



Department for  
Energy Security  
& Net Zero

# Habitats Regulations Assessment for an Application Under the Planning Act 2008

## NET ZERO TEESSIDE PROJECT

Regulation 63 of The Conservation of  
Habitats and Species Regulations 2017 (as  
amended)



February 2024

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## List of abbreviations

Term	Abbreviation
(draft) Development Consent Order	(d)DCO
Adverse Effect on Integrity	AEoI
Appropriate Assessment	AA
Carbon Capture Plant	CCP
Combined Cycle Gas Turbine	CCGT
Construction Environmental Management Plan	CEMP
Environment Agency	EA
Environmental Impact Assessment	EIA
Environmental Statement	ES
European Economic Area states	EEA states
Examining Authority	ExA
ExA's written question	ExQ
Habitats Regulations Assessment	HRA
Habitats Regulations Assessment Report	HRAR
Hectare	ha
Horizontal Directional Drilling	HDD
In-combination Effect	ICE
Interested Parties	IPs
Joint Nature Conservation Committee	JNCC
Likely Significant Effect	LSE
Marine Management Organisation	MMO
Mean High Water Springs	MHWS

Mean Low Water Springs	MLWS
Megawatt	MW
National Site Network	NSN
Nationally Significant Infrastructure Project	NSIP
Natural England	NE
Planning Inspectorate	PINS
Relevant Representation	RR
Report on the Implications for European Sites	RIES
Special Area of Conservation	SAC
Special Protection Area	SPA
Statement of Common Ground	SoCG
Statutory Nature Conservation Body	SNCB
Supplementary Advice on Conservation Objectives	SACOs
The Secretary of State	The Secretary of State for Energy Security and Net Zero

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# 1 Introduction

## 1.1 Background

This is a record of the Habitats Regulations Assessment (HRA) that the Secretary of State for Energy Security and Net Zero (the Secretary of State) has undertaken under the Conservation of Habitats and Species Regulations 2017<sup>1</sup> (the Habitats Regulations), as amended, in respect of the Development Consent Order (DCO) for the Net Zero Teesside Project and its associated infrastructure (the Project). The Examining Authority (ExA) defines the elements included in the DCO application as the Proposed Development. It is defined as the Project within this HRA. For the purposes of the Habitats Regulations the Secretary of State is the competent authority.

The Project would comprise the construction, operation and decommissioning of a Combined Cycle Gas Turbine (CCGT) electricity generating station (with an electrical output of up to 860 megawatts (MW)) and post-combustion carbon capture plant (CCP). The captured CO<sub>2</sub> would be compressed prior to transportation via pipeline for storage in the Endurance saline aquifer beneath the North Sea, approximately 145 km to the south-east of the Project. A CO<sub>2</sub> gathering network would also be constructed to allow industrial emitters on Teesside to connect to the High Pressure (HP) Compressor Station and Endurance storage facility in the future. The site of the Project is situated in the administrative areas of Redcar and Cleveland, and Stockton-on-Tees. The Applicants are Net Zero Teesside Power Limited and Net Zero North Sea Storage Limited. The Project is described in more detail in Section 2.

Elements of the Project fall within the definition and thresholds of a nationally significant infrastructure project (NSIP) as defined by s. 14(1)(a) of the Planning Act 2008<sup>2</sup> as it includes an onshore generating station with a capacity over 50MW.

The Project was accepted by the Planning Inspectorate (PINS) under section 55 of the Planning Act 2008 for Examination on 16 August 2021. PINS appointed a three-person panel as the Examining Authority (ExA) for the Examination of the Application under section 61 and section 65 of the Planning Act 2008. The Examination of the Application began on 10 May 2022 and concluded on 10 November 2022. The ExA submitted its recommendation (the ExA's Report) to the Secretary of State on 10 February 2023. Numbered references to the ExA's Report are presented in the format "[ER \*.\*]".

Following receipt of the ExA's Report the Secretary of State invited Interested Parties (IPs) to provide additional updates, information and responses to information, including relating to potential impacts on qualifying features of UK National Site Network (NSN) sites. The Secretary of State's consultation letters referred to throughout this report are referenced in Section 2.3.

This HRA contains a consideration of the potential effects of the Project upon protected sites in European Economic Area (EEA) States (transboundary sites). This is recorded under the transboundary assessment section of the report (Section 6).

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<sup>1</sup> <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

<sup>2</sup> <http://www.legislation.gov.uk/ukpga/2008/29/contents>

## 1.2 Habitats Regulations Assessment

The Habitats Regulations aim to ensure the long-term conservation of certain species and habitats by protecting them from possible adverse effects of plans and projects. In the UK, the Habitats Regulations apply as far as the 12 nautical miles (nm) limit of territorial waters.

The Habitats Regulations provide for the designation of sites for the protection of habitats and species of international importance. These sites are called Special Areas of Conservation (SACs). They also provide for the classification of sites for the protection of rare and vulnerable birds and for regularly occurring migratory species within the UK and internationally. These sites are called Special Protection Areas (SPAs). SACs and SPAs together form part of the UK's NSN.

The Convention on Wetlands of International Importance 1972 (the Ramsar Convention) provides for the listing of wetlands of international importance. These sites are called Ramsar sites. Government policy is to afford Ramsar sites in the United Kingdom the same protection as sites within the NSN (collectively referred to in this HRA as "protected sites").

Candidate SACs, SACs and SPAs are afforded protection as protected sites. As a matter of policy<sup>3</sup> the Government affords potential SPAs the same level of protection as if they had already been classified.

Regulation 63 of the Habitats Regulations provides that:

*...before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in-combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site, [the competent authority] must make an appropriate assessment of the implications for that site in view of that site's Conservation Objectives.*

And that:

*In the light of the conclusions of the assessment, and subject to regulation 64 [IROPI], the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site or the European offshore marine site (as the case may be).*

This Project is not directly connected with, or necessary to the management of, a protected site. The Habitats Regulations require that, where the Project is likely to have a significant effect (LSE) on any such site, alone or in-combination with other plans and projects, an appropriate assessment (AA) is carried out to determine whether or not the Project will have an adverse effect on the integrity (AEoI) of the site in view of that site's Conservation Objectives. In this document, the following are collectively referred to as the HRA:

- Stage 1: Assessment of LSE; and
- Stage 2: AA to determine whether there is an AEoI of any protected site.

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<sup>3</sup> NPS EN-1 para 5.3.9



The Secretary of State has had regard to relevant guidance on the application of HRA published by the PINS (2022) (Advice Note 10)<sup>4</sup>, guidance produced by Defra (2012)<sup>5</sup> & (2021)<sup>6</sup> and the European Commission (2019)<sup>7</sup>, together with recently published joint guidance by Defra, Natural England (NE), the Welsh Government and Natural Resources Wales (2021) on ‘Habitats Regulations Assessment: protecting a European site’ (the 2021 joint guidance)<sup>8</sup>. It is noted that the Defra (2012) guidance was withdrawn on 15 March 2021 and has subsequently been updated and replaced by the 2021 joint guidance.

There are no parallel consents required for the Project which would require additional HRA to be carried out by any other competent authority.

### 1.3 Site Conservation Objectives

Where an AA is required in respect of a protected site, regulation 63(1) of the Habitats Regulations requires that it be an AA of the implications of the plan or project for the site in view of its Conservation Objectives. Government guidance also recommends that in carrying out the LSE screening, applicants must check if the proposal could have a significant effect on a protected site that could affect its Conservation Objectives.

Defra guidance<sup>9</sup> indicates that disturbance to a species or deterioration of a protected site must be considered in relation to the integrity of that site and its Conservation Objectives. It states that *“the integrity of a site is the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was designated”*.

Conservation Objectives have been established by NE. When met, each site will contribute to the overall favourable conservation status of the species or habitat feature across its natural range. Conservation objectives outline the desired state for a protected site, in terms of the interest features for which it has been designated. If these interest features are being managed in a way which maintains their nature conservation value, they are assessed as being in a ‘favourable condition’. An AEol is likely to be one which prevents the site from making the same contribution to favourable conservation status for the relevant feature as it did at the time of its designation. There are no set thresholds at which impacts on site integrity are considered

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<sup>4</sup> The Planning Inspectorate (2022): Advice Note Ten: Habitats Regulations Assessment Relevant to Nationally Significant Infrastructure Projects.

<sup>5</sup> Defra (2012) Habitats and Wild Birds Directives: Guidance on the application of article 6(4) Alternative solutions, imperative reasons of overriding public interest (IROPI) and compensatory measures.

<sup>6</sup> [https://consult.defra.gov.uk/marine-planning-licensing-team/mpa-compensation-guidance-consultation/supporting\\_documents/mpacompensatorymeasuresbestpracticeguidance.pdf](https://consult.defra.gov.uk/marine-planning-licensing-team/mpa-compensation-guidance-consultation/supporting_documents/mpacompensatorymeasuresbestpracticeguidance.pdf)

<sup>7</sup> European Commission (2019) Managing Natura 2000 sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC: [https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/EN\\_art\\_6\\_guide\\_jun\\_2019.pdf](https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/EN_art_6_guide_jun_2019.pdf)

<sup>8</sup> Defra, NE, the Welsh Government and Natural Resources Wales (2021) ‘Habitats Regulations Assessment: protecting a European site’: <https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site>

<sup>9</sup> <https://www.gov.uk/guidance/appropriate-assessment>

adverse. This is a matter for interpretation on a site-by-site basis, depending on the designated feature and nature, scale, and significance of the impact.

NE has issued generic Conservation Objectives<sup>10</sup> which should be applied to each interest feature of the site. Supplementary advice on Conservation Objectives (SACOs) for each site underpins these generic objectives to provide site-specific information and give greater clarity to what might constitute an adverse effect on a site interest feature. SACOs are subject to availability and are updated on a rolling basis.

Where supplementary advice is not yet available for a site, NE advises that HRAs should use the generic objectives and apply them to the site-specific situation. For SPAs, the overarching objective is to avoid the deterioration of the habitats of qualifying features, and the significant disturbance of the qualifying features, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving the aims of the Habitats Regulations. This is achieved by, subject to natural change, maintaining and restoring:

- the extent and distribution of the habitats of the qualifying features;
- the structure and function of the habitats of the qualifying features;
- the supporting processes on which the habitats of the qualifying features rely;
- the populations of the qualifying features; and
- the distribution of the qualifying features within the site.

For SACs, the overarching objective is to avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving favourable conservation status of each of the qualifying features. This is achieved by, subject to natural change, maintaining or restoring:

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

The conservation objectives for each of the 13 protected sites that were screened for LSE are described in Section 3 of the Applicants' HRA Report [REP12-120].

The Conservation Objectives and, where available, SACOs have been used by the Secretary of State to consider whether the Project has the potential to have an AEoI of sites, either alone or in-combination with other plans or projects.

The SACOs relevant to this HRA, as published by NE and the Joint Nature Conservation Committee (JNCC), are referenced in Table 1 and where relevant in Section 5 of this HRA.

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<sup>10</sup> <http://publications.naturalengland.org.uk/publication/6734992977690624?cache=1656417868.31>

## 1.4 The Report on the Implications for European Sites (RIES) and statutory consultation

Under Regulation 63 (3) of the Habitats Regulations the competent authority must, for the purposes of an AA, consult the statutory nature conservation body (SNCB) and have regard to any representation made by that body within such reasonable time as the authority specifies.

NE is the SNCB for England and for English waters within the 12 nm limit.

The ExA prepared a RIES [PD-018], with support from the Planning Inspectorate's Environmental Services Team. The RIES was based on matrices provided by the Applicants and relevant information provided by IPs. The RIES documented the information received during the Examination (up until 1 September 2022) and presented the ExA's understanding of the main facts regarding the HRA to be carried out by the Secretary of State.

The RIES was published on PINS NSIP webpage<sup>11</sup> and the ExA notified IPs that it had been published. Consultation on the RIES was undertaken between 27 September 2022 and 6 October 2022. The RIES was issued to ensure that IPs, including the SNCBs, were consulted formally on Habitat Regulations matters as required under regulation 63(3) of the Habitats Regulations. Comments were received from the Applicants [REP9-021] at D9. No comments were received from NE or from any other IP.

The Secretary of State is content to accept the ExA's recommendation [ER 6.1.8] that the RIES and consultation on it, represents an appropriate body of information to enable the Secretary of State to fulfil her duties in respect of the UK's NSN.

## 1.5 Structure of this HRA

The remainder of this HRA is presented as follows:

- Section 2: provides a general description of the Project;
- Section 3: presents an assessment of the extent to which the Project could have a significant effect on protected sites and qualifying features on its own or in-combination with other plans or projects;
- Section 4: provides a description of the AA methodology;
- Section 5: presents an AA of the effects of the Project on protected sites and qualifying features, on its own and in-combination with other plans or projects;
- Section 6: presents a consideration of transboundary impacts; and
- Section 7: presents the Secretary of State's conclusions.

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<sup>11</sup> <https://infrastructure.planninginspectorate.gov.uk/projects/north-east/the-net-zero-teesside-project/>

## 2 Project description

The Project and its components are shown on the Works Plans [APP-020 to APP-022]. A detailed description and corresponding Works Nos. are contained in Schedule 1 'Authorised Development' of the DCO and ES Chapter 4 'The Proposed Development' [APP-086].

The Project is comprised of the construction, operation and decommissioning of a CCGT electricity generating station, with an electrical output of up to 860 MW, and a CCP. The captured CO<sub>2</sub> would be compressed prior to transportation via a pipeline for storage in the Endurance saline aquifer beneath the North Sea. A CO<sub>2</sub> gathering network would also be constructed to allow industrial emitters on Teesside to connect to the HP Compressor Station and Endurance storage facility in the future. The offshore elements comprise the offshore section of the CO<sub>2</sub> Export Pipeline (from below Mean High Water Springs (MHWS)) to the Endurance Store offshore geological CO<sub>2</sub> storage site under the North Sea and the offshore CO<sub>2</sub> injection wells and associated infrastructure (the Offshore Elements). The Project as applied for and authorised by the DCO comprises the onshore elements of the Wider NZT Project (the Onshore Elements). The Onshore Elements and the Offshore Elements together comprise the 'Wider NZT Project'. Although only the Onshore Elements of the Wider NZT Project form part of this DCO Application, the Secretary of State has been mindful when carrying out the HRA and reviewing the ES to consider the potential environmental effects of the Wider NZT Project as a whole (see Section 2.3).

