposited over the side. The cutting and removal of the well conductor will also create a small quantity of swarf containing metal fragments and garnet particles (abrasive cutting agent). These drill cuttings will settle onto the seabed and where they accumulate, they can change the natural composition of the



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sediment. The cuttings will retain quantities of water-based mud, that is designed for situations where it will be discharged to sea. Its composition has a low toxicity and poses a low risk to the marine environment.

**Discharge of chemicals and hydrocarbons:** Wellbore fluids containing hydrocarbons or chemicals will be discharged into the water. These will meet the requirements of the offshore chemical regulations and will be managed to avoid toxic effects.

**Underwater Noise:** The activity will involve the use of vessels and machinery which will emit some noise into the marine environment. There are no operations which are likely to emit noise into the water column which could be characterised as ‘impulsive’ e.g. that from explosives or seismic sources. Any such operations that take place within the well such as tubing perforations, will be many hundreds of thousands of meters below the surface and noise will not reach the surface.

As the conservation objectives for harbour porpoise and benthic habitats are not deemed sensitive to non-impulsive continuous noise such as ship noise, there is not deemed to be a mechanism by which noise from the project could impact the conservation objectives. Noise therefore is not considered further in this assessment

### 3.1. Screening of protected sites

#### Screened out of the LSE screening assessment

The following sites have been screened out due to the distance from the proposed activity:

- Greater Wash SPA; distance 10 km
- North Norfolk Sandbanks and Saturn Reef SAC; distance 12 km
- Outer Thames Estuary SPA; distance 39 km.

### 3.2. LSE Assessment

Site features and conservation objectives are taken from relevant SNCB conservation advice packages found on the following webpages:

- <https://jncc.gov.uk/our-work/southern-north-sea-mpa/>
- <https://jncc.gov.uk/our-work/haisborough-hammond-and-winterton-mpa/>

**Table 1. Test of likely significant effect**

Feature		Is there likely to be a significant effect on the conservation Objectives alone	
Pressure	Feature	Conservation Objective	Conclusion
<b>Southern North Sea SAC</b>			
Seabed disturbance	Harbour porpoise ( <i>Phocoena phocoena</i> )	<p>1.Harbour porpoise is a viable component of the site;</p> <p>2.There is no significant disturbance of the species; and</p> <p>3.The condition of supporting habitats and processes, and the availability of prey is maintained.</p>	<p>No.</p> <p>Impacts from the temporary placement of anchor chains, anchors and spudcans, as well as the deposition of WBM cuttings on the seabed is expected to be highly localised and unlikely to disrupt prey availability for harbour porpoise. Further, the WBM cuttings to be deposited are expected to disperse in the wider area as a result of the hydrodynamic regime of the Southern North Sea. Alterations in seabed composition, suspended sediment concentrations (due to cement and WBM discharges), or environmental conditions will not be of a significance whereby the prey availability or condition of harbour porpoise in the site could be affected.</p> <p>There is no impulsive noise i.e. seismic or explosive use associated with the works, and the operational vessel noise is not associated with strong avoidance reactions or displacement of harbour porpoise</p>
Deposition of hard substrate			
Discharge of cuttings			
Discharge of chemicals and hydrocarbons			





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Feature		Is there likely to be a significant effect on the conservation Objectives alone	
			assessors at CEFAS. The risk quotients (RQ values) for all chemical discharges are low and do not indicate there to be a risk of significant toxic effects that could affect the conservation objectives of the SAC.
Haisborough Hammond and Winterton SAC			
Seabed disturbance	Sandbanks slightly covered by seawater all the time	Extent and Distribution Structure and Function	Yes. The drill site is in an area representative of annex 1 sandbank habitat. The placement of 2363m <sup>2</sup> of rock to stabilise the spud can placement and the deposition of cuttings on the seabed has the potential to change the sediment composition in the areas surrounding the appraisal well
Deposition of hard substrate			
Discharge of cuttings			
Discharge of chemicals and hydrocarbons			No. See reasoning below
Seabed disturbance	Sandbanks slightly covered by seawater all the time	Supporting Processes	No. The area of rock placement and cuttings accumulation will be very small in proportion to the area of the SAC. There will be no significant long-term change in the water flow, topography, suspended sediment or sedimentary processes on a local or SAC wide scale.
Deposition of hard substrate			
Discharge of cuttings			
Discharge of chemicals and hydrocarbons			No. All chemical and hydrocarbon discharges will follow strict adherence to the offshore chemical regulations, following the conditions the project's chemical permit, granted by OPRED. Discharges of hydrocarbon are limited to the quantities and concentrations defined by the oil discharge and chemical permits. All chemicals used will be assessed and registered with the on the Offshore Chemicals Notification System. The quantities of all chemicals are detailed in the chemical permit; the discharge of these chemicals are subject to the rigorous and established chemical risk assessment process and reviewed by specialist



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			chemical risk assessors at CEFAS. The risk quotients (RQ values) for all chemical discharges are low and do not indicate there to be a risk of significant toxic effects that could affect the conservation objectives of the SAC.
Seabed disturbance	Reefs	Extent and Distribution Structure and Function Supporting Processes	No. No reef has been observed in the area of the appraisal well or its zone influence. Survey work in 2024 comprising multibeam, backscatter and drop-down imagery has identified the area as being characterised by sand with considerable rippling and sand wave features, indicating the surficial layers are highly mobile. This habitat is not normally associated with reef habitat as there is little stable substratum upon which the structures can attached and base themselves.
Deposition of hard substrate			
Discharge of cuttings			
Discharge of chemicals and hydrocarbons			

