

# REPORT on the IMPLICATIONS for EUROPEAN SITES Proposed White Rose Carbon Capture and Storage Project

An Examining Authority report prepared with the support  
of the Environmental Services Team



September 2015



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# 1.0 INTRODUCTION

## Background

- 1.1 Capture Power Limited (the applicant) has applied to the Secretary of State for a development consent order (DCO) under section 37 of the Planning Act 2008 (as amended) for the proposed White Rose Carbon Capture and Storage Project (the application). The Secretary of State has appointed an Examining Authority (ExA) to conduct an examination of the application, to report its findings and conclusions, and to make a recommendation to the Secretary of State as to the decision to be made on the application.
- 1.2 The relevant Secretary of State is the competent authority for the purposes of the Habitats Directive<sup>1</sup> and the Habitats Regulations<sup>2</sup> for applications submitted under the Planning Act 2008 regime (as amended). The findings and conclusions on nature conservation issues reported by the ExA will assist the Secretary of State in performing their duties under the Habitats Regulations.
- 1.3 This report compiles, documents and signposts information provided within the DCO application, and the information submitted throughout the examination by both the applicant and interested parties, up to September 2015 in relation to potential effects to European Sites<sup>3</sup>. It is not a standalone document and should be read in conjunction with the examination documents referred to in this report.
- 1.4 This document is issued to ensure that interested parties including the statutory nature conservation bodies: Joint Nature Conservation Committee (JNCC)/ Natural England (NE) are consulted formally on Habitats Regulations matters. This process may be relied on by the Secretary of State for the purposes of Regulation 61(3) of the Habitats Regulations. Following consultation the responses will be considered by the ExA in making their recommendation to the Secretary of State and made available to the Secretary of State along with this report. The RIES is not revised following this consultation.

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<sup>1</sup> Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (as codified) (the 'Habitats Directive').

<sup>2</sup> The Conservation of Habitats and Species Regulations 2010 (as amended) (the Habitats Regulations).

<sup>3</sup> The term European Sites in this context includes Special Areas of Conservation (SACs) and candidate SACs, Special Protection Areas (SPAs), potential SPAs, Sites of Community Importance (SCIs), Ramsar sites, and any sites identified as compensatory measures for adverse effects on any of the above. For a full description of the designations to which the Habitats Regulations apply, and/ or are applied as a matter of Government policy, see PINS Advice Note 10 and the Habitats Regulations Assessment Handbook (DTA Publications July 2014).

## Documents used to inform this RIES

- 1.5 The applicant provided a HRA report entitled Habitat Regulations Assessment Report (Doc Ref: APP-059) with the DCO application, together with screening and integrity matrices.
- 1.6 The applicant's DCO application concluded that there is the potential for likely significant effects on three European sites and therefore provided a Report to Inform HRA - Habitat Regulations Assessment Report (Doc Ref: APP-059) which included screening and integrity matrices with the DCO application.

### **Application Documents**

- Habitat Regulations Assessment Report (the applicant's HRA Report dated November 2014 ) (Doc Ref: APP-059)
- Environmental Statement – Non Technical Summary. November 2014. Document 6.1 (Doc Ref: APP-034)
- Environmental Statement – Volume 1. November 2014. Document 6.2 (Doc Ref: APP-035)
- Environmental Statement – Volume 2 (Technical Reports) - Cover Sheet and Contents. November 2014. Document 6.3.0 (Doc Ref: APP-036)
- Environmental Statement – Volume 2 Chapter A – Emissions to Atmosphere Technical Report. November 2014. Document 6.3.1 (Doc Ref: APP-037)
- Environmental Statement – Volume 2 Chapter B – Noise and Vibration Technical Report. November 2014. Document 6.3.2 (Doc Ref: APP-038)
- Environmental Statement – Volume 2 Chapter C – Surface Water and Flood Risk Technical Report. November 2014. Document 6.3.3 (Doc Ref: APP-039)
- Environmental Statement – Volume 2 Chapter C1 – Flood Risk Assessment. November 2014. Document 6.3.4 (Doc Ref: APP-040)
- Environmental Statement – Volume 2 Chapter D – Geology Technical Report. November 2014. Document 6.3.5 (Doc Ref: APP-041)
- Environmental Statement – Volume 2 Chapter D1 – Geology Annexes. November 2014. Document 6.3.6 (Doc Ref: APP-042)
- Environmental Statement – Volume 2 Chapter E – Transport Assessment. November 2014. Document 6.3.7 (Doc Ref: APP-043)
- Environmental Statement – Volume 2 Chapter F – Socio-economic Characteristics. November 2014. Document 6.3.8 (Doc Ref: APP-044)

- Environmental Statement – Volume 2 Chapter G – Archaeology Technical Report. November 2014. Document 6.3.9 (Doc Ref: APP-045)
- Environmental Statement – Volume 2 Chapter G1 – Geophysical Survey Results. November 2014. Document 6.3.10a (Doc Ref: APP-046)
- Environmental Statement – Volume 2 Chapter G1 – Geophysical Survey Results. November 2014. Document 6.3.10b (Doc Ref: APP-047)
- Environmental Statement – Volume 2 Chapter G2 – Written Scheme of Investigation. November 2014. Document 6.3.11 (Doc Ref: APP-048)
- Environmental Statement – Volume 2 Chapter H – LVIA AMENDED (post submission change to Doc Ref: APP-049). November 2014. Document 6.3.12 (Doc Ref: APP-082)
- Environmental Statement – Volume 2 Chapter I – Ecology Technical Report. November 2014. Document 6.3.13 (Doc Ref: APP-050)
- Environmental Statement – Volume 2 Chapter I – Ecology Technical Report Annexes 1 - 11. November 2014. Document 6.3.14 (Doc Ref: APP-051)