The Applicants have incorporated a degree of flexibility in the process and configurations of structures to allow for the future selection of a preferred technology and contractors [APP-070]. The Project site comprises the following main parts:

- An electricity generating station fuelled by natural gas and with an electrical output up to 860 MW. It comprises a CCGT, a CCP, CCGT and CCP cooling and utilities infrastructure, administration, control room and stores, and ancillary works;
- Gas connection corridor for the transport of natural gas;
- Electrical connection for the export of electricity to the National Grid Electricity Transmission system;
- Water supply connection corridor to supply water for works to provide cooling and make-up for the CCGT and CCP, as well as for domestic and sanitary use;
- Wastewater discharge connection corridor which covers wastewater disposal works associated with the electricity generating station. Water from the process would be treated and discharged to Tees Bay via either existing water discharge infrastructure, which would be repaired and updated or through a new outfall. Discharge of domestic and sanitary effluent would be to the local sewerage system for treatment providing for up to two new wastewater pipelines between Bran Sands Wastewater Treatment Plan and the electricity generating station;
- CO<sub>2</sub> gathering network corridor to collect and transport CO<sub>2</sub> to the HP Compressor Station;
- HP Compressor Station which will be a collection point for CO<sub>2</sub> from the medium pressure CO<sub>2</sub> gathering network, including CO<sub>2</sub> from the CCGT;
- A high pressure, dense-phase CO<sub>2</sub> export pipeline with an indicative diameter of up to 800mm. This pipeline will eventually link to the Endurance storage facility;
- Six temporary construction and laydown areas; and
- Access and highway improvement works.

## 2.1 Project location

The Project is situated in the administrative areas of Redcar and Cleveland, and Stockton-on-Tees, in proximity to the town of Middlesbrough in north-east England. It spans both sides of the River Tees which enters the North Sea at Teesmouth, bounded by reclaimed land at South Gare. Much of the site is previously developed land, some of which was reclaimed from the Tees Estuary from the late 19th century and during the 20th century. The area surrounding the site is largely characterised by industrial and commercial uses, although there are open areas of land at South Gare and Coatham Sands, which are used for recreational purposes and are of nature conservation importance.

The site proposed for the electricity generating station is land that was formally part of the Redcar Steelworks on the south bank of the River Tees, to the south east of the Redcar Bulk Terminal. The area contains redundant large-scale plant and open land areas that were previously used for storage and processing of raw materials.

The Order limits are remote from residential areas, but areas of public and private amenity lie close to the northern and eastern boundaries at Coatham Sands. The nearest main settlement is the town of Redcar approximately 1.8 km to the east and suburb of Dormanstown about 1.4 km to the south-east. The pipeline corridors beyond the former steelworks site are predominantly located on industrial land, extending across the Tees to Seal Sands and Billingham. These corridors pass through vacant land and existing utilities corridors on both sides of the River Tees. There are a wide range of industrial and commercial uses in the area where a number of IPs involved in the Examination have operations and land interests both within the Order Limits and its surroundings.



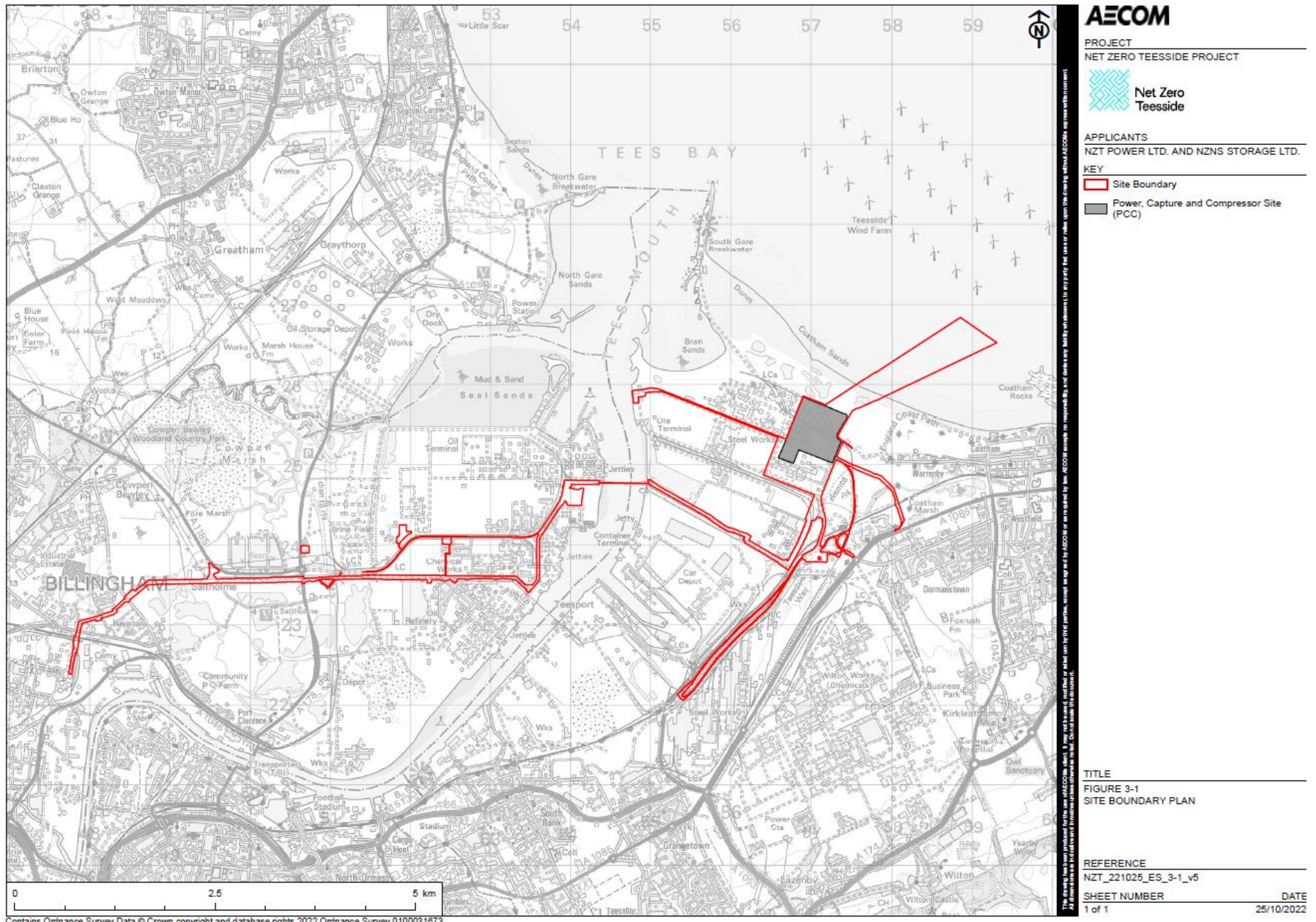


Figure 1: The Order Limits of the Project at the close of Examination.



## 2.2 Changes to the Application during Examination

The Project and its components are shown on the Works Plans [APP-020 to APP-022]. A detailed description and corresponding Works Nos. are contained in Schedule 1 'Authorised Development' of the dDCO [APP-005] and ES Chapter 4 'The Proposed Development' [APP-086].

The Applicants submitted three change requests comprising 18 changes. The changes sought to address points raised by IPs and the ExA and to update or provide additional information resulting from changes and discussions that had occurred during the Examination. A list of the updated, revised and additional information submitted into the Examination is contained within the Guide to the Application [REP13-002]. Figure 1 shows the Order limits at the close of Examination. The Applicants' assessment of effects was initially reported in its Habitats Regulations Assessment Report (HRAR) [APP-080]. Updated versions were submitted during the Examination, in response to ExA's advice, comments from IPs and the change requests [AS-018, AS-194, AS-195, REP3-002, REP6-044, REP6-045, REP6-109, REP6-110, REP9-003, REP9-004, REP12-032, REP12-033, REP12-120 and REP12-121]. Unless otherwise specified, references in this HRA to the HRAR should be read as a reference to the final versions submitted at D12 [REP12-120 (clean) and REP12-121 (tracked changes)]. The Applicants did not identify any new or different effects on protected sites resulting from the change requests.

The Applicants first change request involved 13 individual changes [AS-047 to AS-195]. The changes aimed to reduce optionality, land take and complexity, and reflected updated construction assessments and landowner discussions. The proposed changes are detailed in Chapter 2 of the ES Addendum [AS-050], but broadly include:

- Removal of new build options for the gas connection (options 1A and 1B).
- Changes to the means of crossing the River Tees including the trajectory/direction of the Horizontal Directional Drilling (HDD) for the CO<sub>2</sub> gathering network.
- Alternations in the extent of land required within the Order limits.

The ExA agreed that none of these proposed changes were so material that individually or cumulatively they would lead to a materially different project [PD-010].

A second change request was made on 23 August 2022 to further reduce optionality and the extent of the Order limits [REP6-104 to REP6-110, REP6-046 to REP6-108, REP8-011 to REP8-035]. This comprised four further changes and is described in more detail in Chapter 2 of the Second ES Addendum [REP6-107], but broadly include:

- Removal of option 2 (crossing of the River Tees by HDD) for the CO<sub>2</sub> gathering network.
- Removal of option 1B for the electrical connection as well as the removal of land parcels subject to TP.

The ExA agreed that none of these proposed changes were so material that individually or cumulatively they would lead to a materially different project [PD-017].

The third change request [REP12-116, REP12-034 to REP12-119] was made towards the end of the Examination. This is described in more detail in Chapter 2 of the Third ES Addendum [REP12-118] and comprises the removal of option to use the existing South Tees Development

Corporation water discharge infrastructure to Tees Bay (Work Nos. 5A and 10). The ExA agreed that the change was non-material and could be accepted into the Examination [PD-023].

In total the change requests reduced the extent of the Order land from approximately 462 ha to 246 ha. The Project still comprises the same ten main elements that were in the original application, but optionality within these has been significantly reduced over the course of the Examination. Most of the proposed changes involved the removal of options / reduction in land within the Order limits assessed in the original HRAR [APP-080]. The change most likely to lead to additional effects on protected sites was the change in the trajectory / direction of the HDD for the CO<sub>2</sub> gathering network corridor. However, the option of using HDD to cross the River Tees for the construction of the CO<sub>2</sub> gathering network corridor (Work No. 6) was removed by the second change request.

The Applicants submitted a further change request during the Secretary of States consideration of the Application, to remove the Tees Dock Access Road from the Project. The proposed change would further reduce the amount of land required for the Project and reduce the extent of the Order limits and Order land. The Applicants considered that the proposed change would not affect the validity of the ES or change the environmental effects assessed in the ES.

The ExA [ER 6.1.15] was satisfied that the version of the HRAR submitted at Deadline 12 [REP12-120] adequately reflects the effects of the proposed changes. The Secretary of State is satisfied that the change requests will not result in any new or different environmental effects, and that the final version of the HRAR adequately assesses the potential environmental effects of the Project as authorised by the made DCO.

## 2.3 Documents referred to in this HRA

This HRA has taken account of, and should be read in conjunction with the documents produced as part of the Application and Examination which are available on the PINS NSIP web page<sup>12</sup>. In particular:

- The ExA's Report;
- The RIES [PD-018];
- The Applicant's assessment of effects, including:
  - Document 7.16: Habitats Regulations Assessment Report (HRAR) [REP12-120]; and
  - The Environmental Statement (ES), including the first [AS-050], second [REP6-107] and third [REP12-118] ES Addenda.
- The final Statement of Common Ground (SoCG) with NE [REP13-018], the Environment Agency (EA) [REP13-017] and Marine Management Organisation (MMO) [REP13-016]; and
- Responses to the Secretary of State's consultation letters (the consultation letters), published on:
  - 10 March 2023<sup>13</sup>;

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<sup>12</sup><https://infrastructure.planninginspectorate.gov.uk/projects/north-east/the-net-zero-teesside-project/?ipcsection=docs>

<sup>13</sup><https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002724-NZT%20-%20SoS%20Consultation%201%20-%20Information%20Request%201%20090323%20-%20signed.pdf>



- 3 April 2023<sup>14</sup>;
- 16 May 2023<sup>15</sup>;
- 7 August 2023<sup>16</sup>;
- 22 September 2023<sup>17</sup>; and
- 20 December 2023<sup>18</sup>.

Plus, other information submitted during the Examination and during the Secretary of State's consideration of the Project. Key information from these documents is summarised in this HRA.

The final signed SoCG between the Applicants and NE [REP13-018] was submitted at Deadline 13 and confirms that all matters, including relating to HRA, were agreed between the two parties.

### 2.3.1 The Project authorised by the DCO, and the Wider NZT Project

Whilst the Project as applied for and authorised by the DCO (Onshore Elements) and Offshore Elements of the Wider NZT Project are related to each other, consent for each element is being sought through differing consenting regimes. On 16 May 2023, the Secretary of State requested<sup>15</sup> that the Applicants provide an updated Environmental Impact Assessment and Habitats Regulations Assessment report which included an assessment, both alone and cumulatively with the Onshore Elements (the Project as applied for and authorised by the DCO), of the Offshore Elements of the Wider NZT Project, including the Endurance Store (Figure 2). The Secretary of State considered this important and relevant, so that she has sufficient information to consider all direct, indirect and in-combination environmental effects of both the Project as applied for and the Offshore Elements, which will inevitably exist and operate at the same time.