### 3.3. LSE Conclusion: Alone

It **cannot** be concluded that the activity is unlikely to cause a significant effect alone on the conservation objectives of the following site:

Site	Feature	Conservation Objective	LSE?
Haisborough Hammond and Winterton SAC	Sandbanks	Extent and Distribution, Structure and Function	Y
Haisborough Hammond and Winterton SAC	Sandbanks	Supporting process	N



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It **can** be concluded that the activity is unlikely to cause a significant effect alone on the conservation objectives of the following site(s):

Site	Feature	LSE?
Southern North Sea SAC	Harbour porpoise ( <i>Phocoena phocoena</i> )	N
Haisborough Hammond and Winterton SAC	Reefs	N

### 3.4. LSE In-combination assessment

#### **Haisborough Hammond and Winterton SAC:**

##### **Feature: Sandbanks**

No in-combination assessment has been undertaken at LSE stage as this will be assessed in stage 2 Appropriate Assessment stage

##### **Feature: Reef**

Projects which cause seabed disturbance and abrasion are considered as having the potential to affect Sabellaria reef. A review of recently submitted applications shows there to be several other projects potentially occurring in the SAC during 2025 which are likely to cause seabed abrasion, however the total area affected is a very small proportion of the SAC. Furthermore, the absence of any reef-like structures in the survey data and the incompatibility of -mobile sand waves for the formation of reef habitats means that the likelihood of reef habitats being affected by the drilling operations is low.

The following projects will potentially take place within the HHW SAC during 2025

Table 2: projects potentially taking place within the HHW SAC during 2025

Project	Activity Type	Seabed Disturbance	What pressures may act in-combination? * See Table for references
Hewett 52/5-A Debris Removal	Decommissioning	400m2	1
Della P&A operations – Positioning of jack up rig	Well plug and abandonment from platform	21903m2	1
Hewett Decommissioning -	Subsea Excavation at PL20 for the discharge of treated PL21 flushing fluids	37m2	1
Delilah P&A operations – Positioning of jack up rig	Well plug and abandonment from platform.	21903m2	1



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Project	Activity Type	Seabed Disturbance	What pressures may act in-combination? * See Table for references
Pipeline PL/23 & PL/24 pipeline protection	Mattress and Grout bag placement over exposed pipeline	269m <sup>2</sup>	1,2
Hewett CCS C48/30 appraisal well	Drill CCS appraisal well	13102m <sup>2</sup>	Current application
Total		57614	
Proportion of SAC		0.004	

**Table 3. Pressure reference - Key of pressures use in in-combination assessment**

Pressure	Ref
Seabed disturbance	1
Deposition of hard substrate	2
Discharge of cuttings	3
Discharge of chemicals and hydrocarbons	4

### **Southern North Sea SAC:**

#### **Feature: Harbour Porpoise**

**Conservation Objectives:** There is no significant disturbance of the species.

A significant number of activities are expected to occur in the SNS SAC during 2025. The management of disturbance and displacement associated with the impulsive noise generated by these projects is being actively managed through the cross-industry developers coordination forum (DCF). The Hewett well is not expected to contribute any further impulsive noise into the SAC so is not considered likely to increase disturbance levels in the SAC.

**Conservation Objectives:** Harbour porpoise is a viable component of the site and the condition of supporting habitats and processes, and the availability of prey is maintained.

A review of activities and projects occurring in the SNS SAC have indicated that there will not be any projects which represent a significant risk to supporting habitats, prey availability or harbour porpoise condition. Therefore, the minor effects of the drilling project are unlikely to significantly effect the conservation objectives of the site even when considered in-combination with other projects ongoing in the SAC.



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### 3.5. LSE Conclusion: In-combination

It **cannot** be concluded that the activity is unlikely to cause a significant effect in-combination with other plans or projects on the conservation objectives of the following site:

Site	Feature	Conservation Objectives	LSE?
Haisborough Hammond and Winterton SAC	Sandbanks which are slightly covered by seawater all the time	Extent and Distribution, Structure and Function	Y
Haisborough Hammond and Winterton SAC	Sandbanks which are slightly covered by seawater all the time	Supporting processes	N

It **can** be concluded that the activity is unlikely to cause a significant effect in-combination with other plans or projects on the conservation objectives of the following site:

Site	Feature	LSE?
Southern North Sea SAC	Harbour Porpoise	N
Haisborough Hammond and Winterton SAC	Reefs	Y

## 4. Stage 2: Appropriate Assessment

### ***Could the activity adversely affect the integrity of a site?***

Following the LSE assessment (Stage 1) the SoS must undertake an AA to determine whether the proposed activities, when considered alone and in combination with other plans and projects, could have an adverse effect on the integrity of those sites.

#### **Scope of Appropriate Assessment:**

**Feature assessed:** Sandbanks

**Pressures:** Seabed disturbance, Deposition of hard substrate, Discharge of cuttings

#### **Integrity test and Conservation Objective Attributes:**

The 'integrity of the site' is not defined in the Conservation Objectives. However, EU and UK Government guidance defines the integrity of a site as "the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified' (EC 2000, Defra 2012). Therefore, the integrity of the site applies to the whole of the site, and it is the potential impacts across the whole of the site that are required to be appropriately assessed.