### **Relevant Representations**

- Yorkshire Wildlife Trust – Relevant Representation. February 2015. (Doc Ref: RR-010)
- Natural England – Relevant Representation. February 2015. (Doc Ref: RR-014)
- Environment Agency – Relevant Representation. February 2015. (Doc Ref: RR-015)

### **Deadline 1**

- Capture Power Limited – Response to Examining Authority’s question 6.6 (appendix 2). May 2015. (Doc Ref: REP1-026)
- Capture Power Limited – Response to Examining Authority’s question 6.2 (appendix 1). May 2015. (Doc Ref: REP1-027)
- Capture Power Limited – Response to Examining Authority’s question 6.1 (appendix 1). May 2015. (Doc Ref: REP1-028)
- Capture Power Limited – Response to Examining Authority’s question 5.6 (appendix 1). May 2015. (Doc Ref: REP1-029)
- Capture Power Limited – Response to Examining Authority’s question 6.6 (appendix 1). May 2015. (Doc Ref: REP1-031)
- Capture Power Limited – Response to Examining Authority’s question 6.1 (appendix 2). May 2015. (Doc Ref: REP1-046)

- Environment Agency – Response to Examining Authority’s first written questions. May 2015. (Doc Ref: REP1-052)
- Natural England – Written Representation and Response to Examining Authority’s first written questions. May 2015. (Doc Ref: REP1-054)
- Yorkshire Wildlife Trust – Response to Examining Authority’s first written questions. May 2015. (Doc Ref: REP1-061)

**Deadline 2**

- Capture Power Limited – Comments on the Local Impact Report, Responses to Examining Authority’s first written questions and written representations – Rev. 1. June 2015. (Doc Ref: REP2-011)

**Deadline 4**

- Capture Power Limited – Comments on the Local Impact Report, Responses to Examining Authority’s first written questions and written representations – Rev. 1. July 2015. (Doc Ref: REP4-010)

**Deadline 5**

- Capture Power Limited - Applicant’s Response to the Examining Authority’s Second Written Questions. August 2015. (Doc Ref: REP5-011)

**Deadline 6**

- Capture Power Ltd - Applicant’s Comments on the Responses to the Examining Authority's Second Written Questions. August 2015. (Doc Ref: REP6-008)

**Statements of Common Ground**

- Capture Power Limited – Statement of Common Ground between Capture Power Limited and the Environment Agency – Rev.1. May 2015. (Doc Ref: REP1-002)
- Capture Power Limited – Statement of Common Ground between Capture Power Limited and Natural England – Rev.1. May 2015. (Doc Ref: REP1-043)
- Capture Power Limited – Statement of Common Ground between Capture Power Limited and Yorkshire Wildlife Trust – Rev.1. May 2015. (Doc Ref: REP1-045)
- Capture Power Limited – Statement of Common Ground between Capture Power Limited and Natural England – Rev.2. June 2015. (Doc Ref: REP2-008)
- Statement of Common Ground between Capture Power Limited and Yorkshire Wildlife Trust – Rev.2. June 2015. (Doc Ref: REP2-010)



- Capture Power Limited – Statement of Common Ground between Capture Power Limited and the Environment Agency – Rev.2. June 2015. (Doc Ref: REP3-007)
- Capture Power Limited – Statement of Common Ground between Capture Power Limited and North Yorkshire County Council and Selby District Council – Rev. 6. July 2015. (Doc Ref: REP4-005)
- Capture Power Limited – Statement of Common Ground between Capture Power Limited and Natural England – Rev. 2. July 2015. (Doc Ref: REP4-006)
- Capture Power Limited – Statement of Common Ground between Capture Power Limited and Yorkshire Wildlife Trust – Rev. 4. July 2015. (Doc Ref: REP4-008)
- Capture Power Limited – Statement of Common Ground between Capture Power Limited and the Environment Agency – Rev. 5. July 2015. (Doc Ref: REP4-009)
- Capture Power Limited - Signed Statement of Common Ground between Capture Power Ltd and Yorkshire Wildlife Trust – Rev. 5. July 2015. (Doc Ref: REP5-009)
- Capture Power Limited - Signed Statement of Common Ground between Capture Power Ltd and Environment Agency – Rev. 6. August 2015. (Doc Ref: REP5-010)
- Capture Power Ltd – Statement of Common Ground between Capture Power Ltd and North Yorkshire County Council and Selby District Council - Rev. 7. August 2015. (Doc Ref: REP6-007)

## Structure of this RIES

1.7 The remainder of this report is as follows:

- **Section 2** identifies the European sites that have been considered within the DCO application and during the examination period, up to September 2015. It provides an overview of the issues that have emerged during the examination.
- **Section 3** identifies the European sites and qualifying features screened by the applicant for potential likely significant effects, either alone or in-combination with other projects and plans. The section also identifies where Interested Parties have disputed the applicant's conclusions, together with any additional European sites and qualifying features screened for potential likely significant effects during the examination.
- **Section 4** identifies the European sites and qualifying features which have been considered in terms of adverse effects on site integrity, either alone or in-combination with other projects and plans. The section identifies

where Interested Parties have disputed the applicant's conclusions, together with any additional European sites and qualifying features considered for adverse effects on integrity during the examination.

- **Annex 1** contains a table showing the UK European Sites identified by the applicant and considered during the examination.
- **Annex 2** contains a table showing the projects and plans included in the applicant's in-combination assessment.
- **Annex 3 and 4** comprise matrices for the UK European sites and qualifying features for which there are potentially significant effects and adverse effects on the integrity of European site features.