On 4 August 2023 in response<sup>19</sup> to the Secretary of State's request, the Applicants provided an Environmental Statement and Habitats Regulations Assessment Addendum<sup>20</sup> (the ES-HRA Addendum). The Applicant for the Offshore Elements seeks a Carbon Storage Permit, supported by an Offshore ES developed under the Offshore EIA Regulations 2020 for the Offshore Elements (below MLWS), but with reference made to impacts up to MHWS. The Offshore ES

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<sup>14</sup><https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002745-NZT%20-%20SoS%20DESNZ%20Information%20Request%202.pdf>

<sup>15</sup><https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002783-Offsen%20-%20NZT%20-Information%20Request%20160523.pdf>

<sup>16</sup><https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002802-NZT%20-%20Consultation%20-%20Information%20Request%20-%20070823.pdf>

<sup>17</sup>[https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002865-NZT%20-%20Final%20Consultation%20-%20140922\\_Redacted.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002865-NZT%20-%20Final%20Consultation%20-%20140922_Redacted.pdf)

<sup>18</sup><https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002894-NZT%20-%20Consultation%20-%20All%20IPs%20-%202021223.pdf>

<sup>19</sup><https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002806-230802-%20NZT%20DCO%20-%20Letter%20in%20response%20to%20SoS%20RFI%204%20August%202023.pdf>

<sup>20</sup> Net Zero Teesside (2023): Wider Project Environmental Statement – Habitat Regulations Assessment Addendum. Document reference 6.6. Dated August 2023:  
[https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002815-NZT%20DCO%206.6%20-%20Wider%20Project%20ES-HRA%20Addendum%20incl.%20Appendix%201%20\(SoS%20RFI\)%204%20Aug%202023.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002815-NZT%20DCO%206.6%20-%20Wider%20Project%20ES-HRA%20Addendum%20incl.%20Appendix%201%20(SoS%20RFI)%204%20Aug%202023.pdf)

will be submitted by BP Exploration Operating Company Ltd. to OPRED. In advance of submission of the Offshore ES to OPRED, a copy of the Offshore ES is submitted to the Secretary of State as Appendix 2<sup>21,22</sup> to the ES-HRA Addendum. The ES-HRA Addendum draws upon information contained within the Offshore ES and the ES submitted for the Project.

Firstly, the ES-HRA Addendum assessed whether any updates were required to assess the alone and in-combination effects (ICEs) given the passage of time since submission of the onshore ES. The ES-HRA Addendum then considered whether there were any new or materially different LSE of the Wider NZT Project, both alone and in-combination, that had not been identified in the onshore ES and HRAR and / or Offshore ES and HRA. The ES-HRA Addendum then reports the conclusions of the LSE of the Wider NZT Project.

The Secretary of State has considered this further information and summarises it below where relevant to this HRA.

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<sup>21</sup><https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002808-NZT%20DCO%206.6%20-%20Appendix%202%20Offshore%20ES%20Part%201.pdf>

<sup>22</sup><https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002809-NZT%20DCO%206.6%20-%20Appendix%202%20Offshore%20ES%20Part%202.pdf>

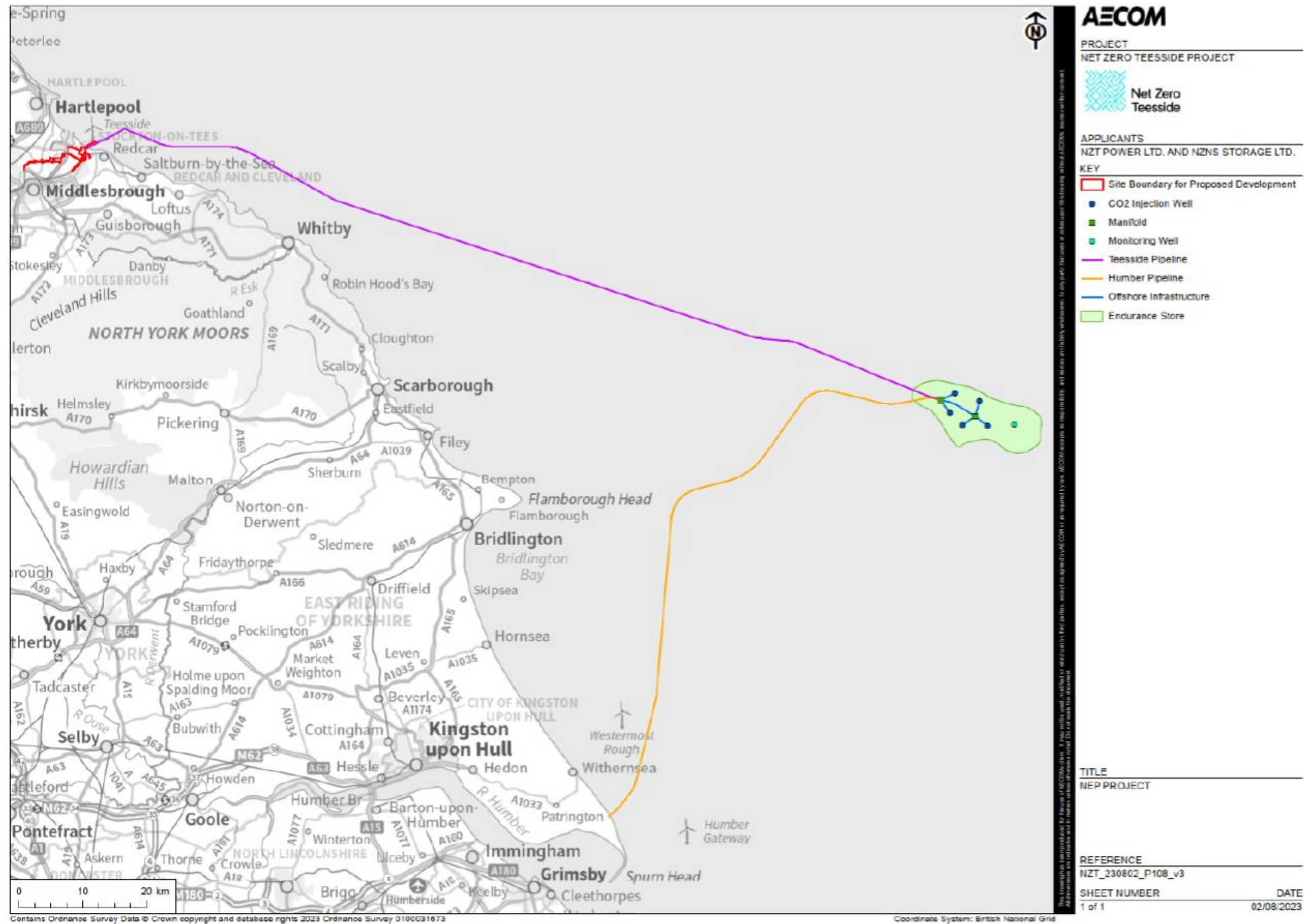


Figure 2: The Wider NZT Project (excluding the Humber Pipeline).

### 3 Stage 1: Screening for Likely Significant Effects

Under regulation 63 of the Habitats Regulations, the Secretary of State must consider whether a development will have an LSE on a protected site, either alone or in-combination with other plans or projects.

The purpose of this section is to identify any LSEs on protected sites that may result from the Project and to record the Secretary of State's conclusions on the need for an AA.

#### 3.1 Protected sites

The application site is within the zone of influence of several protected sites as illustrated in Figure 3 and Figure 4. Section 3 of the HRAR [REP12-120] described the process used to identify sites and features for inclusion in the assessment. The Applicants used EA guidance<sup>23</sup> on large power generation developments greater than 50 MW, which advises a 15 km radius of search as appropriate for identifying relevant protected sites that may be affected by a Project due to air quality. Some impact pathways such as disruption of fish migration can affect sites considerably further afield than 15 km. As a precaution, potential impact pathways to relevant protected sites designated for marine mammals and migratory fish were therefore also considered in the HRAR, however a zone of influence was not identified. Given the location of the Project, the relevant protected sites and the likely impact pathways present, the following protected sites are considered in the HRAR:

- Teesmouth and Cleveland Coast SPA / Ramsar;
- Durham Coast SAC;
- North York Moors SAC;
- North York Moors SPA;
- Berwickshire and North Northumberland Coast SAC;
- Northumbria Coast SPA / Ramsar;
- The Wash and North Norfolk Coast SAC;
- Humber Estuary SAC;
- Southern North Sea SAC;
- River Tweed SAC; and
- Tweed Estuary SAC.

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<sup>23</sup> Environment Agency (2023). Air emissions risk assessment for your environmental permit. Available online: <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>



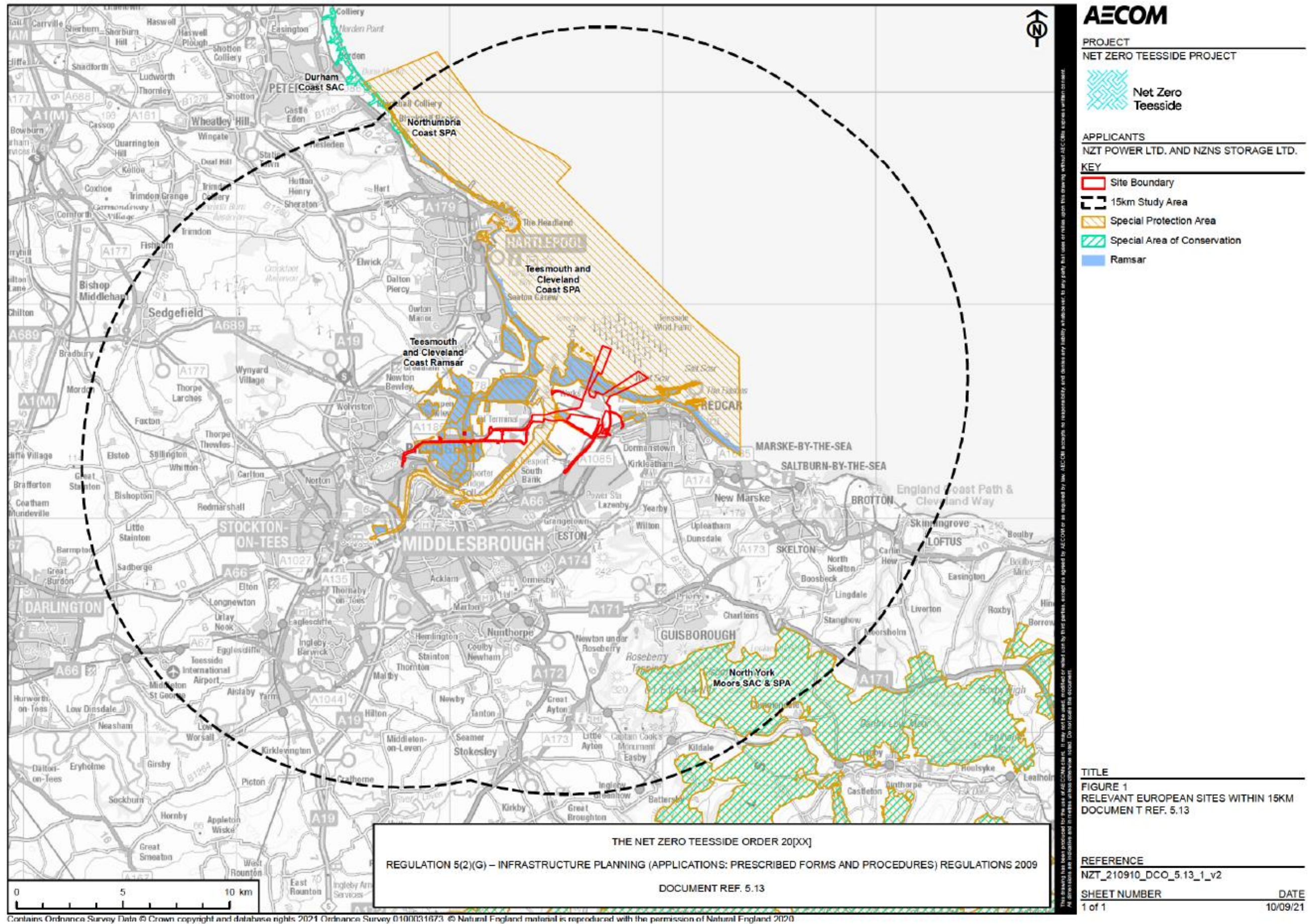


Figure 3: Protected sites within 15 km of the Project Order Limits.