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To inform an appropriate assessment, the SNCB's provide supplementary advice on conservation objectives (SACOs), fundamental to the SACOs are the '**attributes**'. These biological, physical and chemical properties together describe the ecological requirements of the site and the conservation objectives. To determine whether an activity may impact the site's integrity, an appropriate assessment will need to consider whether the activity may impair or degrade any of these attributes.

### Attribute Targets

Each attribute has a target of maintain or restore/minimise, and these targets are informed by the condition assessment (undertaken by SNCBs). The targets guide the management approach for the site. Where a target of restore is identified, it means the SNCBs have identified that activities have or are taking place which have degraded an attribute. In these situations, it is important that activities look to minimise, **as far as is practicable**, any further deterioration. Where a target of maintain is proposed, it means the attribute is sufficiently unimpeded that it favourably supports the condition of the feature and no active intervention is required to reduce pressures.

## 4.1. Haisborough Hammond and Winterton SAC

### Appropriate Assessment: Sandbanks – Impact Alone

#### Notes:

- Where attribute characteristics are similar, they have been grouped together for the purposes of the assessment

Attributes related to the conservation objective 'supporting processes' have not been considered in the appropriate assessment as this conservation objective was not deemed to be affected.

#### Attribute Group 1: Structure and Function – Physical Characteristics

Attributes to be assessed			
Feature	Attribute	Attribute Target	Magnitude of Impact
Sandbanks	Structure and function: presence and abundance of key structural and influential species	<b>Maintain OR Recover OR Restore</b> the abundance of listed species*, to enable each of them to be a viable component of the habitat.	Negligible effect
Sandbanks	Structure: non-native species and pathogens (habitat)	<b>Restrict</b> the introduction and spread of non-native species and pathogens, and their impacts.	Negligible effect



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Sandbanks	Structure: sediment composition and distribution	<b>Restore</b> the distribution of sediment composition across the feature (and each of its sub features	Minor effect: Very localised changes in sediment composition expected
Sandbanks	Structure: topography	<b>Maintain</b> the presence of topographic features, while allowing for natural responses to hydrodynamic regime, by preventing erosion or deposition through human-induced activity.	Negligible effect
Sandbanks	Structure: volume	<b>Maintain</b> the existing (where no previous evidence exists) or best-known (where some evidence exists) volume of sediment in the sandbank, allowing for natural change.	Negligible effect

#### Pressure: Seabed disturbance

In total, 4465 m<sup>2</sup> of seabed will be subject to some form of physical disturbance. This disturbance will be in the form of abrasion through the movement and placement of anchors, rig spud cans. This disturbance will overturn and compress the surface sediment layer causing damage and mortality of biota living on or within the sediment. Upon cessation of the project this pressure will stop, and it is expected that recovery and recolonization of the sediment will commence almost immediately. The biological communities in the impact area are typical of those associated with the highly mobile tide-swept sediment habitats, which typically show rapid recovery after periods of disturbance. It is therefore expected that the impacted area will have a full and rapid recovery and that there will be no long-term impact or alteration in the species composition of the area.

#### Pressure: Discharge of cuttings

There will be a discharge of drill cuttings, and water-based muds (largely comprising of barite clay) from the rig during the drilling of the upper sections of the well (26" x 36" and 24" Sections). These cuttings are generated from within the well during the drilling process and will be continuously generated for several days (depending on how quickly the drilling progresses). Muds, fluids and cuttings are cleaned, treated, processed and checked on the rig before being discharged to sea. There will be no hydrocarbons associated with these discharges and any chemical discharged will not pose a significant toxic risk. The cuttings will range in size from clay to coarse gravel and reflect the types of sedimentary rocks penetrated by the drill bit. They will be discharged over 62 days and assuming a worst-case scenario where all cuttings are discharged, there could be up to 680 (93.4 m<sup>3</sup>) tonnes of cuttings discharged.

Cementing operations will also result in the discharge of cement residues to sea as the tanks and mixing equipment is cleaned out after each batch. These cementing chemicals will be fully risk assessed and controlled by the chemical permit and thus will have low toxicity. However, their discharge will increase suspended sediment concentrations and may result in some precipitation of solids which will fall to the seabed, forming a fine layer. Cement discharges will



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occur in discrete batches of several hours, as the cement is mixed and prepared for each casing string.

The discharge cuttings will increase suspended sediment concentrations and sink through the water column and settle on the seabed, likely forming a pile in the vicinity of the drilling rig. The rate at which they sink will be dependent upon the size and weight, flocculation characteristics and the hydrographic conditions at the time. The strong tidal conditions at the drill site are expected to disperse the cuttings over a relatively large area as they travel down through the water column which is 24 meters deep. Once on the seabed, the cuttings are expected to become entrained into the seabed bedload sediment transport and become dispersed further over time. Cuttings pile accumulations are not often observed around platforms in the southern north sea compared to sites in deeper water, where there is a lower sheer stress and seabed mobility.

At the end of drilling operations, the conductor and multistring (well tubing at the top of the well) will be cut and removed. This will be undertaken with an abrasive cutting tool which uses a stream of pressured fluid and abrasive garnet. The cutting operation will use 7500kg of garnet which is a naturally occurring gravel type substrate 850 microns (0.85 mm) in size. The density of the garnet is 4,100kg/m<sup>3</sup>. This material will settle onto the seabed in the immediate area surrounding the well.