## 2.0 OVERVIEW

### European Sites Considered

- 2.1 The project is not connected with or necessary to the management for nature conservation of any of the European sites considered within the applicant's assessment.
- 2.2 The applicant's HRA Report identified the following European sites for which the UK is responsible for inclusion within the assessment:
- Lower Derwent Valley SAC
  - Lower Derwent Valley Ramsar site
  - Humber Estuary SAC
  - Humber Estuary Ramsar site
  - River Derwent SAC
  - Skipwith Common SAC
  - Thorne Moor SAC

Details regarding the features of these sites are provided in Annex 1. The applicant's scoping exercise commenced with the identification of all of the European sites within 15km of the DCO boundary. This distance was selected by the applicant as 15km represents the worst case distance for effects on the basis of the project being a large coal fired power plant, as defined by the Environment Agency's Horizontal Guidance Note H1. The three Special Protection Areas that were identified within this distance were not taken further in the assessment as the applicant indicated in paragraph 4.1.2 of Chapter 4 of the HRA that their qualifying bird features would not be sensitive to the effects arising from the project (Doc Ref: APP-059).

- 2.3 In their relevant representations, NE did not identify any other UK European site or European site features that could be affected by the project.

### HRA Matters Considered During the Examination

- 2.4 A dispute arose in the pre application stage of this project in relation to emissions to air. The applicant initially submitted a no significant effects report and did not proceed to Stage 2 of the assessment; the assessment produced indicated that the Emissions Performance Standard (EPS) within the Energy Act 2013 would ensure that the plant could not operate for an extended period in air mode. The proposed development is exempt from

the EPS for the first three years from commissioning consequently there will be no control on the length of time the project could operate in air mode for the first three years beyond commissioning. The long-term operation of the plant in air mode had the potential to result in a potentially significant impact on three designated sites namely the River Derwent SAC, Skipwith Common SAC and Thorne Moor SAC. Resolution was reached prior to the submission of the application with a full HRA submitted including Stage 2 matrices for River Derwent SAC, Skipwith Common SAC and Thorne Moor SAC.

- 2.5 The applicant's Stage 2 integrity matrices indicated that there would be no impact on site integrity for the River Derwent SAC, Skipwith Common SAC and Thorne Moor SAC.
- 2.6 NE indicated their agreement with the applicant's findings on air quality impacts at Deadline 1 in the first revision of their Statement of Common Ground (Doc Ref: REP1-043). NE agreed that there will be no adverse impact on the integrity of these three European sites.
- 2.7 The Environment Agency (EA) indicated at Deadline 5 in their Statement of Common Ground (Doc Ref: REP5-010) that they will review the data relating to European sites during the environmental permitting process in their role as 'competent authority' under the Habitats Regulations for the environmental permit variation. Consequently they were unable to comment in detail in relation to air emissions until the applicant had made their permit application, which was confirmed as being duly made on the 29 June 2015 (Doc Ref: REP5-010).
- 2.8 The ExA asked questions regarding discharge to water being potentially of concern for European sites at first questions. The interested parties have not indicated any further/ongoing concern relating to this issue.
- 2.9 The EA indicated in their response to first questions (Doc Ref: REP1-052) that they will act as competent authority for the Water Framework Directive and the Habitats Regulations in their role as the decision maker for any Environmental Permit and Abstraction Licence. The environmental effects associated with abstractions from or discharges to the environment are also required to be assessed as part of this process.

### 3.0 LIKELY SIGNIFICANT EFFECTS

- 3.1 The applicant has described how they have determined what would constitute a 'significant effect' within their HRA report (Doc Ref: APP-059). This follows EC guidance on habitats assessment (EC Guidance document: 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (2000)' and EC Guidance document: 'Assessment of plans and projects significantly affecting Natura 2000 sites (2001)').
- 3.2 The applicant has addressed potential in-combination effects within section 4.5 of their HRA report (Doc Ref: APP-059). The projects that have been included in the in-combination assessment carried out by the applicant are listed in a table in Annex 2.
- 3.3 The scope of the in-combination was not disputed by NE.
- 3.4 The applicant's screening assessment (Doc Ref: APP-059) concluded that the project would have **no likely significant effect**, either alone or in-combination with other projects or plans, on the qualifying features of the European site(s) listed below.
- Lower Derwent Valley SAC
  - Lower Derwent Valley Ramsar site
  - Humber Estuary SAC
  - Humber Estuary Ramsar site
- 3.5 The applicant's conclusions in relation to these sites and their features **were not disputed** by any interested parties during the examination (Doc Ref: REP2-008).
- 3.6 As a result of the screening assessment, the applicant concluded that the project is **likely to give rise to significant effects**, either alone or in-combination with other projects or plans, on the qualifying features of the European site(s) listed below (Doc Ref: APP-059).
- River Derwent SAC
  - Skipwith Common SAC
  - Thorne Moor SAC
- 3.7 The applicant's conclusion of potential likely significant effects in relation to these sites and their qualifying features **were not disputed** by any Interested Parties during the examination (Doc Ref: REP2-008).

## Summary of the HRA Screening outcome during the examination

- 3.8 The applicant concluded likely significant effects on three European sites, River Derwent SAC, Skipwith Common SAC, Thorne Moor SAC. The Interested Parties did not dispute the applicant's conclusion for these European sites and qualifying features. These sites are discussed further in Section 4 to this report.

## 4.0 ADVERSE EFFECTS ON INTEGRITY

### Conservation Objectives

4.1 The conservation objectives for all of the European sites taken forward to Appropriate Assessment and discussed in this section of the report were provided by the applicant with their DCO application (Doc Ref: APP-059).

### The Integrity Test

#### **No Adverse Effects on Site Integrity**

4.2 The applicant concluded that the project will not adversely affect the integrity of the European sites and features listed below.

- River Derwent SAC
- Skipwith Common SAC
- Thorne Moor SAC

4.3 The applicant's conclusions in relation to the sites and features listed above were not disputed by any Interested Parties (Doc Ref: REP2-008).