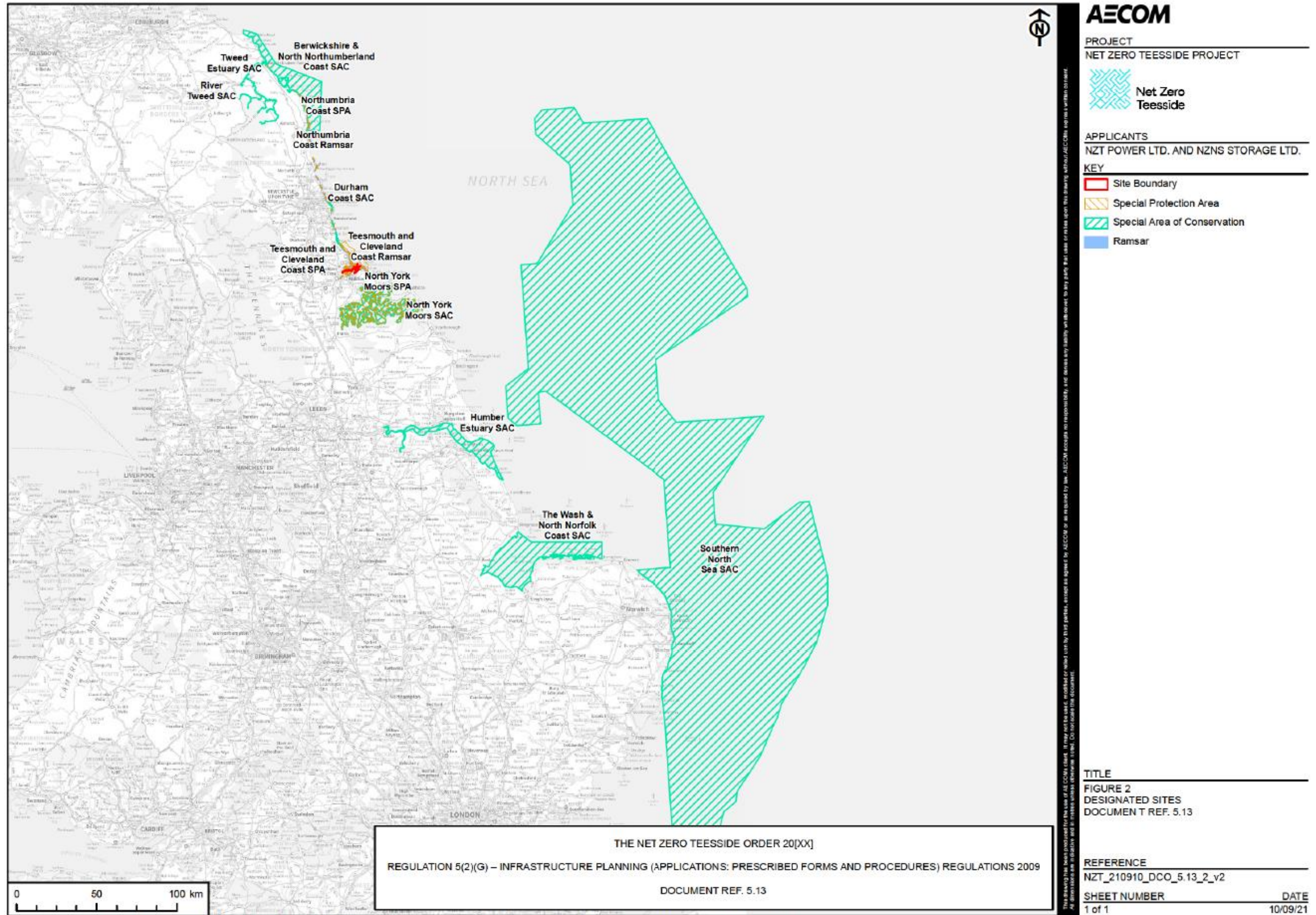


Figure 4: Relevant protected sites considered in this HRA.

The baseline evidence and potential construction, operational and decommissioning effects on the protected sites are identified in Section 3 of the HRAR.

The HRAR identified potential effects on the River Tweed SAC which is a cross-border site. The ExA wrote to NatureScot, the SNCB with responsibility for Scotland, inviting it to take part in the Examination as an “Other Person” [PD-013]. NatureScot [REP3-029] advised that in its view the Project is unlikely to affect protected sites in Scotland and therefore did not wish to be involved in the Examination.

The protected sites and qualifying features that were considered in the Applicant’s screening exercise are presented in Section 4 of the HRAR. The HRAR sets out the methodology applied to determining what would constitute a ‘significant effect’. The Applicants screened the following protected sites into the HRAR:

- Teesmouth and Cleveland Coast SPA;
- Teesmouth and Cleveland Coast Ramsar;
- North York Moors SPA;
- North York Moors SAC; and
- Southern North Sea SAC.

The following were considered as having the potential to have an effect on the qualifying features (and/or the supporting habitats of qualifying species) for the construction (C) / decommissioning (D) phase:

- noise and visual disturbance (C,D);
- effects on foraging resources due to rock armour (C,D);
- changes in water quality (C,O,D);
- direct land take due to HDD collapse (C); and
- disturbance of harbour porpoise in functionally linked habitat (C).

The following was considered as having the potential to have an effect on the qualifying features (and/or the supporting habitats of qualifying species) for the operational (O) phase:

- atmospheric pollution.

The Applicant’s screening conclusions for each protected site, feature and effect pathway identified above are presented in Section 4 and 5, and Screening Matrices (Appendix B) of the HRAR. Each matrix includes footnotes that set out evidence to support the Applicant’s conclusions in relation to LSEs.

Of all protected sites identified, the ExA concluded that LSEs could not be excluded for the above five sites and their qualifying features, either alone or in combination with other plans or projects, based on the Applicant’s HRAR [REP12-120]. No additional sites which could be affected by the Project were identified by any of the IPs. Table 1 summarises the features for which LSEs, either alone or in-combination, cannot be excluded for each site. NE agreed with the conclusions of the Applicant’s HRAR in relation to these sites [RR-026, REP2-065].

The ExA noted that the HRAR excluded LSE from direct habitat loss within the Teesmouth and Cleveland Coast SPA and Ramsar site. This was on the grounds that although the CO<sub>2</sub> export pipeline and the replacement outfall would cross the sand dunes and intertidal habitats within the SPA / Ramsar site, the use of HDD and micro-boring would avoid direct habitat loss. The



Applicants advised that the HDD / tunnel microboring constituted an intrinsic part of the Project which can be considered at the screening stage of the HRA, consistent with advice published by NatureScot [REP2-016]. However, the ExA considered that the use of HDD/micro-boring potentially represented mitigation measures which, following the 'People Over Wind' case, cannot be taken into account when determining if LSE would arise [ER 6.2.6].

NE also raised concerns [RR-026, REP2-065] about the potential for additional LSE on the Teesmouth and Cleveland Coast SPA and Ramsar site from:

- placement of rock armour around the outfall head leading to a loss of foraging resource for the bird species which are qualifying features of the sites; and
- direct habitat loss as a result of HDD bore collapse or accidental release of drilling fluid.

The Applicants subsequently revised their HRAR to include LSE from these impacts on the Teesmouth and Cleveland Coast SPA and Ramsar site.

The ExA [ER 6.2.19] considered that it had not been comprehensively demonstrated the use of trenchless technology was an intrinsic part of the project.

With the exception of the potential LSE from construction of the CO<sub>2</sub> export pipeline across the Teesmouth and Cleveland Coast SPA and Ramsar site, the ExA [ER 6.2.20] was satisfied on the basis of the information provided, that the final version of the HRAR [REP12-120] has identified all the relevant impact pathways on protected sites and qualifying features.

The RIES and HRAR provide further information regarding protected sites and qualifying features which were considered, but for which LSEs were screened out. The Secretary of State is satisfied to adopt the rationale and conclusions of the ExA and Applicants for those sites and features screened out of the LSE assessment and has not duplicated this assessment here.

The Secretary of State has considered the potential effects of the Project on all qualifying features of the protected sites, taking into account their Conservation Objectives, to determine whether there will be LSEs. With regards to the ruling of the European Court of Justice (ECJ) in *People Over Wind, Peter Sweetman v Coillte Teoranta (C-323/17)* (the Sweetman Judgement)<sup>24</sup>, in reaching her conclusions regarding LSE, the Secretary of State took no account of measures intended to avoid or mitigate effects on any protected site.

### 3.2 Likely Significant Effects in-combination

When assessing the implications of a plan or project in light of the Conservation Objectives for protected sites, it is necessary to consider the potential for ICEs (i.e. the effects of the project combined with potential effects of other planned projects), as well as effects due to the project in isolation. Under the Habitats Regulations, the Secretary of State must consider whether other plans or projects in-combination with the Project might affect protected sites.

PINS Advice Note 10<sup>4</sup> provides guidance on what should be considered within in-combination assessments and states that other plans or projects should include:

- projects that are under construction;

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<sup>24</sup> ECJ case reference C-323/17, available: <http://curia.europa.eu/juris/document/document.jsf?docid=200970&doclang=EN>



- permitted application(s) not yet implemented;
- submitted application(s) not yet determined;
- all refusals subject to appeal procedures not yet determined;
- projects on the National Infrastructure's programme of projects; and
- projects identified in the relevant development plan (and emerging development plans - with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited and a degree of uncertainty may be present.

The Applicants addressed potential ICEs arising from the Project within HRAR Section 7, which sets out the methodology applied. However, the assessment does not make a clear distinction between determining LSE and considering AEoI of protected sites. In response to ExA's question (ExQ2 BIO.2.7 [PD-016]) as to whether this approach was appropriate, the Applicants stated that the Project was [REP6-121]):

*"...deemed to potentially result in Likely Significant Effects (LSEs) alone, before considering potential cumulative impacts. Therefore, the in-combination assessment section was placed after the AA for simplicity. However, all pathways with potential cumulative impacts with other plans and projects have been considered in the table, not just the ones with LSEs alone and for which an AA was undertaken. For example, Table 7.1 considers impacts on SPA / Ramsar bird flight lines during construction, operation and decommissioning in-combination, an impact that was screened out for the Proposed Development alone. In summary, the table does also consider impact pathways with potential in-combination LSEs".*

The plans and projects considered in the Applicants assessment are listed in Table 7.1 of the HRAR and comprise:

- the CO<sub>2</sub> export pipeline below MLWS and the geological storage facility (the Offshore Elements of the Wider NZT Project);
- the UK Government Clean Growth Strategy 2017;
- Redcar and Cleveland Local Plan (adopted May 2018);
- Stockton-on-Tees Local Plan and Policies Map (adopted January 2019);
- Tees Valley Joint Minerals and Waste Development Plan Document (adopted September 2011);
- South Tees Regeneration Master Plan 2017;
- Tees Valley Combined Authority Strategic Economic Plan (2016), Investment Plan (2019) and Infrastructure Plan;
- ICL Tees Dock;
- York Potash Order 2016 and associated overhead conveyor and storage facilities;
- Dogger Bank Teesside A and Sofia Offshore Wind Farm; Redcar Energy Centre (application R/2020/0411/FFM);
- Grangetown Prairie scheme (R/2019/0767/OOM); and
- Teesside Combined Cycle Power Plant.

No points were raised in relation to the Applicant's in-combination assessment by any IP in the course of the Examination.

### **3.2.1 The Wider NZT Project**

Onshore ES Appendix 24C: Statement of Combined Effects [AS-032] is a document which recognised the high-level principles of the EIA process and the need to consider environmental effects of the Wider NZT Project as a whole. This document sets out a consideration of project-

wide effects that may result from the concurrent development of both the Project and the Wider NZT Project by providing a summary of the environmental setting of the Project and the Offshore Elements, the potential environmental effects and, where necessary, proposed mitigation for the onshore and offshore schemes respectively. The potential for combined effects was then assessed based on the assumption of overlapping timeframes. The ES-HRA Addendum updates the Statement of Combined Effects document, taking account of the findings in the Offshore ES, and reports on whether any new or materially different environmental effects have been identified for the Wider NZT Project, that are not identified in the ES and HRAR for the Project or the Offshore ES.

The ES-HRA Addendum concentrates on (but is not limited to) the overlap between the Project and the Offshore Elements in an area referred to as the Connection Zone which includes the points of interaction between the Project and the Offshore Elements. The Applicants consider that any potential combined effects would be restricted to the combined construction phase in the Connection Zone and any (limited) recovery period thereafter. They state that no combined effects are reasonably expected for the operation and maintenance of the Project and Offshore Elements. Operation and maintenance activities associated with the Offshore Elements in the Connection Zone are limited to periodic inspection of the CO<sub>2</sub> Export Pipeline (pipeline inspection repair and maintenance activities, for example, or scour around the Outfall and rock armour). They state that there is no reasonably foreseeable scenario by which these activities would interact with operation and maintenance activities associated with the Project to result in a combined effect. Potential combined effects have been assessed as likely to occur during construction activities in the Connection Zone and immediate surroundings (Figure 5); this is the area from the NZT PCC site (the point of commencement of the CO<sub>2</sub> export pipeline) to around 5 km offshore. Outside of the Connection Zone, they state that it is considered very unlikely that there is any potential that combined effects could occur.

The appraisal of the potential for combined effects presented in the ES-HRA Addendum (see Table 3.2) was carried out by reviewing the information in the Onshore ES for each topic in relation to the Connection Zone. In this regard, it is noted that the parts of the Project and Offshore Elements (or parts of them) in the Connection Zone will be constructed sequentially as opposed to simultaneously. While scheduling detail remains to be finalised, the following overarching principles apply:

- the same contractor will execute the parts of the Project and the Offshore Elements in the Connection Zone, namely the CO<sub>2</sub> Export Pipeline and the Outfall, using the same equipment for both activities.
- there are a number of physical constraints which mean that nearshore works associated with the installation of the CO<sub>2</sub> Export Pipeline in the Connection Zone in Tees Bay for the Project and the Offshore Elements will occur sequentially rather than concurrently. These constraints relate to restrictions on the number of vessels which could safely work within the Connection Zone due to the presence of:
  - Central Area Transmission System and Breagh gas pipelines to the south-east of the route of the CO<sub>2</sub> Export pipeline;
  - EDF's Teesside Wind Farm and associated 250 m exclusion zone to the north-west of the route of the CO<sub>2</sub> Export Pipeline;
- Pipeline lay for the CO<sub>2</sub> Export Pipeline from nearshore onwards will necessarily commence following completion of the commencement of the CO<sub>2</sub> Export Pipeline and Outfall construction works.

The ES-HRA Addendum concludes that the construction activities associated with the Project and Offshore Elements will not occur simultaneously and there is no potential for effects on any receptor to occur as a result of temporal overlap of activities. There is therefore limited potential for new or materially different effects from those reported upon in the HRAR, ES and the Offshore ES associated with the construction works, or effects which would be more significant when both the Project and Offshore Elements are constructed together. The ES-HRA Addendum identified no new or materially different effects for the Project in combination with the Offshore Elements in the Connection Zone. The Secretary of State notes that the potential for in-combination effects would only arise if water quality impacts on Teesmouth and Cleveland Coast SPA / Ramsar and underwater noise impacts on harbour seal of the Southern North Sea SAC occurred due to both the Project and the Offshore Elements within the Connection Zone. These impact pathways are already screened in, and the Secretary of State considers the potential for in-combination effects of these pathways in the AA (Sections 5.1.7 and 5.4).