The cuttings discharge will form a layer on top of the seabed, which will initially cause some smothering effect of the seabed. It is not clear how deep or extensive this layer will be as the cuttings will be of varying grain sizes (both finer and coarser than the naturally occurring sediment). However, due to the strong currents (1.5ms<sup>-1</sup>) it is expected that there will be remobilisation and assimilation of these cuttings into the naturally occurring sediment. Therefore, whilst there may be some change in localised sediment composition, this will be limited to a thin layer in the upper part of the sediment profile and this change will likely become less pronounced over time as sediment transport causes a redistribution of sediments.

### **Pressure: Deposition of hard substrate**

The drilling operation will require the placement of 3 circular rock pads on the seabed, which will create a stable level surface upon which to place each of the rigs three spud cans. These pads are required to ensure stability of the rig in the soft, highly mobile sand environment of the drill site. Without them, the rigs legs would be subject to undermining and tilting as the base sediment moves and winnows away in the strong currents and high bedload transport.

The 3 circular rock pads will consist of 8,628tonnes of rock, covering an area of 2363m<sup>2</sup> with a volume of 2876 m<sup>3</sup>, and a diameter of 32 meters. The rock will consist of loose rock clasts grading in size from 2 inches to 8 inches in diameter, representing pebble to cobble size. The pads, upon initial placement, are expected to stand 1 metre proud of the seabed. The spudcans will subsequently depress and squash the rock into the sand, potentially creating an elevated rim around edge of the pad (as seen in fig 2).

The appraisal well location has been the focus of rig-based activity in the past in association with the Hewett 52/5-A platform which was removed in 2024 where similar stabilising rock pads were deposited at the site. The developer's application displayed multibeam survey imagery of the well site which clearly show the location of previous spud cans and associated rock pads which are still visible as physical features on the seabed. The rock pads are therefore considered to be



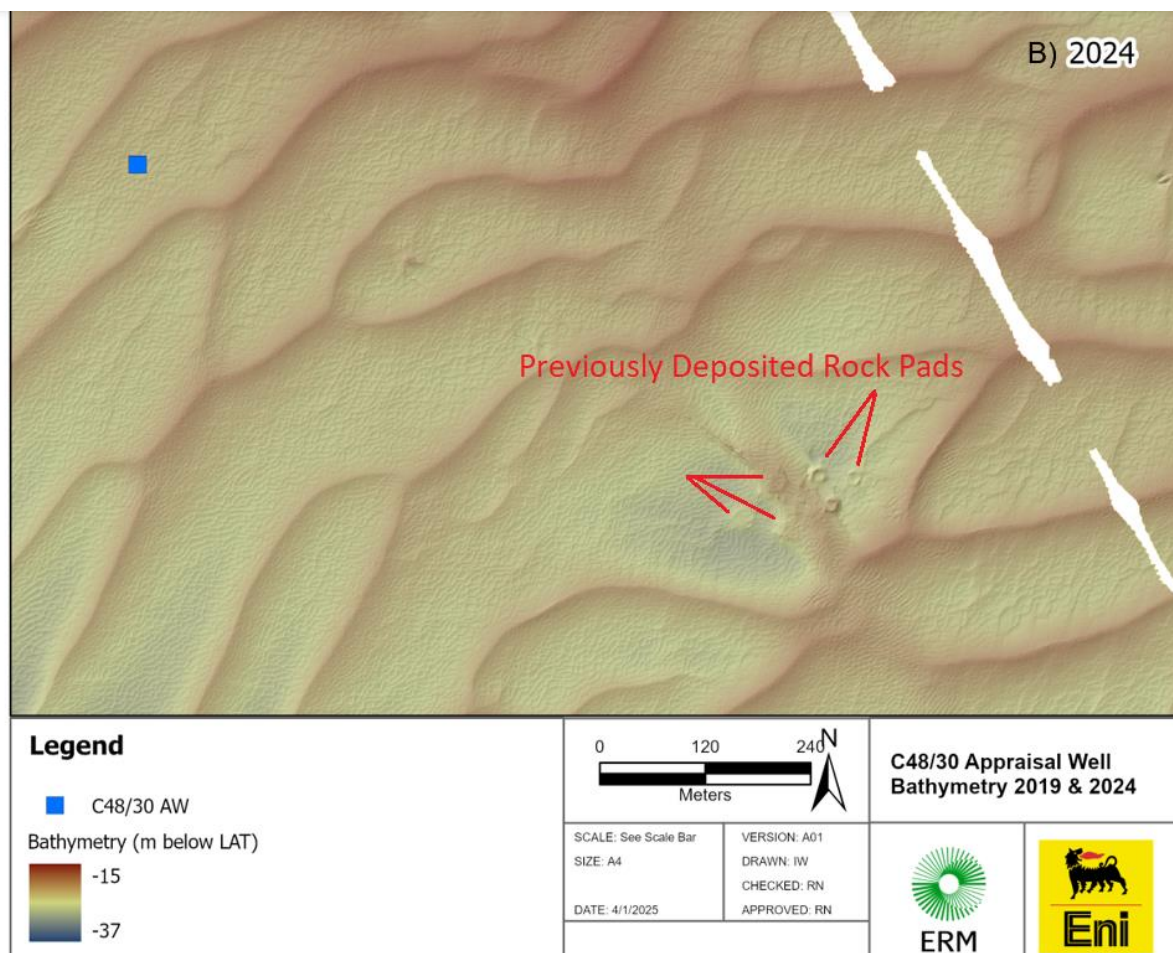


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persistent features which will remain for an unknown duration until they final break up. The multibeam imagery does show that the high mobility sand waves continue to move around the pads with only localised effects. It also shows that the sand is moving over the pads and in some areas is burying the pads under a thin layer of sand. It is reasonable to assume therefore that the rock will become partially buried and assimilated into the sandbank over time.