# **ANNEX 1: UK EUROPEAN SITES SCREENED INTO THE HRA BY THE APPLICANT**



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Name of European Site	Features	
River Derwent SAC	Annex I habitats that are a primary reason for selection of this site:	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:	<ul style="list-style-type: none"> <li>• Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and Callitricho-Batrachion vegetation</li> </ul>
	Annex II species that are a primary reason for selection of this site	<ul style="list-style-type: none"> <li>• River lamprey <i>Lampetra fluviatilis</i></li> </ul> <p>The Derwent is one example of river lamprey <i>Lampetra fluviatilis</i> populations which inhabit the many rivers flowing into the Humber estuary in eastern England. Only the lower reaches of the Derwent are designated, reflecting the spawning distribution of the species in the Derwent system.</p>
	Annex II species present as a qualifying feature, but not a primary reason for site selection	<ul style="list-style-type: none"> <li>• Sea lamprey <i>Petromyzon marinus</i></li> <li>• Bullhead <i>Cottus gobio</i></li> <li>• Otter <i>Lutra lutra</i></li> </ul>
Lower Derwent Valley SAC	Annex I habitats that are a primary reason for selection of this site	<ul style="list-style-type: none"> <li>• Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>)</li> </ul> <p>The Lower Derwent Valley in north-east England contains a greater area of high-quality examples of lowland hay meadows than any other UK site and encompasses the majority of this habitat type occurring in the Vale of York. The abundance of the rare narrow-leaved water-dropwort <i>Oenanthe silaifolia</i> is a notable feature. Traditional management has ensured that ecological variation is well-developed, particularly in the transitions between this grassland type</p>

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		and other types of wet and dry grassland, swamp and fen vegetation.
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:	<ul style="list-style-type: none"> <li>Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)</li> </ul>
	Annex II species that are a primary reason for selection of this site	<ul style="list-style-type: none"> <li>Not applicable.</li> </ul>
	Annex II species present as a qualifying feature, but not a primary reason for site selection	<ul style="list-style-type: none"> <li>Otter <i>Lutra lutra</i></li> </ul>
Lower Derwent Valley Ramsar	Justification for the application of Ramsar Criterion 1	<ul style="list-style-type: none"> <li>The site represents one of the most important examples of traditionally managed species-rich alluvial flood meadow habitat remaining in the UK. The river and flood meadows play a substantial role in the hydrological and ecological functioning of the Humber Basin.</li> </ul>
	Justification for the application of Ramsar Criterion 2	<ul style="list-style-type: none"> <li>The site has a rich assemblage of wetland invertebrates including 16 species of dragonfly and damselfly, 15 British Red Data Book wetland invertebrates as well as a leafhopper, <i>Cicadula ornate</i> for which Lower Derwent Valley is the only known site in Great Britain.</li> </ul>
	Justification for the application of Ramsar Criterion 4	<ul style="list-style-type: none"> <li>The site qualifies as a staging post for passage birds in spring. Of particular note are the nationally important numbers of Ruff, <i>Calidris pugnax</i> and Whimbrel, <i>Numenius phaeopus</i>.</li> </ul>
	Justification for the application of Ramsar Criterion 5	Species with peak counts in winter: <ul style="list-style-type: none"> <li>31942 waterfowl (5 year peak mean 1998/99-2002/2003)</li> </ul>
	Justification for the application of Ramsar Criterion 6	Species with peak counts in winter: <ul style="list-style-type: none"> <li>Eurasian wigeon, <i>Anas penelope</i>, NW Europe 8350 individuals, representing</li> </ul>

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	<p>Qualifying Species/populations (as identified at designation):</p>	<p>an average of 2% of the GB population (5 year peak mean 1998/9- 2002/3)</p> <ul style="list-style-type: none"> <li>• Eurasian teal , <i>Anas crecca</i>, NW Europe 4200 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3)</li> </ul>
<p>Humber Estuary SAC</p>	<p>Annex I habitats that are a primary reason for selection of this site</p>	<p>Estuaries</p> <ul style="list-style-type: none"> <li>• The Humber is the second-largest coastal plain estuary in the UK, and the largest coastal plain estuary on the east coast of Britain. It is a muddy, macro-tidal estuary, fed by the Rivers Ouse, Trent and Hull, Ancholme and Graveney. Suspended sediment concentrations are high, and are derived from a variety of sources, including marine sediments and eroding boulder clay along the Holderness coast. This is the northernmost of the English east coast estuaries whose structure and function is intimately linked with soft eroding shorelines. Habitats within the Humber Estuary include 1330 Atlantic salt meadows and a range of sand dune types in the outer estuary, together with subtidal sandbanks (Sandbanks which are slightly covered by sea water all the time), extensive intertidal mudflats (Mudflats and sandflats not covered by seawater at low tide), glasswort beds (<i>Salicornia</i> and other annuals colonising mud and sand), and coastal lagoons. As salinity declines upstream, reedbeds and brackish saltmarsh communities fringe the estuary. These are best-represented at the confluence of the Rivers Ouse and Trent at Blacktoft Sands. Upstream from the Humber Bridge, the navigation channel undergoes major shifts from north to south banks, for reasons that have yet to be fully explained. This section of the estuary is also noteworthy for extensive mud and sand bars, which in places form semi-permanent islands.</li> </ul>

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		<p>Significant fish species include river lamprey <i>Lampetra fluviatilis</i> and sea lamprey <i>Petromyzon marinus</i> which breed in the River Derwent, a tributary of the River Ouse.</p> <ul style="list-style-type: none"> <li>• Mudflats and sandflats not covered by seawater at low tide the Humber Estuary includes extensive intertidal mudflats and sandflats not covered by seawater at low tide. Upstream from the Humber Bridge, extensive mud and sand bars in places form semi-permanent islands.</li> </ul>
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:	<ul style="list-style-type: none"> <li>• Sandbanks which are slightly covered by sea water all the time</li> <li>• Coastal lagoons * Priority feature</li> <li>• <i>Salicornia</i> and other annuals colonizing mud and sand</li> <li>• Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>)</li> <li>• Embryonic shifting dunes</li> <li>• "Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")"</li> <li>• "Fixed coastal dunes with herbaceous vegetation ("grey dunes")" * Priority feature</li> <li>• Dunes with <i>Hippopha rhamnoides</i></li> </ul>
	Annex II species that are a primary reason for selection of this site	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>
	Annex II species present as a qualifying feature, but not a primary reason for site selection	<ul style="list-style-type: none"> <li>• Sea lamprey <i>Petromyzon marinus</i></li> <li>• River lamprey <i>Lampetra fluviatilis</i></li> <li>• Grey seal <i>Halichoerus grypus</i></li> </ul>
Humber Estuary Ramsar	Justification for the application of Ramsar Criterion 1	<ul style="list-style-type: none"> <li>• The site is a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons.</li> <li>• It is a large macro-tidal coastal plain estuary with high suspended sediment</li> </ul>