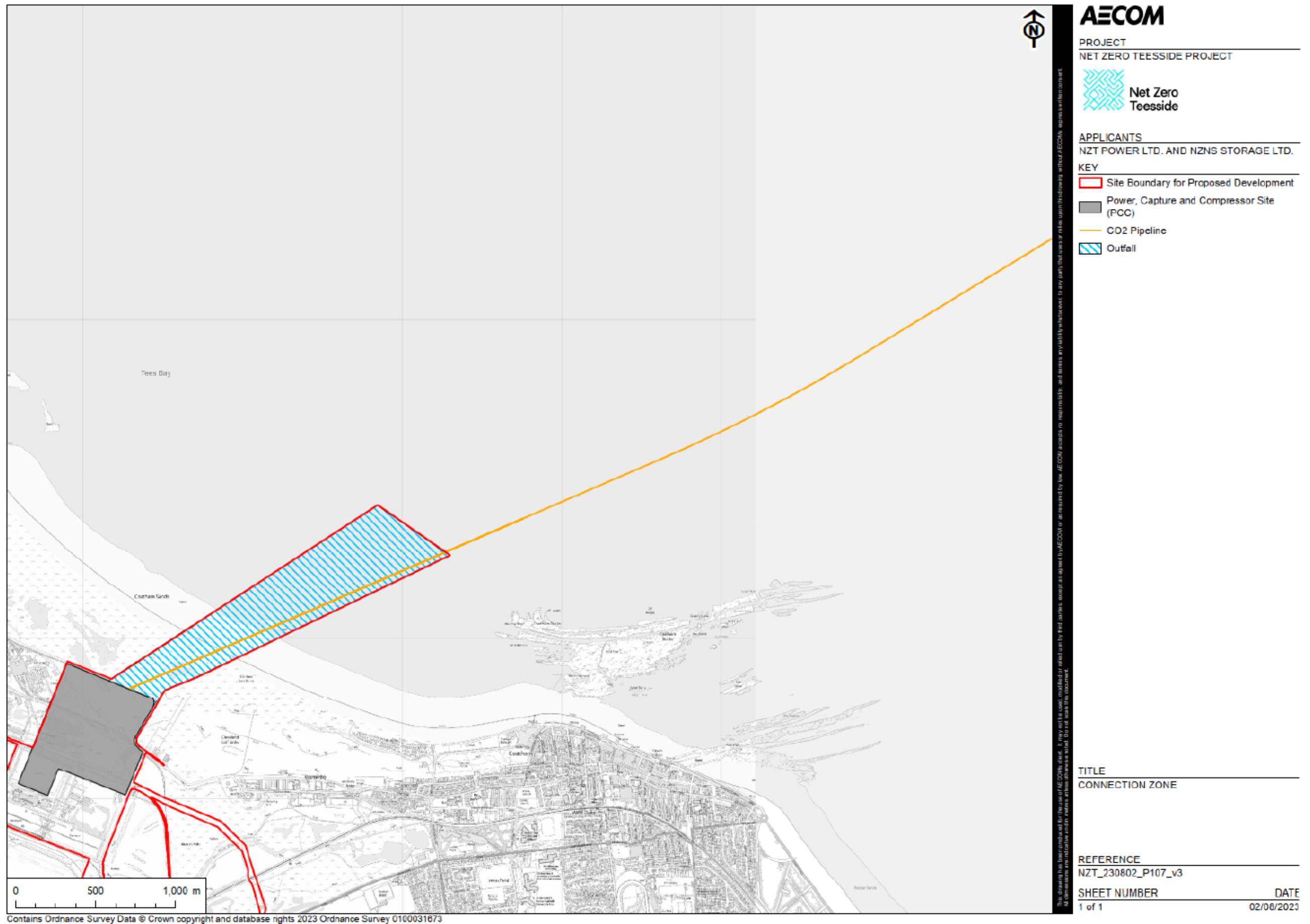


Figure 5: The Connection Zone, including outfall construction corridor and CO2 Pipeline routing.

### 3.3 Likely Significant Effects conclusion

The Secretary of State agrees with the recommendations of the ExA in accordance with the Applicant's assessment and concludes that LSEs cannot be excluded for the five protected sites listed in Table 1, when the Project is considered alone and in-combination. The Secretary of State is satisfied, having considered the ES-HRA Addendum and Offshore ES, that the Applicant has identified all relevant LSEs resulting from the Project alone and in-combination, including with the Wider NZT Project. These sites are taken forward to the AA to consider whether the Project alone and in-combination will result in an AEoI.

**Table 1: Protected sites for which the Secretary of State cannot exclude LSEs.**

Protected site	Supplementary Advice on Conservation Objectives (SACOs)	Distance from the Project	Qualifying feature	Impact Pathway and Development Phase C = construction; O = operations and maintenance; D = decommissioning.
Teessmouth and Cleveland Coast SPA	See footnote <sup>25</sup>	Directly adjacent	Avocet <i>Recurvirostra avosetta</i> – breeding Knot <i>Calidris canutus</i> – breeding Redshank <i>Tringa tetanus</i> – non-breeding Common tern <i>Sterna hirundo</i> – breeding Little tern <i>Sterna albifrons</i> – breeding Sandwich tern <i>Sterna sandvicensis</i> – non-breeding Ruff <i>Calidris pugnax</i> – non-breeding Waterbird assemblage – non-breeding	Noise and visual disturbance to birds during construction and decommissioning (alone and in combination with other plans or projects) Effects on foraging resources for all phases of the Project – rock armour (alone and in combination with other plans or projects) Water quality effects on supporting habitats for all phases of the Project (alone and in combination with other plans or projects, including The Wider NZT Project) Direct habitat loss due to pipeline installation - HDD collapse / leakage of drilling fluid (alone) Potential impacts on bird flightlines for all phases of the Project (in combination with other plans or projects)
			Avocet – breeding Common tern – breeding Little tern – breeding	Air quality effects on supporting habitats during operation (alone and in combination with other plans or projects)
Teessmouth and Cleveland Coast Ramsar site	N/A	Directly adjacent	Ramsar criterion 5 – assemblages of international importance Wintering waterfowl assemblage Ramsar criterion 6 – species occurring at levels of international importance: Redshank – non-breeding Knot – breeding	Noise and visual disturbance to birds during construction and decommissioning (alone and in combination with other plans or projects) Effects on foraging resources during construction and operation – rock armour (alone and in combination with other plans or projects) Water quality effects on supporting habitats for all phases of the Project (alone and in combination with other plans or projects) Direct habitat loss due to pipeline installation - HDD collapse / leakage of drilling fluid (alone) Potential impacts on bird flightlines for all phases of the Project (in combination with other plans or projects)
North York Moors SAC	See footnote <sup>26</sup>	12.7 km	North Atlantic wet heaths with <i>Erica tetralix</i> European dry heaths	Air quality effects during operation (alone and in combination with other plans or projects)

<sup>25</sup><https://designatedsites.naturalengland.org.uk/Marine/SupAdvice.aspx?SiteCode=UK9006061&SiteName=teessmouth&SiteNameDisplay=Teessmouth+and+Cleveland+Coast+SPA&countyCode=&responsiblePerson=&SeaArea=&IFCAAarea=&NumMarineSeasonality=7>

<sup>26</sup> <https://publications.naturalengland.org.uk/file/5324037278662656>



North York Moors SPA	See footnote <sup>27</sup>	12.7 km	Merlin <i>Falco columbianus</i> – breeding Golden plover <i>Pluvialis apricaria</i> – breeding	Air quality effects during operation (alone and in combination with other plans or projects)
Southern North Sea SAC	See footnote <sup>28</sup>	102 km	Harbour porpoise <i>Phocoena phocoena</i>	Disturbance of animals using functionally linked habitat during construction (alone and in combination with other plans or projects, including The Wider NZT Project)

<sup>27</sup> <https://publications.naturalengland.org.uk/file/6752904849653760>

<sup>28</sup> <https://data.jncc.gov.uk/data/206f2222-5c2b-4312-99ba-d59dfd1dec1d/SouthernNorthSea-conservation-advice.pdf>

## 4 Appropriate Assessment Methodology

The requirement to undertake an AA is triggered when the competent authority determines that a plan or project is likely to have a significant effect on a protected site either alone or in-combination with other plans or projects. Guidance<sup>29</sup> states that the purpose of an AA is to assess the implications of the plan or project in respect of the site's Conservation Objectives, either individually or in-combination with other plans and projects, and that the conclusions should enable the competent authority to ascertain whether the plan or project will adversely affect the integrity of the site concerned. The focus is therefore specifically on the species and/or habitats for which the protected site is designated.

In line with the requirements of Regulation 63 of the Habitats Regulations:

*“In considering whether a plan or project will adversely affect the integrity of the site, the competent authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which it proposes that the consent, permission or other authorisation should be given.”.*

The purpose of this AA is to determine whether AEoI of the features of the three protected sites as a result of the Project, alone or in-combination with other plans or projects, can be excluded in view of the site's Conservation Objectives and using the best scientific evidence available.

In accordance with the precautionary principle embedded in the integrity test and established through case law, the Secretary of State may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the protected site, and this must be demonstrated beyond all reasonable scientific doubt<sup>30</sup>. If the Secretary of State cannot exclude AEoI of the affected protected sites beyond all reasonable scientific doubt, then she can only agree to a plan or project if it complies with the requirements of Regulation 64 of the Habitats Regulations. Regulation 64 provides that the Secretary of State may agree to the plan or project only if satisfied that there are no feasible alternative solutions, and that the plan or project must be carried out for IROPI. In addition, Regulation 68 requires compensatory measures to be secured which maintain the overall coherence of the NSN.

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<sup>29</sup> <https://www.gov.uk/guidance/appropriate-assessment#what-must-an-appropriate-assessment-contain>

<sup>30</sup> CJEU Case C-127/02 Waddenzee 7 September 2004, Reference for a preliminary ruling from the Raad van State (Netherlands) in the proceedings: Landelijke Vereniging tot Behoud van de Waddenzee and Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij.



## 5 Stage 2: Appropriate Assessment

The Secretary of State has undertaken an objective scientific assessment of the implications of the Project on the qualifying features of the protected sites identified in her screening assessment, using best scientific evidence available. The assessment has been made in light of the site's Conservation Objectives, which are set out in Table 1, Section 1.3 and the following sections of this HRA.

The ExA [ER 6.10.9] considered that there is sufficient information before the Secretary of State to enable her to undertake an AA. The Secretary of State agrees with the ExA in this regard.

### 5.1 Teesmouth and Cleveland Coast SPA and Ramsar

The Teesmouth and Cleveland Coast SPA was designated on 15 August 1995 and its extension was classified on 16 January 2020. The SPA is a wetland of European importance and is located on the coast of north-east England between Castle Eden Dene Mouth in the north and Marske-by-the-Sea in the south. The SPA is comprised of a wide variety of habitats including: intertidal sand and mudflats, rocky shore, saltmarsh, freshwater marsh, saline lagoons, sand dunes, and estuarine and coastal waters on and around the Tees estuary. These habitats provide feeding and roosting opportunities for important numbers of waterbirds in winter and during passage periods. The site covers an area of 12,210.62 ha and includes most of the Teesmouth and Cleveland Coast Special Site of Scientific Interest (SSSI).

The site qualifies as an SPA as it regularly supports more than 1% of the Great Britain populations of four Annex I species:

- Avocet;
- Sandwich tern;
- Common tern;
- Little tern; and
- Ruff.

The site also qualifies as an SPA as it regularly supports more than 1% of the biogeographic population of the following regularly occurring migratory species:

- Knot; and
- Redshank.

In addition, the site has been designated as it is used regularly by over 20,000 waterfowl in any season.

The Teesmouth and Cleveland Coast Ramsar site boundary overlaps with the SPA and comprises an area of 942ha. The Ramsar site was designated on 15 August 1995. The site supports a rich assemblage of invertebrates, and the estuary is an important spring and/or autumn staging area of migratory waterbirds.

The Order Limits of the Project overlap with the SPA and Ramsar site.

### 5.1.1 Noise and visual disturbance to birds – Alone and in combination with other plans or projects

The HRAR concluded there would be no AEol from the Project alone as noise levels would be below the 70dB disturbance threshold identified by NE as being significant. For the installation of the CO<sub>2</sub> gathering network and CO<sub>2</sub> export pipelines, mitigation measures including noise reduction techniques and visual screening would be required at some receptor locations to avoid a significant effect. The relevant mitigation measures for noise mitigation are secured within the framework Construction Environmental Management Plan (CEMP) [REP9-007] and summarised in the HRAR as follows:

- Attaining acceptable noise limits (70dB L<sub>Aeq</sub>) at nearby noise sensitive receptors, including roosting and loafing birds in the SPA / Ramsar pools;
- No construction work within the SPA / Ramsar site;
- Applying measures to limit noise whenever possible and to achieve Best Practicable Means are achieved;
- Fabricating building elements off-site wherever possible;
- Applying maintenance and silencing (where possible) of all plant, equipment and machinery used, turning any equipment off when not in use;
- Loading / unloading machinery and dismantling equipment in less noise sensitive locations and / or providing screens to minimise disturbance of SPA / Ramsar birds;
- Routing of construction traffic along public roads and access tracks with longest potential distance to known NSRs in the SPA / Ramsar; and
- Using visual screens (particularly when working in or near SPA / Ramsar pools and lagoons) for works associated with the CO<sub>2</sub> export pipeline and the CO<sub>2</sub> gathering network.

In addition to these mitigation measures, if HDD for the CO<sub>2</sub> export pipeline is carried out between November and March, simultaneous vantage point monitoring would be undertaken. This measure is secured through the framework CEMP [REP9-007, Table 5A-6]. In response to the ExA [ExQ1 BIO.1.50] the Applicant advised that monitoring would be carried out on a precautionary basis by an Ecological Clerk of Works. If disturbance was likely to arise then consideration would be given to changing the plan, the use of additional shielding to reduce noise and visual impact or temporary cessation to the noisiest work activity. This is also secured through the framework CEMP [REP9-007].