The rock pads, whilst changing the sediment composition of the immediate footprint, will not cause any significant change in morphology sediment dynamics.

*Fig 2: Multibeam bathymetry of the drill site, showing previously deposited rock pads which have become partially buried beneath the mobile sand layer and represent only a very minor feature within the local sandbank morphology. Note the production platform was only removed in 2024 so the seabed bedforms may still show remnants effects from the platform.*



#### Attribute Group 2: Extent and Distribution & Biological structure

Attributes to be assessed			
Feature	Attribute	Attribute Target	Magnitude of impact
Sandbanks	Extent and distribution	<b>Restore</b> the total extent and spatial distribution of subtidal sandbanks to	Minor effect



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		ensure no loss of integrity, while allowing for natural change and succession	
Sandbanks	Distribution: presence and spatial distribution of biological communities	<b>Restore</b> the presence and spatial distribution of subtidal sandbank communities.	Minor effect
Sandbanks	Structure: species composition of component communities	<b>Restore</b> the species composition of component communities	Minor effect: Very localised changes in species composition associated with rock pads

**Pressure:** Deposition of hard substrate.

Natural England has stated in their response to the application that the placement of rock pads would result in a loss of annex 1 sandbank habitat and thus result in a direct and proportional reduction in the extent of the feature within the site. Whilst such an approach has been taken in other assessments (which consider the impacts of rock placement) there is uncertainty over how appropriate such an assumption would be in this situation. Specifically, whilst there will be a highly localised change in sediment composition, the area affected would not still offer some physical and biological contributions to the ecological and physical functioning of the sandbank and its conservation objective.

The rock pads will change the sediment composition of 2363m<sup>2</sup> of the site, changing it from sand to a rocky substratum characterised by pebbles and cobbles, likely with a variable veneer of sand over the rock. Infaunal species such as polychaetes and bivalve species which require deep sediment habitats will likely be unable to colonise the rock pads. However, areas of coarse sediment consisting of pebbles and cobbles are a naturally occurring and inherent feature of the annex 1 sandbank habitat complex, and are found in patches across the HHW site (coarse sediment is considered a sub-feature of the sandbank). Thus, more mobile species and demersal species associated with the annex 1 sandbank will likely show less displacement or adverse responses to the rock given that heterogeneous patches of sand with pebbles and cobbles are an expected characteristic of annex 1 sandbanks. The European union manual on annex 1 habitats describes sandbanks as

“Sandbanks are elevated, elongated, rounded or irregular topographic features, permanently submerged and predominantly surrounded by deeper water. They consist mainly of sandy sediments, but larger grain sizes, including boulders and cobbles, or smaller grain sizes including mud may also be present on a sandbank”.

Therefore, whilst the rock pads would result in a significant change in the local sediment composition and biological community, it is unlikely that this degradation in habitat would exert effects significantly beyond the footprint of the rock pads. The 2363m<sup>2</sup> area of rock represents 0.00017% of the SAC, noting recent SNCB advice that the annex 1 sandbank feature extends across the whole site.



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Therefore, considering the very sparse infaunal and epifaunal assemblages observed in the area and the very small footprint of the rock pad in relation to area of the feature in the site, it would not be possible for the drilling operation to adversely affect the extent and distribution of the feature or the species composition within the site in any significant way.

**Pressure:** Seabed disturbance

In total, 4465 m<sup>2</sup> of seabed will be subject to some form of physical disturbance. This disturbance will be in the form of abrasion through the movement and placement of anchors and rig spud cans. This disturbance will overturn and compress the surface sediment layer causing damage and mortality of biota living on or within the sediment. Upon cessation of the drilling activity this pressure will cease, and it is expected that recovery and recolonization of the sediment will commence almost immediately. The biological communities associated with the tide swept mobile sediment habitats observed at the drill site are expected to show full and rapid recovery following physical disturbance and there will be no long-term impact on species composition.

**Pressure:** Discharge of cuttings

The naturally disturbed dynamic character of the sediment means that benthic fauna at the site are very sparse and likely robust and highly adaptable, meaning the change in sediment composition is not expected to cause a significant change in biological communities. Epifauna and species sensitive to smothering are not common in the habitats observed at the drill site.

Conclusion - alone		
Feature	Adverse Effect on Integrity	Reason
Sandbanks	No	There will be a change in sediment composition due to the deposition of rock and drill cuttings. This will cause some change in biological assemblages and a loss in some species and communities. This habitat degradation will be limited to a very small area surrounding the drilling rig. The impact footprint is too small to affect the large scale annex 1 sandbank complex that extends across the whole site.

**In-combination Assessment:**

**4.2. Haisborough Hammond and Winterton SAC**

**Appropriate Assessment: Sandbanks – Impact In-combination**

Note: The attributes assessed in the in-combination assessment are the same as those in the assessment alone, only the attribute group titles are shown to reduce the size of the document

**Attribute Group 1: Structure and Function**



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## Attribute Group 2: Extent and Distribution

The Haisborough Hammond Winterton SAC is an area of significant industrial activity comprising oil and gas, offshore wind, carbon storage and marine aggregates. Much of this activity has resulted in the deposition of infrastructure and hard substrates (i.e. rock protection and concrete mattresses) on the seabed. The SNCBs undertook an assessment of the condition of the annex sandbank feature in the HHW SAC and determined it was in unfavourable condition due in large part to the extent of infrastructure and seabed deposits on the sandbank feature. It is their view that the amount of infrastructure on the sandbank is of such a scale that it is causing a significant degradation in habitat extent and ecological function. This conclusion has triggered the targets to Restore following conservation objective attributes:

- the Extent and Distribution of the feature, the distribution of biological communities and the structure of biological communities.