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		<p>loads, which feed a dynamic and rapidly changing system of accreting and eroding intertidal and subtidal mudflats, sandflats, saltmarsh and reedbeds. Examples of both strandline, foredune, mobile, semi-fixed dunes, fixed dunes and dune grassland occur on both banks of the estuary and along the coast. The estuary supports a full range of saline conditions from the open coast to the limit of saline intrusion on the tidal rivers of the Ouse and Trent. Wave exposed sandy shores are found in the outer/open coast areas of the estuary. These change to the more moderately exposed sandy shores and then to sheltered muddy shores within the main body of the estuary and up into the tidal rivers. The lower saltmarsh of the Humber is dominated by common cordgrass <i>Spartina anglica</i> and annual glasswort <i>Salicornia</i> communities. Low to mid marsh communities are mostly represented by sea aster <i>Aster tripolium</i>, common saltmarsh grass <i>Puccinellia maritima</i> and sea purslane <i>Atriplex portulacoides</i> communities.</p> <ul style="list-style-type: none"> <li>• The upper portion of the saltmarsh community is atypical, dominated by sea couch <i>Elytrigia atherica</i> (<i>Elymus pycnanthus</i>) saltmarsh community. In the upper reaches of the estuary, the tidal marsh community is dominated by the common reed <i>Phragmites australis</i> fen and sea club rush <i>Bolboschoenus maritimus</i> swamp with the couch grass <i>Elytrigia repens</i> (<i>Elymus repens</i>) saltmarsh community. Within the Humber Estuary Ramsar site there are good examples of four of the five physiographic types of saline lagoon.</li> </ul>
	<p>Justification for the application of Ramsar Criterion 3</p>	<ul style="list-style-type: none"> <li>• The Humber Estuary Ramsar site supports a breeding colony of grey seals <i>Halichoerus grypus</i> at Donna Nook. It is the second largest grey seal</li> </ul>

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		<p>colony in England and the furthest south regular breeding site on the east coast. The dune slacks at Saltfleetby-Theddlethorpe on the southern extremity of the Ramsar site are the most north-easterly breeding site in Great Britain of the natterjack toad <i>Bufo calamita</i>.</p>
	<p>Justification for the application of Ramsar Criterion 5 Assemblages of international importance:</p>	<ul style="list-style-type: none"> <li>• 153,934 waterfowl, non-breeding season (5 year peak mean 1996/97-2000/2001)</li> </ul>
	<p>Justification for the application of Ramsar Criterion 6 Species/populations occurring at levels of international importance:</p>	<p>Species with peak counts in spring/autumn:</p> <ul style="list-style-type: none"> <li>• Eurasian golden plover, <i>Pluvialis apricaria altifrons</i> subspecies – NW Europe, W Continental Europe, NW Africa population 17,996 individuals, passage, representing an average of 2.2% of the population (5 year peak mean 1996-2000)</li> <li>• Red knot, <i>Calidris canutus islandica</i> subspecies 18,500 individuals, passage, representing an average of 4.1% of the population (5 year peak mean 1996-2000)</li> <li>• Dunlin, <i>Calidris alpina alpina</i> subspecies – Western Europe (non-breeding) population 20,269 individuals, passage, representing an average of 1.5% of the population (5 year peak mean 1996-2000)</li> <li>• Black-tailed godwit, <i>Limosa limosa islandica</i> subspecies 915 individuals, passage, representing an average of 2.6% of the population (5 year peak mean 1996-2000)</li> <li>• Common redshank, <i>Tringa totanus brittanica</i> subspecies 7,462 individuals, passage, representing an average of 5.7% of the population (5 year peak mean 1996-2000)</li> </ul> <p>Species with peak counts in winter:</p>

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		<ul style="list-style-type: none"> <li>• Common shelduck, <i>Tadorna tadorna</i> Northwestern Europe (breeding) population 4,464 individuals, wintering, representing an average of 1.5% of the population (5 year peak mean 1996/7-2000/1)</li> <li>• Golden plover, <i>Pluvialis apricaria altifrons</i> subspecies – NW Europe, W Continental Europe, NW Africa population 30,709 individuals, wintering, representing an average of 3.8% of the population (5 year peak mean 1996/7-2000/1)</li> <li>• Red knot, <i>Calidris canutus islandica</i> subspecies 28,165 individuals, wintering, representing an average of 6.3% of the population (5 year peak mean 1996/7-2000/1)</li> <li>• Dunlin, <i>Calidris alpina alpina</i> subspecies – Western Europe (non-breeding) population 22,222 individuals, wintering, representing an average of 1.7% of the population (5 year peak mean 1996/7-2000/1)</li> <li>• Black-tailed godwit, <i>Limosa limosa islandica</i> subspecies 1,113 individuals, wintering, representing an average of 3.2% of the population (5 year peak mean 1996/7-2000/1)</li> <li>• Bar-tailed godwit, <i>Limosa lapponica lapponica</i> subspecies 2,752 individuals, wintering, representing an average of 2.3% of the population (5 year peak mean 1996/7-2000/1)</li> <li>• Common redshank, <i>Tringa totanus brittanica</i> subspecies 4,632 individuals, wintering, representing an average of 3.6% of the population (5 year peak mean 1996/7-2000/1)</li> </ul>
	<p>Justification for the application of Ramsar Criterion 8</p>	<ul style="list-style-type: none"> <li>• The Humber Estuary acts as an important migration route for both river lamprey <i>Lampetra fluviatilis</i> and sea lamprey <i>Petromyzon marinus</i> between coastal waters and their spawning areas.</li> </ul>
<p>Skipwith Common SAC</p>	<p>Annex I habitats that are a primary reason for selection of this site</p>	<ul style="list-style-type: none"> <li>• Northern Atlantic wet heaths with <i>Erica tetralix</i></li> </ul> <p>The northern Atlantic wet heath at Skipwith Common is the most extensive</p>