For the construction of the PCC site, bored piling would be undertaken. The predicted noise levels during construction are predicted to be below the 70dB disturbance threshold. Requirement 23 of the DCO also provides for controls on piling with the Applicant required to submit a written piling and penetrative foundation design method statement for approval by the relevant planning authority in consultation with NE and the EA.

The HRAR excluded an AEol on due to ICEs on the basis that, with mitigation in place, effects would be below the 70dB disturbance threshold and there would be no other projects affecting the same parts of the SPA / Ramsar site as the Project.

NE confirmed that it agrees that, with the proposed mitigation in place, there would be no AEol from noise or visual disturbance during construction [RR-026, REP13-018]. No other IPs made any other comments on this matter.

### **5.1.2 Effects on foraging resources – Alone and in combination with other plans or projects**

LSE was identified as a result of the placement of the outfall head and associated rock armour, leading to a permanent loss of 100 m<sup>2</sup> of subtidal habitat which could affect the availability of prey species for birds. Other potential effects on foraging resource could involve the introduction of Invasive Non-native Species (INNS) associated with the presence of the rock armour, or through effects on coastal processes affecting sediment transport processes [REP12-120].

The Applicant concluded that the extent of habitat loss would represent a small loss of the available sandflat. The species associated with the SPA/Ramsar site likely to feed in the open water around the outfall are tern species, which are not highly selective in their choice of prey. The Applicant stated that the rock armour is likely to provide artificial reef habitat which may be colonised by species which could also provide prey items for terns.

The presence of the rock armour is not predicted by the Applicant to pose a high risk of introducing INNS. This is on the basis that the extent of the introduced hard substrate would be very small relative to the surrounding areas of sandflats. The CEMP also requires contractors to follow industry best practice and implement a biosecurity protocol for the installation of the rock armour to limit INNS risk.

Appendix F of the HRAR provides evidence on the likely effects of rock armour on sediment transport processes. It states that, provided the rock armour is limited to a maximum diameter of approximately 10 – 12 m, a height above seabed level less than 1 m, armour size of approximately 0.1m and the side slopes are shallow, then the effects on sediment transport would be localised. These dimensions are not explicitly secured in the DCO or DML, however, the DML in Schedules 10 and 11 of the DCO require a marine method statement to be submitted to the Marine Management Organisation (MMO) for approval before construction begins. The statement must include details of the rock armour specification, provenance and installation technique (Condition 13). Work No. 5B is not authorised to the extent that it gives rise to environmental effects that are materially new or different to those identified based on the maximum parameters of Chapter 9 of the ES (Condition 30).

The HRAR excludes AEol in combination with the York Potash Order and associated applications on the grounds that the effects from the Project would be so small as to be imperceptible.

NE agreed that there would be no AEol from the Project on foraging resources for birds [REP13-018]. No other IPs made any other comments on this matter.

### **5.1.3 Air quality effects on supporting habitats – Alone and in combination with other plans or projects**

The HRAR focused on the potential for increased nitrogen deposition to affect the supporting habitat used by little tern, common tern and avocet. These species are the only among the qualifying features which are sensitive to the effects of nitrogen deposition on their supporting habitat.

Based on air quality monitoring in the Chapter 8 of the ES [APP-090], the Applicant's assessment predicted that the Project alone would contribute less than 1 % of the critical load threshold for the relevant habitats at the main nesting sites for the species.

The HRAR addressed the ICES of the Project with the Redcar Energy Centre, Grangetown Prairie scheme and Teesside Combined Cycle Power Plant. While the predicted combined nitrogen deposition in parts of the SPA would exceed 1 % of the relevant critical loads, the Applicant concluded that AEoI would not arise as the nitrogen sensitive species do not nest in this area of the SPA (Coatham Dunes). It predicted effects to be considerably smaller at the avocet and tern nesting sites.

NE agreed that atmospheric emissions during operation would not lead to AEoI of the SPA [RR-026, REP13-018].

The ExA noted that the draft DCO did not include a minimum height for the stack of the electricity generating station. This raised the possibility that the stack heights could be reduced to an unknown and uncontrolled extent following the Front End Engineering Design project stage. The ExA requested an explanation from the Applicant as to why the modelled levels of effects on air quality could be relied on, given that stack height is a key parameter in the air quality modelling [PD-016, EV8-006]. The Applicant responded that Requirement 3(1)(c) of the draft DCO required the final stack height to be approved by the relevant planning authority as part of the detailed design. The stack height must be at a level at which the environmental effects would be no worse than those identified in Chapter 8 of the ES.

NE advised that it had been under the impression that the Applicant's air quality modelling had been carried out based on the lowest possible stack height and that the ES states that if a lower stack becomes a viable option, the reduction would be subject to further modelling. NE felt the Applicant should state what the lowest possible stack height would be and provide updated modelling in the HRAR [REP6-137].

The ExA considered that Requirement 3 (1)(c) provides sufficient reassurance that the operational air quality effects would not be worse than those reported in the ES. The Project also requires appropriate Environmental Permits before operation can begin which would also be subject to HRA for which the EA are the competent authority [REP6-132]. The ExA was satisfied that the Applicant's assessment of air quality effects on protected sites has not been undermined by the absence of a control on the minimum stack height in the DCO.

#### **5.1.4 Direct habitat loss due to pipeline installation - HDD collapse / leakage of drilling fluid – Alone**

In Section 3 of this HRA, it is concluded that the choice of trenchless drilling beneath the Teesmouth and Cleveland SPA and Ramsar site is potentially, at least in part, a form of mitigation. This is accepted and an AEoI due to direct habitat loss can be excluded. However, the potential also exists for habitat loss to occur as a result of HDD collapsed or leakage of drilling fluid.

The HRAR concluded that the standard measures included in the design of the HDD would be sufficient to avoid the risk of habitat loss. These include the use of a conductor pipe to reduce the use of frac-out offshore and of water-based drilling fluids that are inert in the marine environment.

The results of the Preliminary Onshore Ground Investigation [REP2-043] gave the Applicant confidence that HDD can be successfully undertaken, subject to detailed design post-consent. NE were concerned that there was no mechanism to deal with the effects of HDD collapse or a

leak of drilling fluid and requested that a contingency plan should be provided [REP2-065, REP6-137].

Following discussion with NE, the Applicant provided an example contractor drilling method statement [REP6-121, Appendix GH.2.6]. The framework CEMP includes the following commitments:

- A commitment to producing a Code of Construction Practice which would specify measures designed to minimise the risk of collapse of any HDD crossing;
- A requirement for the contractor's drilling method statement to form the basis of contingency plans which provide details of specific clean-up and pollution control measures which would be used in the event of an accidental spillage. NE would be consulted on the effectiveness of the proposed measures in reducing effects on designated sites; and
- A requirement for the contractor's drilling method statement to include pollution prevention measures that would be used to minimise the risk of accidental spillage.

NE agreed that the proposed approach addressed its concerns, and it was able to agree that AEoI could be excluded in relation to the risk of HDD bore collapse and drilling fluid leakage [REP13-018].

### **5.1.5 Potential impacts on bird flightlines – In combination with other plans or projects**

The HRAR assessed the possibility of ICEs with the Dogger Bank Teesside A and Sofia Offshore Wind Farm in relation to potential effects on flight lines for birds caused by tall structures. However, the assessment concluded that there is no realistic pathway which would lead to a combined effect.

No other IPs made any other comments on this matter.

### **5.1.6 Water quality effects on supporting habitats – Alone**

#### **5.1.6.1 Construction / Decommissioning**

The HRAR concluded that an AEoI could be excluded, subject to the delivery of the proposed mitigation measures. These measures are intended to reduce surface run-off, dispersion of suspended sediments and spillage risk and are summarised in paragraphs 6.1.39 – 6.1.48 and Appendix C of the HRAR, including:

- Compliance with industry good practice and environmental legislation during construction, decommissioning and operation;
- Commitment to deliver a CEMP, detailing environmental protection measures to be deployed;
- Minimisation of surface or underground water flow into the ponds of the Coatham Dunes units of the Teesmouth and Cleveland Coast SSSI during construction and decommissioning;
- Provision of a Water Management Plan;
- Temporary drainage system during construction/decommissioning to prevent surface run-off;
- Safe storage of flammable, toxic or corrosive material within bunded and secured areas;

- Refuelling, oiling or greasing of machinery above drip trays or other impermeable surfaces;
- Provision of wash down facilities for machinery; and
- Continued water quality monitoring in relevant waterbodies against established baseline levels, for any pollution incidents to be dealt with effectively.

The framework CEMP lists measures to be employed by contractors to avoid the deposition of fine sediment, leakage or accidental spillage of pollutants during construction. Requirement 11 of the DCO secures the delivery of the temporary surface and foul water drainage systems. The details must be approved by the relevant planning authority in consultation with other bodies including the EA. It must include the means of pollution control in accordance with the framework CEMP.

Under Requirement 32, a decommissioning plan, including a Decommissioning Environmental Management Plan, must be approved by the relevant planning authority in consultation with the EA.

NE agreed that an AEoI can be excluded for construction and decommissioning [REP13-018].

#### 5.1.6.2 Operation

The HRAR [APP-080] initially concluded that effects on marine water quality would be mitigated by a drainage strategy and quality testing of any treated water prior to discharge, therefore AEoI could be excluded [APP-808]. NE raised concerns relating to operational discharges into Tees Bay leading to an increase in nutrient loading in the estuarine system, including surface waters which would be contaminated, process waters (including ammonia and urea) and blowdown waters [RR-026, RR-024, REP2-065]. The ES also identified a potential risk from aerial deposition of nitrogen to contribute to nutrient nitrogen levels [RR-024] but it was subsequently agreed between the Applicant and EA that this is not likely to be a significant source of nutrient nitrogen [REP6-115].

The Applicant advised that process effluent treatment and disposal would be regulated by the EA through an EP and the operator would need to demonstrate as part of the permitting application that discharged water could be appropriately treated, tested and managed to avoid unacceptable pollutant levels [REP2-016]. NE's position was that the DCO application should demonstrate an absence of AEoI [REP2-016].

NE advised that on 16 March 2022 it issued a letter to all competent authorities regarding development proposals with the potential to increase nutrient loading in aquatic systems in protected sites. The generic advice provided was that where a protected site is already in unfavourable condition due to excessive nutrient levels, any plan or project that would contribute nutrients, however small, requires mitigation. This may involve a 'nutrient neutrality' approach which a developer undertakes to reduce nutrient inputs elsewhere in an aquatic ecosystem equivalent to the inputs from its own project [REP2-065, Annex D].

NE identified the SPA / Ramsar site as a site that is in an unfavourable condition due to excessive nitrogen levels and where the nutrient neutrality approach should be applied. NE highlighted the risks to the Seal Sands Area within the Tees Estuary where algal mats are present which are reducing available foraging areas for qualifying bird features including knot, redshank and the waterbird assemblage [RR-026, REP2-065]. NE advised that, whilst most industrial developments would not be within the scope of its advice on nutrient neutrality, as the Project



would lead to the discharge of industrial waste water containing nitrates to Tees Bay, it is possible that a sufficient quantity would be washed back into the estuary and modelling was therefore required to demonstrate whether this is likely to reach Seal Sands. NE's position is that there is no established 'de minimis' threshold for any additional nitrogen entering the catchment of the SPA / Ramsar site because it is already in unfavourable condition due to excess nitrogen levels around Seal Sands [REP4-040]. NE requested the Applicant to undertake further modelling to determine the predicted nutrient loading of the discharges and the extent to which these would contribute to the background loading of nutrients and re-enter the estuarine system.

The Applicant advised that they were holding consultations with NE and EA on the draft modelling report [REP4-025, REP5-025, REP6-121]. The Applicant submitted a Nutrient Nitrogen Briefing Paper which reported on the modelling work [REP9-015 – REP9-017]. The key points presented in the Nutrient Nitrogen Paper are as follows:

- The effluent from the Project will contain Dissolved Inorganic Nitrogen (DIN) in the form of ammonia;
- Blowdown from the Direct Contact Cooler (DCC) will contain the majority of nitrogen containing effluent produced by the PCC Site which is estimated to contain up to 24.7 kilogrammes of nitrogen per hour (kgN/hr);
- Cooling water is expected to be raw, untreated River Tees water provided by Northumbrian Water Limited (NWL) (use of the Low Worsall abstraction point is assumed in the modelling);
- The raw water from the River Tees already contains nitrogen. Levels would not be increased by the operation of the Project;
- Discharge options included in the modelling are the 'base case' which would see effluent treated at Bran Sands Wastewater Treatment Plant (WwTP) and discharged to the Tees Estuary via Dabholm Gut and 'Option A' where the effluent is treated at Bran Sands WwTP then returned to the Project site for discharge into Tees Bay via the new outfall;
- The inflows and outflows to the PCC Site are the same for the base case and Option A, apart from the fact that under Option A, a volume of treated effluent from existing municipal and industrial effluent streams containing an equivalent quantity of nitrogen to the DCC blowdown would be returned for discharge to Tees Bay;
- Returned effluent from the Bran Sands WwTP may include DIN or particulate nitrogen. As data were available for DIN, the modelling is based on the volume of water containing an equivalent nitrogen load in the form of DIN. If further data shows that the Bran Sands effluent contains dissolved organic nitrogen and/or particulate nitrogen a lower volume would be required to achieve equivalency however the total nitrogen load returned from Bran Sands WwTP would remain consistent;
- Surface water runoff has not been included in the Applicants' modelling on the grounds that the Project would not lead to a significant change in land use;
- Foul water discharged from the Project has not been included in the modelling since it would be discharged via the Marskeon-Sea WwTP and would not, according to hydrodynamic modelling, reach the SPA/Ramsar site; and
- Atmospheric deposition has been excluded as a source of nutrient nitrogen as modelling suggests that it would make a negligible contribution to DIN.