Because of the restore target, further degradation will take the site further away from its conservation objective.

### Infrastructure within the site - Existing Baseline

The confidence the SNCBs have in their condition assessment (which directly informs the restore target) is reported as 'low'. The commentary provided in support of the condition assessment states that no information is available on the total amount of deposits or infrastructure on the SAC and there is no direct evidence from monitoring to inform the condition assessment. The assessment is instead based on a 'vulnerability assessment' which identifies whether activities are occurring in the site to which the feature is sensitive, and judgement is used to determine whether this is happening at a scale which could degrade the site's condition.

To help address this uncertainty and evaluate the level of degradation the site has experienced as well as understanding the contribution the drilling application could make to the overall condition of the site, the Department has undertaken a review to understand how much of site is potentially affected by hard deposits. The steps of this review are outlined below:

#### Step 1: Designation Baseline

Oil and gas infrastructure has been located within the HHW SAC for many decades, and it is difficult to map the historically placed infrastructure. However, it has been reasonably assumed that the site was in an acceptable condition at its time of designation and did not require restoration. This assumption has been taken from the SNCBs SAC site selection document which was produced to support the designation of the site (JNCC & NE;2010). It states the following:

*Conservation of structure and functions - Annex 1 sandbank*

- Degree of conservation of structure

*The Haisborough, Hammond and Winterton site has been graded II (structure well conserved) for the conservation of structure sub-criterion.*



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- Degree of conservation functions:

*The Haisborough, Hammond and Winterton site is graded II (good prospects)*

- Overall Verdict

*The overall grade for the conservation of structure and function criterion is grade B (good conservation value). The prospects for this feature to maintain its functions in the future, taking into account known pressures and management of activities are good*

- Restoration possibilities

*As the site has been graded II for both the conservation of structure and the conservation of function sub-criteria, there is no requirement to assess the restoration possibilities sub-criterion.*

## **Step 2: Deposits made between 2011 - 2016**

The Department undertook a review of consented deposits between 2011 and 2016 (BEIS;2021). This identified that within the HHW SAC **44,299m<sup>2</sup>** of deposits were placed on the seabed.

## **Step 3: Deposits made between 2017 - 2025**

A review of the approvals made by the Department between 2017 and 2025 has shown that **19390m<sup>2</sup>** have been placed on the seabed in the HHW SAC. See table 5 in appendix

## **Step 4: Offshore Wind Deposits**

Offshore wind approvals for the Vanguard and Boreas offshore windfarms accounted for rock, used as cable protection, to be deposited in the HHW SAC. This amounted to **24000m<sup>2</sup>** for the Boreas windfarm, and **50000m<sup>2</sup>** for the Vanguard windfarm.

## **Results**

The site was formally designated in 2017, but was recommended to the EU in 2010, which is when the SAC site selection document (referenced above) was written. At this point in time, the SNCBs stated that no restoration of SAC habitat was required. Table 4 summarises the deposits placed in the site between 2011 and present.

The review has identified that between the site being recommended for designation to the present day, approximately 137689m<sup>2</sup> of deposits have been placed on the seabed. This amounts to 0.0094% of the site which is an extremely small proportion of the total extent of the feature in the SAC. It is not clear how such a small proportional area of seabed deposits could impact the functionality and biological assemblages of the SAC to an extent whereby its condition would be considered unfavourable. However, what is clear is that the addition of a further 2363m<sup>2</sup> of rock protection, which equates to 0.00016% of the feature, in addition to the 0.0094% of the feature that is already affected by deposits, would make a negligible difference to the condition of the site.

Whilst the site has conservation objective targets to restore the extent of sandbank habitat and its biological assemblage, the contribution made by the rock pads to the condition of the site and its ability to meet the restore objective would be so small as to be immaterial.



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Table 4 Total deposits placed within the HHW SAC between 2011 and 2025

Total Deposits 2017 – 2025: OPRED Approvals		19390 m <sup>2</sup>
Total Deposits 2011 -2016: OPRED Approvals <sup>1</sup>		44299 m <sup>2</sup>
Norfolk Boreas Offshore Windfarm – assessed cable deposits <sup>2</sup>	To be constructed	24000 m <sup>2</sup>
Norfolk Vanguard Offshore Windfarm – assessed cable deposits <sup>3</sup>	To be constructed	50000 m <sup>2</sup>
Total Area - Deposits in HHW: OPRED approvals and Offshore Wind Approvals		137689 m <sup>2</sup>
Total Proportion of HHW effected by hard substrate deposits (since 2011)		0.0094%

\*Area of HHW SAC 1468698947 m<sup>2</sup>

\* The figures show in table 4 are potentially overestimates as these represent the deposit quantities applied for and in practice the deposited quantities are often less than this

Conclusion		
Feature	Adverse Effect on Integrity	Reason
Sandbanks	No	Very little of the SAC has been covered by seabed deposits since its designation (>0.01%). The additional rock deposit proposed by the project amounts to a further 0.00017% of the site. Such a small additional contribution on top of the small existing area of the SAC affected by deposits, is unlikely to significantly alter the condition of the site. The coherence of the habitats and species which underpin the complex of sandbank habitats across the site will not be altered.