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		<p>of its type in the north of England. The M16 <i>Erica tetralix</i> - <i>Sphagnum compactum</i> wet heath is dominated by cross-leaved heath <i>Erica tetralix</i> and purple moor-grass <i>Molinia caerulea</i>. There is a small population of marsh gentian <i>Gentiana pneumonanthe</i>. The wet heath is part of transitions from open water, fen, reed and swap to European dry heaths and other habitats. The site has great ornithological and entomological importance.</p> <ul style="list-style-type: none"> <li>• European dry heaths</li> </ul> <p>Skipwith Common is one of the only two extensive areas of open heathland remaining in the Vale of York, the other being Strensall Common. The dry heath element is an example of H9 <i>Calluna vulgaris</i> - <i>Deschampsia flexuosa</i> heath dominated by heather <i>Calluna vulgaris</i>. The area has entomological and ornithological importance, with nearly 80 species of birds recorded, including European nightjar <i>Caprimulgus europaeus</i>.</p>
	Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>
	Annex II species that are a primary reason for selection of this site	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>
	Annex II species present as a qualifying feature, but not a primary reason for site selection	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>
Thorne Moor SAC	Annex I habitats that are a primary reason for selection of this site	<ul style="list-style-type: none"> <li>• Degraded raised bogs still capable of natural regeneration</li> </ul> <p>Thorne Moor is England's largest area of raised bog, lying a few kilometres from the</p>



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		<p>smaller Hatfield Moors, both within the former floodplain of the rivers feeding the Humber estuary (Humberhead Levels), and includes the sub-components Goole Moors and Crowle Moors. Although recent management has increased the proportion of 7110 active raised bog at Thorne Moors, the inclusion of Goole Moors, where peat-extraction has now ceased, means that the site is still predominantly degraded raised bog. The restored secondary surface is rich in species of Active raised bogs with bog-mosses <i>Sphagnum</i> spp., cottongrasses <i>Eriophorum angustifolium</i> and <i>E. vaginatum</i>, heather <i>Calluna vulgaris</i>, cross-leaved heath <i>Erica tetralix</i>, round-leaved sundew <i>Drosera rotundifolia</i>, cranberry <i>Vaccinium oxycoccos</i> and bog-rosemary <i>Andromeda polifolia</i>.</p>
	<p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site:</p>	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>
	<p>Annex II species that are a primary reason for selection of this site</p>	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>
	<p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p>	<ul style="list-style-type: none"> <li>• Not applicable.</li> </ul>

## **ANNEX 2: PROJECTS AND PLANS INCLUDED WITHIN THE IN-COMBINATION ASSESSMENT**

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<b>Development</b>	<b>Description</b>	<b>Distance from the Site</b>
The proposed Don Valley Power Plant CCS scheme	Located in South Yorkshire will use pre-combustion CO <sub>2</sub> capture technology in a new build integrated gasification combined cycle (IGCC) coal fired power plant. The project would have a gross electrical output of 650 MWe. The captured gas is proposed to be compressed and transported to the North Sea for sequestration via NGCL's pipeline.	25 km
National Grid Carbon Ltd (NGCL) Pipeline	Pipeline to transport the CO <sub>2</sub> generated by the Project to an undersea location in the North Sea. Additionally the NGCL pipeline will support the development of carbon capture, transport and storage in the wider Yorkshire and Humber region. The pipeline would initially transport up to 2 million tonnes of CO <sub>2</sub> per year (from the Project). The design of the pipeline is such that it will be able to transport safely up to 17 million tonnes per year when the regional network of CO <sub>2</sub> emitters has been 'plugged in'.	75 km
Drax Power Ltd – annual 'outages'	Every year the existing Drax Power Station is subject to periodic shut down where one or more of the six operational units are taken out of electrical generation to facilitate maintenance and servicing. These periods are referred to as 'outages'. During outages, a large number of contractors are present on site. This level peaks at around 1,000 contractors for a central four week period.	<1 km
Capture Power Ltd	Site Raising EIA	On the operational area.
Highways England	Works to the A160 between the junction with the A180 at Brocklesby Interchange and the Port of Immingham. The project would widen the existing single carriageway section of the A160 to dual carriageway, with associated works to junctions along the length of the	60 km

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	route.	
Multifuel Energy Ltd – Ferrybridge Multifuel 2 (FM2) Power Station	Proposed multifuel generating station with a capacity of up to 90 MWe Gross, primarily through waste derived fuel from various sources of processed municipal solid waste, commercial and industrial waste and waste wood.	23 km
Knottingley Power Project	A 1500 MWe Combined Cycle Gas Turbine (CCGT) power station and associated infrastructure.	20 km
Southmoor Energy Centre at Kellingley	280k tonnes per annum; 28 MWe Energy from Waste (Efw) merchant facility. Not linked to any specific pre-identified waste management contracts. As such, it is likely to primarily accept commercial and industrial waste.	15 km
Thorpe Marsh Gas Pipelines	Gas pipeline of approximately 18 km from an offtake approximately 1.5 km west of Camblesforth to the Thorpe Marsh CCGT Power Station site.	2 km
Various onshore windfarms	Multiple onshore windfarms within 15 km of Drax	Various
Precision Diesel Enterprises, Sherburn.	Eight diesel generators (combined output circa 48 MWe) housed within a single pre-fabricated steel building as well as an associated infrastructure for water coolers, diesel storage tanks and underground cabling.	15 km
Pollington Airfield Biomass Project	The 53MWe power station at the former RAF airfield at Pollington will be fuelled by 360,000 tonnes of waste wood per annum. This feedstock will be delivered to the site via the Aire and Calder Navigation Canal.	11 km