The detailed modelling has been provided in Appendix A (the base case) and Appendix B (Option A) of the Nutrient Nitrogen Briefing Paper [REP9-015]. For Option A, the results show that average concentrations of DIN in Tees Bay would increase to 10 % above background in the vicinity of the outfall. For the Tees Estuary, average concentrations of DIN would be up to 2.5 %

above background levels in some locations but these increases are limited to the bottom half of the water column. These increases were not predicted to affect supporting habitats for the SPA / Ramsar site. The qualifying features that use the affected area of Tees Bay are expected to be the tern species which are stated to be generalist feeders. As such, the biomass of available prey is likely to be more important than the availability of particular prey species. An increase in plankton blooms as a result of increased DIN is also not expected to affect prey capture success by the terns, based on published research relating to little and common terns [REP12-120-121]

At Seal Sands under Option A, modelling shows the increase in DIN concentrations would be less than 1 % (0.94kgN/hr). This is offset by the removal of nitrogen from the Tees Estuary as a result of the cooling water abstraction at Low Worsall, calculated to be 2.2kgN/hr. This means that the net removal of nitrogen from the Tees Estuary is calculated to be 1.2kgN/hr. A justification as to why the modelling represents a conservative estimate of likely nitrogen loading in the Tees Estuary is presented in paragraph 7.2.7 of the Nutrient Nitrogen Briefing Paper [REP9-015].

In contrast, for the base case the modelling demonstrated a net addition of nutrient nitrogen to Dabholm Gut / the Tees Estuary. The Applicant concludes that, based on advice from NE, the base case could adversely affect the SPA / Ramsar site. However, as there would be no average net nutrient deposition at Seal Sands under Option A, AEoI could therefore be excluded. The Applicants' position is that the final decision on how operational effluent from the Project would be treated and discharged would be determined post-consent. The modelling of Option A demonstrates that it would be feasible to operate the Project without leading to AEoI from impacts of increased nutrient nitrogen on SPA/Ramsar supporting habitats.

NE advised that its standard guidance on assessing impacts from nutrient nitrogen does not apply to industrial, point source discharges such as the Project. The Applicants approach is novel but in NE's view is a valid way of assessing the potential impacts on the SPA / Ramsar site [REP13-028]. NE is satisfied that the Applicant has demonstrated that Option A or a similar approach could be implemented without leading to AEoI as a result of nutrient nitrogen discharges from the Project [AS-209, REP11-035, REP11-036, REP13-018, REP13-028].

The EA considered that while the Applicant's general approach to modelling was acceptable, it had concerns about some of the details which required further clarification [REP11-031, REP11-032]. Major points of concern were the overall ammonia load, effluent discharges at Bran Sands WwTP, the potential for atmospheric emissions to contribute to nitrogen loads, contradictions in statements about the implications for Seal Sands and the fact that an EA model shows around 19% of DIN affecting Seal Sands is washed into the Tees Estuary on incoming tides from offshore.

The Applicant [REP12-133] noted that the modelling in Appendix B of the Nutrient Nitrogen Briefing Paper [REP9-015] shows that DIN from the proposed new outfall can be washed into the Tees Estuary on incoming tides. Other sources of offshore DIN are captured in the baseline as the modelling uses monitored background seawater DIN concentrations at Teesmouth. The extent of the impact of atmospheric nitrogen deposition has been considered through a simple mass balance analysis which concluded that the impact on nitrogen concentrations within the waterbody would be insignificant.

The ExA [PD-022] asked the EA to confirm its position on the Applicant's modelling work, however no response was received by the close of Examination. The final SoCG between the



EA and the Applicant agreed that there was no need for further modelling of the effects of atmospheric emissions on water quality within the SPA / Ramsar site. The SoCG also states that both parties agree that a design solution for the discharge of wastewater to Tees Bay can be developed and implemented that would achieve WFD compliance [REP13-017].

The Applicant sought to develop a requirement in consultation with NE and the EA that ensures the design solution which is ultimately implemented would not lead to AEoI on the SPA / Ramsar. This is reflected in Requirement 37 of the DCO.

NE confirmed that it was satisfied that the wording of Requirement 37 is sufficient to ensure that the AEoI of the SPA / Ramsar site would be avoided [REP13-018, REP13-028], and that it would be enforceable.

NE's agreement was based on the assumption that the wording of Requirement 37(3)(a) would refer to nitrogen loads rather than nitrogen concentrations. This would be to link to the conclusions in the Nutrient Nitrogen Briefing Paper, in particular the conclusions that the net additional load of nutrient nitrogen at Seal Sands would be less than 0.94kgN/hr minus 2.2kgN/hr, leading to a net removal of potentially 1.2kgN/hr. The wording in the draft DCO and the wording of Requirement 37 in the SoCG between the Applicant and NE [REP13-018] both refer to nitrogen concentrations rather than loads.

The ExA [ER 6.4.57] considered that the Applicants have broadly demonstrated that it would be possible to find a design solution that would avoid increasing nutrient nitrogen levels in the area. R37 of the dDCO would constrain the Applicants to ensure that the final design of the Project would be as effective as 'Option A'. In addition, the Applicants would be required to obtain an EP for the operational discharges which would not be granted unless it could be demonstrated that AEoI on the SPA and Ramsar site would not arise. The ExA considered that a provisional conclusion of no AEoI of the Teesmouth and Cleveland Coast SPA and Ramsar site could be reached but subject to the following caveats:

- the Secretary of State satisfying themselves that the EA is content with the Applicant's approach to the modelling of nutrient nitrogen associated with the Project; and
- the final version of the DCO being amended so that Requirement 37(3)(a) reads '...not cause a net increase in total nitrogen loads in water within the Tees Estuary at the Seal Sands mud flats'.

The Secretary of State notes that the EA's written representations to the Rule 17 letter issued by the ExA [PD-022] was provided to the Secretary of State in the Post-examination Submissions document<sup>31</sup>. In the response, the EA stated that it was confident that a potential design solution for the treatment and discharge of waste water in Tees Bay could be developed and implemented for the Project to achieve WFD compliance. The EA considered the detail of the solution to be adequately secured through Requirement 37 of the DCO. The EA noted that a reduction in emissions would be required for all relevant discharge sources in order to achieve WFD protected area objectives.

The EA noted that an excess of DIN in the Tees estuary is contributing to the Seal Sands unit of the Teesmouth and Cleveland Coast Site SSSI, which underpins the Teesmouth and Cleveland

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<sup>31</sup> EN010103 - The 'Net Zero Teesside Project'. Post-examination Submissions. Submission 002 Environment Agency, received 11 November 2022. EA ref. NA/2022/115883/09-LO1.

Coast SPA, as being in an unfavourable declining condition. It considered that further reductions in DIN are likely to be required to achieve no deterioration to existing conditions. It also considered that the assumption in the Nutrient Nitrogen Briefing Paper that surface runoff from the site does not contain DIN to be reasonable.

The EA stated that following the detailed designs of the proposed effluent scheme, updated discharge modelling and WFD assessment via Requirement 37, it would be able to determine the impact of the Project on the SPA / Ramsar site and the net increase in total nitrogen concentrations. Provision for regular review linked to monitoring and future changes in water quality can be undertaken via the Environment Permitting Regulations.

For the avoidance of doubt, the Secretary of State, on 10 March 2023, invited the EA to confirm whether, for the purposes of the Application, it was content that the modelling provided by the Applicant is appropriate and satisfactory. The EA responded<sup>32</sup> on 27 March 2023 and stated that it was satisfied with the Nutrient Nitrogen Modelling submitted as part of the Project.

### **5.1.7 Water quality effects on supporting habitats – In-combination**

The HRAR excluded in combination effects with the Wider NZT Project, the ICL Tees Dock, and York Potash Order 2016 and associated applications on the grounds that the Project will implement sufficient mitigation measures.

The ExA was satisfied that the Applicant had demonstrated that adequate mitigation has been secured through the DCO to ensure that the achievement of the conservation objectives would not be affected. The ExA agreed that an AEoI on the SPA and Ramsar site could be excluded for all impact pathways.

As stated in Section 5.1.6.2, the ExA considered that the Applicant had broadly demonstrated that it would be possible to find a design solution that would avoid increasing nutrient nitrogen levels in the area. However, the ExA advised that the Secretary of State seek out final confirmation from the EA to ensure that its concerns about the Applicant's approach to modelling had been addressed and that the wording of Requirement 37 in the DCO reflects the wording of the same Requirement as referenced in the SoCG between NE and the Applicant in referring to nitrogen concentrations rather than loads.

#### **5.1.7.1 The Wider NZT Project**

The Applicant considered potential impacts on water quality and sediment dispersal from CO<sub>2</sub> Export Pipeline installation and construction / decommissioning on the marine open water component of the Teesmouth & Cleveland Coast SPA / Ramsar. Only little tern and red-throated diver were considered sensitive to impacts associated with habitat loss and only impacts on the little tern colonies of the Teesmouth & Cleveland Coast SPA pose potential for in combination effects with the Project. Site-specific tracking data for little tern from the Teesmouth and Cleveland Coast SPA indicate that birds from the SPA exhibit a mean-maximum seaward extent of 3.45 km and a maximum alongshore extent of 5 km to the north and south. The Offshore Elements are therefore beyond the foraging range of little tern and no AEoI would arise.

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<sup>32</sup><https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010103/EN010103-002737-Response%20from%20The%20Environment%20Agency.pdf>

With regard to sediment process impacts of the Offshore Elements, Tees Bay is noted as a sediment sink and so under calm or normal metocean conditions, sediment is drawn towards the coast. Therefore, the water is likely to be relatively turbid close to shore. It is therefore expected that the coastal processes regime will be generally tolerant of increased suspended sediment, sediment transport and temporary impedance of sediment transport. Any disturbed sediment would be readily reincorporated into the local sediment regime. Receptor sensitivity is therefore expected to be low. While there may be some increase in suspended sediments as a result of the Offshore Elements, this is not expected to be noticeable above natural variation and so the local coastal processes would not be affected in the long-term; therefore, receptor vulnerability is expected to be low.

With regard to water quality, the Offshore ES states that in the unlikely event of loss of diesel from the deepwater pipelay vessel or at the Endurance Store, surface contamination of the Southern North Sea SAC would occur. While a hydrocarbon release could result in demonstrable change to receptors, a review of UK Continental Shelf historical data relating to hydrocarbon release events confirm that the likelihood of such an event is remote. Given the mitigation measures that would be in place as detailed within the Offshore ES and the remote likelihood of the release happening, the consequence is considered to be low and the effect is assessed to be not significant.

The ES-HRA Addendum concludes that the potential for in combination effects from the Project and the Offshore Elements would only arise if water quality (pollution) impacts on Teesmouth & Cleveland Coast SPA / Ramsar occurred due to both the Project and the Offshore Elements of the CO<sub>2</sub> Export Pipeline within the Connection Zone. However, the Offshore ES concludes this eventuality would not arise, or would not result in significant effects if it did arise.

### **5.1.8 Conclusion**

The ExA [ER6.4.56] was satisfied that the Applicants have demonstrated that adequate mitigation has been secured through the dDCO to ensure that the achievement of the conservation objectives would not be affected. AEoI on the SPA and Ramsar site, both alone and in combination with other plans and projects can be excluded for the following effects on qualifying features:

- Noise and visual disturbance to all bird species during construction and decommissioning;
- Effects on foraging resources for all phases of the Project for all bird species;
- Air quality effects on supporting habitats during operation for little tern, common tern and avocet;
- Direct habitat loss for all bird species due to HDD collapse/leakage of drilling fluid;
- ICEs on bird flightlines for all bird species; and
- Water quality effects on supporting habitats for all bird species during construction and decommissioning.

The Secretary of State has considered the ExA's caveats to its provisional conclusion of no AEoI on the Teesmouth and Cleveland Coast SPA and Ramsar site due to impacts on supporting habitats due to changes in water quality. She notes the EAs response to the Rule 17 letter, and that the EA has confirmed that it is satisfied with the Applicant's approach to nutrient nitrogen modelling associated with the Project. Further, the Secretary of State has amended the wording of Requirement 37 in the DCO to reflect the advised wording provided by the ExA.

Having considered the information provided and representations made throughout the Examination, responses to the post-Examination consultation letters and further information including the ES-HRA Addendum and assessment of the environmental effects of the Wider NZT Project, the Secretary of State concludes that an AEoI of the Teesmouth and Cleveland Coast SPA and Ramsar site from the Project alone and in combination with other plans or projects can be excluded beyond all reasonable scientific doubt.

## 5.2 North York Moors SAC

The North York Moors SAC was designated 1 April 2005 for the following qualifying habitats:

- Northern Atlantic wet heaths with *Erica tetralix*;
- European dry heaths; and
- Blanket bog.

The SAC contains the largest continuous tract of heather moorland in England. The site is of national importance for its mire and heather moorland vegetation communities, and is of international importance for its breeding bird populations, particularly merlin and golden plover. The SAC lies entirely within the North York Moors National Park and comprises an area of 44,082.25 ha.

### 5.2.1 Air quality effects on supporting habitats – Alone and in-combination

Air quality modelling presented in Chapter 8 of the ES assessed that operation of the Project would lead to nitrogen deposition equivalent to 0.2 % of the critical loads for the wet and dry heath qualifying features [APP-090]. The Applicant considered this to be an imperceptible increase in nitrogen deposition which would not have any effects on the plant community composition [REP12-120]. The Applicant considered that as the contribution from the Project is below 1 % of the relevant critical loads and no other developments have been identified which could affect the SAC, no ICEs could arise.

NE agreed that AEoI could be excluded for this site [REP2-065, REP13-018]. No other IPs made any other comments on this matter.

The ExA was satisfied that the Project would not affect the achievement of the SAC conservation objectives either alone or in combination with other plans or projects for North York Moors SAC. The Secretary of State concludes that an AEoI of the North York Moors SAC from air quality effects from the Project alone and in combination with other plans or projects can be excluded.