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## 5. Conclusion of Habitats Regulations Assessment

An assessment has been undertaken to determine whether the Carbon Storage Appraisal well drilling operations at Hewett could significantly impact the conservation objectives of any site within the UK National Site Network. The likelihood of a significant effect on the conservation objectives of the following site and features could not be ruled out for the following sites and features

- Haisborough Hammond and Winterton SAC – Sandbanks slightly cover by seawater all of the time

The appropriate assessment has determined that the project will have some effect on the SAC, however, it has been concluded that any effects will not be significant. Bacton CCS Limited is committed to reviewing potential mitigation measures and to the development of a mitigation plan for reducing the long-term effect of rock pads/berms on the sandbank habitat. This plan will cover both potential options for rock placement mitigation/remediation and future monitoring. Options within this plan will include mechanisms to disperse or reduce the height of the rock berm such that the rock becomes assimilated into the sand and the rock pads are able to naturally cover with sand. The plan will also identify monitoring requirements to measure the effectiveness of the mitigating measures, providing evidence through (for example) multibeam and ROV footage.

Bacton CCS Limited are also required to monitor the drill site area to determine the long-term effect of the rock pads/berms on the sandbank habitat by carrying out the following:

- Undertake rig-based ROV monitoring whilst Valaris 72 is on location.
- Undertake a baseline survey (digital data) after Valaris 72 demobilisation at a time to be agreed between Bacton CCS Limited and OPRED but will be expected to align with other planned survey activities in the area.
- Bacton CCS Limited will submit a study, using baseline survey data to assess sediment mobility/burial time and (if required) identify other mitigations plus associated monitoring plan / frequency. This will also be used to inform any future monitoring frequency to be implemented based on study recommendations.

**The Secretary of State, therefore, concludes that the proposed project will not adversely affect the integrity of the SAC, either alone or in-combination with other plans and projects.**



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## Annex

### Application documents

#### Statutory Nature Conservation Body (SNCB) Consultation

SNCB	Comments	Response
JNCC		
NE		

### References

JNCC (2020). Guidance for assessing the significance of noise disturbance against Conservation Objectives of harbour porpoise SACs.

BEIS (2021) Technical Note Review of rock and other protective material use in offshore oil and gas operations in the UK Continental Shelf

**Appendix:** Projects reviewed to determine the baseline quantity of hard deposits in the HHW



Table 5: Hard substrate deposits placed in Haisborough Hammond and Winterton SAC (2011 – 2025)

Operator	Project	App Ref	Date	Area of Hard Substrate Deposit (m2)
ENI Hewett Ltd	Bacton	SA/767, GS/590	25/04/2017	0
Perenco UK Limited	Leman to Bacton	PLA/409, DEP/1083	03/04/2017	0
ENI UK Limited	Stabilisation of two pipelines (PL83 and PL87) in the Hewett Field. - 383m2	MAT/SAT - PLA/496 DEP/1588	11/01/2019	383
ENI UK Limited	Stabilisation of one pipeline (PL85) in the Hewett Field. 593m2	MAT/SAT - PLA/638 DEP/1599	29/01/2019	593
ENI UK Limited	Stabilisation of one pipeline (PL21) in the Hewett Field. 462 m2	MAT/SAT - PLA/647 DEP/1641	11/03/2019	462
ENI UK Limited	Stabilisation of one pipeline (PL20) in the Hewett Field. 400m2	MAT/SAT - PLA/652 DEP/1651	11/03/2019	400
Perenco UK Limited	PL24 - Leman Pipeline Deposits 4053m2	PLA/706 DEP/1790	18/09/2019	4053
Perenco UK Limited	PL22,23 &24 MBES survey notification	GS/1049	30/01/2020	0
Eni Hewett Limited	PL84 cutting operation	ML/659	02/02/2021	0
Perenco UK Limited	PL23 pipeline stabilisation 742m2	PL/2086	26/04/2021	742
ONE-DYAS North Sea Limited	PL311 Sean Pipeline Remediation 1560 tonnes 1560 m2	PL/2105	29/04/2021	1560



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Perenco UK Limited	PL24 salvage operations concrete mattresses 388m2	ML/690	25/03/2021	388
Eni Hewett Ltd	52/5-A Rig Pre-Arrival Work	ML/715	13/05/2021	0
ENI UK LIMITED	Hewett 52/5-A plug and abandonment (rig stabilisation) 1800 tonnes 1356m2	ML/743	27/08/2021	1356
Shell U.K. Limited	Leman to Bacton pipelines freespan mitigation 2021 2602m2	PL/2204	01/12/2021	2602
Perenco	PL23 remediation - 77 concrete mattresses 0.0012936 km2	PL/2277	12/07/2022	1293
ENI UK Limited	Hewett Decommissioning - Subsea Pipeline Cleaning of export pipelines PL20 & PL21 - 10m2 of sand in degradable hessian bags that will be cut open upon decommissioning.	PLA/905 - ML/948	22/02/2023	10
Eni UK Limited	Hewett Platform 48/29A Decommissioning - Pre Lay Rig Stabilisation (Rock Pads) 2966m3 - 2567m2	ML/974/0	04/04/2023	2567
Petrofac Facilities Management Limited	Kelham Appraisal Well	DR/2365	03/04/2023	0
Eni UK Limited	Hewett Field Bathymetric and Seismic Survey - Placement of Ocean Bottom Nodes	ML/951	01/03/2023	0
Eni UK Limited Perenco UK Limited	Hewett Field Bathymetric and Seismic Survey Arthur Marine Growth removal	ML/1020	17/07/2023	0
ENI UK Limited	Hewett 48/29-A P&A - 1800 tonnes 1356m2	ML/1023	21/07/2023	1356
ENI UK Limited	Hewett PL 83 52/5A Riser Removal and Water Gapping	ML/1079	19/01/2024	0
ENI UK Limited	Hewett PL584, PL1630, PL1629 & PL1323 Pipeline Operations	ML/1091/0	26/02/2024	0
ENI UK Limited	HEWETT 48/29-A8 WELL CCUS INJECTIVITY TEST	DR/2469/0	28/04/2024	0