## **ANNEX 3: STAGE 1 MATRICES: SCREENING FOR LIKELY SIGNIFICANT EFFECTS**

## Stage 1 Matrices: Screening for Likely Significant Effect

This annex of the RIES identifies the European sites and features for which the Applicant's conclusions were disputed by Interested Parties. Therefore, revised screening matrices have been produced by the Planning Inspectorate

### Key to Matrices:

- ✓ Likely significant effect cannot be excluded
- × Likely significant effect can be excluded
- C construction
- O operation
- D decommissioning

Information supporting the conclusions is detailed in footnotes for each table with reference to relevant supporting documentation.

Where an impact is not considered relevant for a feature of a European Site the cell in the matrix is formatted as follows:

n/a
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**Stage 1 Matrix 1: River Derwent SAC**

Site Code: UK0030253

Distance to project: 0.66 km NE

European site	Likely Effects of NSIP														
	Emissions (Oxy-mode)			Emissions (Air-mode 100%)			Emissions (Air-mode 56%)			Jetty Works			In-combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and Callitricho-Batrachion vegetation	n/a	xa	xb	n/a	✓c, m	xb	n/a	xn	xb	xd	xd	xd	xd	xe	xb
River lamprey <i>Lampetra fluviatilis</i>	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xg	xg	xg	xg	xe	xb
Sea lamprey <i>Petromyzon marinus</i>	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xg	xg	xg	xg	xe	xb
Bullhead <i>Cottus gobio</i>	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xg	xg	xg	xg	xe	xb
Otter <i>Lutra lutra</i>	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xg	xg	xg	xg	xe	xb

**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- a.** Project operating in oxy-mode will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted – *Paragraph 4.4.21.*
- b.** Decommissioning of power station will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted – *Paragraph 4.1.3.*
- c.** SO<sub>2</sub> emissions identified as an unacceptable impact during three year commissioning (up to) operation in Air-mode for 100% of time – *Paragraph 4.4.24.*
- d.** Ecological receptor is predominantly located upstream of site of proposed jetty works (on River Ouse) and will not be affected by, or sensitive to the works – *Paragraph 4.1.1.*
- e.** No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in – *Paragraph 4.5.5.*
- f.** Not sensitive to air pollutants in the concentrations expected by the applicant’s model – *Paragraph 4.4.4.*
- g.** Offloading facility works associated with jetty use will be terrestrial, short term during construction only and reversible and it is unlikely these would have significant adverse effects on mobile qualifying features downstream of the SAC. Berthing / unloading will be onto an existing structure already used for this purpose and will represent an insignificant increase in background river traffic volumes given existing freight and recreational use and will not represent a significant change in existing levels of disturbance – *Paragraph 4.3.3.*
- m.** SO<sub>2</sub> process contribution exceeds 1% of annual mean critical level and 70% of PEC during 3 years of commissioning at 100% air mode, therefore taken forward to Stage 2 AA – *Paragraph 4.4.43.*
- n.** No unacceptable impacts on this feature identified in air quality modelling – *Paragraph 4.4.4.*



**Stage 1 Matrix 2: Lower Derwent Valley SAC**

Site Code: UK0012844

Distance to project: 4.86 km NE

European site features	Likely Effects of NSIP														
	Emissions (Oxy-mode)			Emissions (Air-mode 100%)			Emissions (Air-mode 56%)			Jetty Works			In-combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Lowland hay meadows ( <i>Alopecurus pratensis</i> , <i>Sanguisorba officinalis</i> )	n/a	xa	xb	n/a	xn	xb	n/a	xn	xb	xh	xh	xh	xi	xe	xb
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i>	n/a	xa	xb	n/a	xn	xb	n/a	xn	xb	xh	xh	xh	xi	xe	xb
Otter <i>Lutra lutra</i>	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xh	xh	xh	xi	xe	xb

**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- a. Project operating in oxy-mode will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted - *Paragraph 4.4.21.*
- b. Decommissioning of the Project will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted - *Paragraph 4.1.3.*
- e. No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in - *Paragraph 4.5.5.*

- f.** Not sensitive to air pollutants at the anticipated concentrations as modelled by the applicant- *Paragraph 4.4.4.*
- g.** Offloading facility works associated with jetty use will be terrestrial, short term during construction only and reversible and it is unlikely these would have significant adverse effects on mobile qualifying features downstream of the SAC limit. Berthing / unloading will be onto an existing structure already used for this purpose and will represent an insignificant increase in background river traffic volumes given existing freight and recreational use and will not represent a significant change in existing levels of disturbance – *Paragraph 4.3.3.*
- h.** European site and its features will not be affected by jetty works – *Paragraph 4.1.1.*
- i.** No direct impacts from the Project and therefore no potential for in-combination effects – *Paragraph 4.1.3.*
- n.** No unacceptable impacts on these features identified in air quality modelling - *Paragraph 4.4.4.*