## 5.3 North York Moors SPA

The North York Moors SPA was designated on 12 May 2000 and covers an area of approximately 44087.68ha. The site overlaps in its entirety with the North York Moors SAC. The site is designated for the qualifying Annex I species merlin (breeding), and golden plover (breeding).



### **5.3.1 Air quality effects on supporting habitats – Alone and in-combination**

Air quality modelling presented in Chapter 8 of the ES assessed that operation of the Project would lead to nitrogen deposition equivalent to 0.2 % of the critical loads for the heathland which provide supporting habitat for merlin and golden plover [APP-090]. On the basis of similar reasoning as presented for the North York Moors SAC, the Applicant concluded that AEoI from the Project alone and in combination with other plans or projects could be excluded.

NE agreed that AEoI could be excluded for this site [REP2-065, REP13-018]. No other IPs made any comment on this matter.

The ExA was satisfied that the Project would not affect the achievement of the SPA conservation objectives either alone or in combination with other plans or projects for North York Moors SPA.

The Secretary of State concludes that an AEoI of the North York Moors SPA from air quality effects on supporting habitats from the Project alone and in combination with other plans or projects can be excluded.

## **5.4 Southern North Sea SAC**

The Southern North Sea SAC was designated on 26 February 2019 for harbour porpoise. The site is located to the east of England and stretches from the central North Sea (north of Dogger Bank) to the Straits of Dover in the south, covering an area of approximately 36,951 km<sup>2</sup>. A mix of habitats, including sandbanks and gravel beds, cover the seabed and water depths range from mean low water to 75 m. Most of the site has water depths of less than 40 m. The Project is situated approximately 102 km from the SAC. The site is designated as an SAC for the Annex II species harbour porpoise.

The site is comprised of two 'seasonal' components. The northern part of the SAC is mainly used by harbour porpoise in the summer months (area of approximately 27,018 km<sup>2</sup>) while the southern part is mainly used in the winter (area of approximately 12,697 km<sup>2</sup>).

Current SNCB guidance states that displacement of harbour porpoise should not exceed 20 % of the seasonal component of the SAC at any one time or on average exceed 10 % of the seasonal component of the SAC over the duration of that season. The effects of the Project should be considered in the context of the seasonal component of the SAC, rather than the SAC as a whole. A distance of 26 km EDR from an individual percussive piling location should be used to assess the area of the Southern North Sea SAC habitat from which harbour porpoise may be disturbed. A buffer of 10 km around seismic operations by the oil and gas industry and a buffer of 26 km for Unexploded Ordnance (UXO) operations should also be applied to assess the area of the SAC from which harbour porpoise may be disturbed.

### **5.4.1 Disturbance of animals using functionally linked habitat from underwater noise – Alone and In-combination**

Based on underwater noise modelling reported in Chapter 14 of the ES [APP-096], the HRAR predicted the area of sea likely to be affected by UXO detonations. The assessment considered Permanent Threshold Shifts (PTS) which could lead to permanent injury to harbour porpoise and Temporary Threshold Shift (TTS) which has been used by the Applicant as a proxy for behavioural disturbance. The calculations considered 55 kg and 100 kg charge weights of Trinitrotoluene; typical of a World War II ordnance.

The predicted impact zones for a 55 kg charge weight were 6.1 km for PTS and greater than 10 km for TTS. The predicted impact zones for a 100 kg charge weight were 7.4 km for PTS and greater than 10 km for TTS.

The extent and number of UXO detonations will not be known until the post-consent stage, however the Applicant considered that the numbers of UXOs which will require detonation are likely to be low given that the extent of the marine works would be limited. It expected effects to be infrequent and short-term with harbour porpoise able to return to the area after clearance had been completed.

The Applicant stated that measures designed to minimise the risk of injury or disturbance to marine mammals would be employed. These measures would be drawn from the JNCC guidance. The DMLs include the following conditions:

- Condition 20 which requires the use of 'soft start procedures';
- Conditions 22(1) which requires the approval of a UXO clearance methodology and marine mammal mitigation protocol by the MMO following consultation with NE and the EA;
- Condition 22(4) which requires the marine mammal mitigation protocol to include measures to prevent auditory or other injury to marine mammals following current best practice as advised by the relevant statutory nature conservation bodies; and
- Condition 22(5) which required the removal or detonation of UXO to be undertaken in accordance with the clearance methodology and marine mammal mitigation protocol approved under Condition 22(1).

Disturbance to harbour porpoise within the SAC was assessed against the 26 km Effective Deterrence Range identified in the relevant JNCC guidance. As the offshore elements of the Project are around 102 km from the Southern North Sea SAC, the distance between any UXO detonations is beyond the range which is likely to lead to disturbance of animals using the SAC. Based on the proposed mitigation measures, the distance between the Project and the SAC and the relatively small number of harbour porpoise recorded using Tees Bay, the Applicant concluded that no AEoI would arise from the Project, either alone or in combination with other plans or projects.

The MMO initially raised concerns about the adequacy of the assessment of effects on marine mammals [REP1-045, REP4-039, REP6-136] but later advised that it defers to NE on HRA issues.

NE confirmed that it agreed with the Applicant's conclusions on the absence of AEoI both alone and in combination with other plans or projects [REP13-018].

The ExA was satisfied that Conditions 20 and 22 in the DMLs adequately secure mitigation measures to minimise the risk of injury to harbour porpoise from increases in underwater noise. The baseline evidence gathered by the Applicant suggests that harbour porpoise are only occasionally present in Tees Bay. In relation to disturbance of harbour porpoise by increases in underwater noise, the ExA considered that the distance between the Project and the SAC make it very unlikely that UXO clearance would disturb harbour porpoise within SAC boundaries, either alone or in combination with other plans or projects. Disturbance from underwater noise associated with the construction of the Project is not likely to be on a scale which could lead to population level effects.

### 5.4.2 The Wider NZT Project

The ES-HRA Addendum identifies that there is potential for the Offshore Elements of the Wider NZT Project to impact on the NSN, most notably from underwater sound impacts on harbour porpoise associated with Southern North Sea SAC during construction or operation and maintenance. The CO<sub>2</sub> Export Pipeline connecting the Project to the Endurance Store traverses the Southern North Sea SAC, whilst the Endurance storage facility itself is located within the Southern North Sea SAC.

The Southern North Sea SAC covers almost 37,000 km<sup>2</sup> and the Offshore Elements overlap with a small part of the northern section of the site that is important for harbour porpoises during the summer season. It would have a permanent footprint of 0.1683 km<sup>2</sup>, 0.0016 % of the SAC. The Offshore Elements have been the subject of assessment as reported in the Offshore ES with impacts on protected Sites discussed in Sections 6.9, 7.9, 8.8, 9.8 and 10.3 in Appendix 2. Other than underwater sound disturbance of mammals, potential impacts on protected sites covered in the Offshore ES are effects on the foraging value of Southern North Sea SAC to harbour porpoise, and water quality and sediment dispersal impacts of CO<sub>2</sub> Export Pipeline installation and construction / decommissioning on the SAC. As the Endurance Store geological storage facility is located within the SAC, direct habitat loss could also be possible.

The area of overlap of the Offshore Elements with the SAC is an area which is important for harbour porpoise in the summer. The Applicants state that it is expected that all species would become habituated to vessel presence and would be able to rapidly recover from any disturbance. Vessel presence would be temporary and short-term, slow-moving, and occurring against an already busy shipping background, as such it is expected that any physical presence impacts would not be significant. With regard to underwater noise from piling and seismic surveys, the Applicant intends to adopt mitigation measures per JNCC guidelines (JNCC 2010 and 2017). With the implementation of these measures, it is concluded by the Applicants that the potential for injury of marine mammals from piling and seismic surveys would be effectively mitigated.

With regards to impacts on foraging value for porpoise of Southern North Sea SAC, the Offshore ES considered the impact of the minor changes to the seabed substratum associated with the Offshore Elements, including within the context of other schemes occurring in the Southern North Sea SAC (specifically Kumatage gas field, the existing Langeled gas export pipeline, the proposed Creyke Beck A transmission asset and the proposed Hornsea Project Four offshore windfarm (construction planned for 2026)). It concludes that these projects cumulatively are unlikely to have a significant effect on any harbour porpoise prey species and would not affect the ability of prey species (especially sandeel) to reproduce. The Offshore Elements are concluded not to result in any reduction in the availability or distribution of harbour porpoise prey species.

Effects of the Offshore Elements of the Wider NZT Project are evaluated in detail in the Offshore ES which details necessary mitigation measures to protect protected sites. The ES-HRA Addendum considers that the potential for 'in combination' effects from the Project and Offshore Elements would only arise if underwater noise impacts occurred due to the construction of both the. However, the Offshore ES concludes this eventuality would not arise, or would not result in significant effects if it did arise.

The Secretary of State concludes that an AEoI of the Southern North Sea SAC due to disturbance of animals using functionally linked habitat from underwater noise from the Project alone and in combination with other plans or projects can be excluded beyond all reasonable scientific doubt.

## 5.5 Appropriate Assessment conclusions

The Secretary of State has carefully considered the information presented during the Examination, the ExA's report, the ES, ES-HRA Addendum and the Offshore ES, additional information provided after the close of Examination and representations made by IPs. The Secretary of State has undertaken an AA in respect of the Conservation Objectives of the sites to determine whether the Project, either alone or in combination with other plans or projects, will result in an AEoI of the five protected sites for which LSE was identified.

The recommendation of the ExA is that [ER 6.5]: *“We find that an AEoI from the Proposed Development, alone or in combination with other plans and projects, can be excluded beyond reasonable scientific doubt for the following sites and qualifying features:*

- *North York Moors SAC (North Atlantic wet heaths with Erica tetralix and European dry heaths);*
- *North York Moors SPA (breeding populations of merlin and golden plover); and*
- *Southern North Sea SAC (harbour porpoise).*

*We also find that AEoI can be excluded beyond reasonable scientific doubt for all qualifying features of the Teesmouth and Cleveland Coast SPA and Ramsar site, subject to the following:*

- *the Secretary of State satisfying themselves that the EA is content with the Applicants' approach to the modelling of nutrient nitrogen associated with the Proposed Development; and*
- *the final version of the DCO being amended so that R37(3)(a) reads ‘...not cause a net increase in total nitrogen loads in water within the Tees Estuary at the Seal Sands mud flats’.*

As discussed in Section 5.1.6, the Secretary of State is satisfied that the EA is content with the approach taken to nutrient nitrogen modelling and she has amended Requirement 37(3)(a) as suggested by the ExA.

Having considered all of the information available to her and the mitigation measures as secured through the DCO, the Secretary of State concludes in line with the recommendation of the ExA and advice of NE, that the Project will not result in an AEoI on any of the five protected sites listed above, both alone and in-combination, beyond all reasonable scientific doubt.



## 6 Transboundary assessment

The Secretary of State believes that it is important to consider the potential impacts on protected sites in other EEA states, known as transboundary sites<sup>33</sup>. Further information on transboundary impacts and processes is available in PINS Advice Note 12<sup>34</sup>. The ExA also considered the implications for transboundary sites, in the context of looking at the wider EIA considerations. The conclusions of the ExA's considerations and the Secretary of State's own views on this matter are presented below.

On 11 June 2019, following the Applicant's request for an EIA scoping opinion, the Planning Inspectorate undertook a transboundary screening and consultation [OD-001] on behalf of the Secretary of State pursuant to Regulation 32 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and the United Nations Environment Programme Convention on Biological Diversity 1992. This concluded that the Project was not likely to have a significant effect on the environment in a EEA state.

Following changes made to the Project, a second screening was published on 30 November 2021 following submission of the Application documents [OD-001]. No EEA States were identified as being likely to have significant effects on their environment in terms of extent, magnitude, probability, duration, frequency or reversibility. At the point of closure of the Examination, no mechanisms whereby any conceivable transboundary effects could occur emerged.

The Applicants did not identify any LSE on transboundary sites in its HRAR [REP12-120] and / or within its ES [APP-081 to APP-107, AS-049 to AS-050 and REP6-106 to REP6- 107]. No potential transboundary impacts were raised for discussion by any IPs during the Examination.

The Secretary of State has not been presented with any evidence to demonstrate that transboundary impacts would have an LSE on any protected site in other EEA states. As such, the Secretary of State is satisfied that the Project, either alone or in-combination with other plans or projects, would not have any LSEs on any transboundary protected site. She does not consider that further stages of a transboundary assessment are required.

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<sup>33</sup>[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/408465/transboundary\\_guidelines.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/408465/transboundary_guidelines.pdf)

<sup>34</sup><https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-twelve-transboundary-impacts-and-process/>

## 7 Conclusion

The Secretary of State has carefully considered all information available to her, including the recommendations of the ExA, the RIES, the advice of NE as the SNCB, the views of all other IPs, and the Applicant's case including the ES-HRA Addendum. The Secretary of State concludes that LSEs cannot be excluded at five protected sites, when the Project is considered alone or in-combination with other plans or projects:

- Teesmouth and Cleveland Coast SPA;
- Teesmouth and Cleveland Coast Ramsar site;
- North York Moors SAC;
- North York Moors SPA; and
- Southern North Sea SAC.

As the competent authority under the Habitats Regulations for this Application under the Planning Act 2008, the Secretary of State has undertaken an AA in respect of the Conservation Objectives of these protected sites to determine whether the Project, either alone or in-combination with other plans or projects, will result in an AEoI.

Having sought confirmation regarding the Applicants approach to the modelling of nutrient nitrogen associated with the Project and amending the final version of Requirement 37 (3)(a) of the DCO, the Secretary of State agrees with the recommendation of the ExA, in line with the advice of the SNCB that, based on the information available to her an AEoI of any protected site can be excluded beyond all reasonable scientific doubt.

No LSE on any transboundary site has been identified.

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