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ENI UK Limited	Hewett 52/5A Topside Removal	DCA/200 - ML/1122	26/04/2024	
Perenco	SNS Pipeline Deposit Campaign: Pipelines PL22, PL23, PL24, PL07, PL109, PL447, PL451, PL630, PL669	PL/2505/0 PL/2506/0 PL/2503/0 PL/2504/0 PL/2501/0 PL/2512 PL/2502	20/01/2025	269
ENI UK Limited	Deborah P&A operations - 1800 tonnes 1356m2	ML/1189/0 and CL/1492/0	09/09/2024	1356
Petrodec	Wenlock E&A well: Conductor cut and removal	WIA/1816 - ML/1221	16/01/2025	0
ENI UK Limited	Hewett 52/5-A Debris Removal (Hewett Decommissioning)	DCA/235 ML/1245/0	17/02/2025	0
ENI UK LIMITED	Della P&A operations	ML/1209 and CL/1511	25/11/2024	0
ENI UK Limited	Hewett Decommissioning - Subsea Excavation at PL20 for the discharge of treated PL21 flushing fluids	SA/2105 - ML	07/03/2025	0
ENI UK LIMITED	Delilah P&A operations	ML/1210 and CL/1512	26/11/2024	0
Total Deposits 2017 – 2025: OPRED Approvals				19390



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Total Deposits 2011 -2016: OPRED Approvals <sup>1</sup>		44299
Norfolk Boreas Offshore Windfarm – assessed cable deposits <sup>2</sup>	To be constructed	24000
Norfolk Vanguard Offshore Windfarm – assessed cable deposits <sup>3</sup>	To be constructed	50000
Total Area - Deposits in HHW: OPRED approvals and Offshore Wind Approvals		137689
Total Proportion of HHW effected by hard substrate deposits (since 2011)		0.0094%

\*1 BEIS;2021

\*2 SoS Habitats Regulations Assessment Boreas OWF

\*3 PINS 2019



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### Statutory Nature Conservation Body (SNCB) Consultation

SNCB	Comment summary	Response
Natural England	<p><b>SNS SAC:</b> NE advise that it cannot be excluded that vessel noise associated with the activity, when considered in-combination with other noisy operations in the SAC could result in an LSE. This is due to the large number of other activities occurring in the site during the summer of 2025.</p>	<p><b>SNS SAC:</b> The Department has not previously considered non-impulsive noise i.e. continuous vessel noise as an activity with the potential to cause a significant effect on the SAC conservation objectives as this pressure is not outlined in the SNCB advice on the assessment of disturbance in harbour porpoise sites and has not been raised in SNCB advice before. High intensity impulsive noise triggers a distinctive flee/disturbance response in marine mammals. The effects of continuous vessel related noise do not trigger the same levels of disturbance and is likely to be significantly less pronounced.</p> <p>Continuous/vessel related noise is best assessed and managed at a strategic, site wide level considering the huge numbers of vessel movements taking place within the site. The effects of vessels related to a single operation will have a de-minimis effect on the conservation objectives.</p> <p>A change in approach to consider project level vessel noise as a pressure with the potential to impact the site's conservation objectives would be major shift in policy, and the Department would need to review the case and the evidence base for instigating such a change.</p>



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	<p><b>Haisborough Hammond and Winterton SAC:</b> NE advise that it cannot be ruled out that the placement of rock pads associated with rig stabilisation will not cause an adverse effect on site integrity and a derogation under IROPI and compensation measures should be investigated. This conclusion is based on the SNCBs view that the site is in un-favourable condition due to the preexisting widespread and extensive placement of hard deposits and rock protection in the site. They reference the site's conservation objectives which describe that the site's feature extent and structure and function should be restored due to these existing deposits.</p>	<p><b>Haisborough Hammond and Winterton SAC:</b> The SNCB conservation advice and condition assessment did not use or have reference to, any area-based estimates for the area of rock/hard deposits in the SAC and they instead assumed that the deposits were 'widespread and extensive'. The Department's assessment has reviewed the existing quantity of deposits in the site as specified in table 5 above and has concluded that &lt;0.01% of the site/feature has been affected by new deposits since the site was proposed in 2011, which is a very small proportion of site extent. The additional contribution of 0.00016% made by the project's proposed rig stabilisation material is therefore so small as to represent an immaterial change to the overall distribution of sediment types in the SAC and that any changes in the structure and function of the SAC will be highly localised and too small to have a meaningful effect on the conservation objectives. Furthermore, the developers survey data shows that natural sediment movements partially cover the rock over time, lessening the effects of sediment change.</p> <p>The Department has considered Natural England's recommendations and has determined that there is sufficient evidence to conclude that there will be no adverse effect on site integrity on the Haisborough Hammond and Winterton SAC.</p>
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