**Stage 1 Matrix 3: Lower Derwent Valley Ramsar**

Site Code: UK11037

Distance to project: 4.87 km NE

European site features	Likely Effects of NSIP														
	Emissions (Oxy-mode)			Emissions (Air-mode 100%)			Emissions (Air-mode 56%)			Jetty Works			In-combination effects		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Ramsar Criterion 1 - traditionally managed species-rich alluvial flood meadow habitat	n/a	xa	xb	n/a	xn	xb	n/a	xn	xb	xh	xh	xh	xi	xe	xb
Ramsar Criterion 2 - assemblage of wetland invertebrates	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xh	xh	xh	xi	xe	xb
Ramsar Criterion 4 - passage birds in spring - Ruff, <i>Calidris pugnax</i> and Whimbrel, <i>Numenius phaeopus</i>	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xh	xh	xh	xi	xe	xb
Ramsar Criterion 5 - Species with peak counts in winter: 31942 waterfowl	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xh	xh	xh	xi	xe	xb
Ramsar Criterion 6 - Species with peak counts in winter -	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xh	xh	xh	xi	xe	xb

Eurasian wigeon , <i>Anas Penelope</i> and Eurasian teal , <i>Anas crecca</i>															
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**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- a.** Project operating in oxy-mode will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted - *Paragraph 4.4.21.*
- b.** Decommissioning of the Project will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted - *Paragraph 4.1.3.*
- e.** No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in - *Paragraph 4.5.5.*
- f.** Not sensitive to air pollutants at the anticipated concentrations as modelled by the applicant - *Paragraph 4.4.4.*
- h.** European site and its features will not be affected by jetty works – *Paragraph 4.1.1.*
- i.** No direct impacts from the Project and therefore no potential for in-combination effects – *Paragraph 4.1.3.*
- n.** No unacceptable impacts on these features identified in air quality modelling - *Paragraph 4.4.4.*

**Stage 1 Matrix 4: Humber Estuary SAC**

Site Code: UK0030170

Distance to project: 6.13 km E

<b>European site features</b>	<b>Likely Effects of NSIP</b>														
	<i>Emissions (Oxy-mode)</i>			<i>Emissions (Air-mode 100%)</i>			<i>Emissions (Air-mode 56%)</i>			<i>Jetty Works</i>			<i>In-combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Estuaries	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
Mudflats and sandflats not covered by seawater at low tide	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
Sandbanks which are slightly covered by sea water all the time	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
Coastal lagoons * Priority feature	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
<i>Salicornia</i> and other annuals colonizing mud and sand	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
Atlantic salt	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>x</b>

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meadows ( <i>Glauco-Puccinellietalia maritima</i> )															<b>b</b>
Embryonic shifting dunes	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
"Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")"	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>n/a</b>	<b>xn</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
"Fixed coastal dunes with herbaceous vegetation ("grey dunes")" * Priority feature	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xj</b>	<b>xb</b>	<b>n/a</b>	<b>xj</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
Dunes with <i>Hippophae rhamnoides</i>	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xj</b>	<b>xb</b>	<b>n/a</b>	<b>xj</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
Sea lamprey <i>Petromyzon marinus</i>	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xf</b>	<b>xb</b>	<b>n/a</b>	<b>xf</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
River lamprey <i>Lampetra fluviatilis</i>	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xf</b>	<b>xb</b>	<b>n/a</b>	<b>xf</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>
Grey seal <i>Halichoerus grypus</i>	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>n/a</b>	<b>xf</b>	<b>xb</b>	<b>n/a</b>	<b>xf</b>	<b>xb</b>	<b>xh</b>	<b>xh</b>	<b>xh</b>	<b>xi</b>	<b>xe</b>	<b>xb</b>

**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- a.** Project operating in oxy-mode will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted - *Paragraph 4.4.21.*
- b.** Decommissioning of the Project will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted - *Paragraph 4.1.3.*
- e.** No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in - *Paragraph 4.5.5.*
- f.** Not sensitive to air pollutants in concentrations modelled- *Paragraph 4.4.4.*
- h.** European site and its features will not be affected by jetty works – *Paragraph 4.1.1.*
- i.** No direct impacts from the Project and therefore no potential for in-combination effects – *Paragraph 4.1.3.*
- j.** Sensitive features at least 67 km from the Project and therefore no effects predicted – *Paragraph 4.4.47.*
- n.** No unacceptable impacts on these features identified in air quality modelling - *Paragraph 4.4.4.*

**Stage 1 Matrix 5: Humber Estuary Ramsar**

Site Code: UK11031

Distance to project: 6.13 km E

European site features	Likely Effects of NSIP														
	Emissions (Oxy-mode)			Emissions (Air-mode 100%)			Emissions (Air-mode 56%)			Jetty Works			In-combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Ramsar Criterion 1 - near-natural estuary with component habitats	n/a	xa	xb	n/a	xj	xb	n/a	xj	xb	xh	xh	xh	xi	xe	xb
Ramsar Criterion 3 - breeding colony of grey seals <i>Halichoerus grypus</i> and breeding site for natterjack toad <i>Bufo calamita</i>	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xh	xh	xh	xi	xe	xb
Ramsar Criterion 5 - assemblage of international importance of 153,934 waterfowl	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xh	xh	xh	xi	xe	xb
Ramsar Criterion 6 - species/populations of international	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xh	xh	xh	xi	xe	xb



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<p>importance in spring/autumn of Eurasian golden plover <i>Pluvialis apricaria altifrons</i>, Red knot <i>Calidris canutus islandica</i>, Dunlin <i>Calidris alpina alpina</i>, Black-tailed godwit <i>Limosa limosa islandica</i>, Common redshank <i>Tringa totanus brittanica</i> species/populations of international importance in winter of Common shelduck <i>Tadorna tadorna</i>, Golden plover <i>Pluvialis apricaria altifrons</i>, Red knot <i>Calidris canutus islandica</i>, Dunlin <i>Calidris alpina alpina</i>, Black-tailed godwit <i>Limosa limosa islandica</i>, Bar-tailed godwit,</p>														
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<i>Limosa lapponica lapponica</i> , Common redshank <i>Tringa totanus brittanica</i>															
Ramsar Criterion 8 - important migration route for both river lamprey <i>Lampetra fluviatilis</i> and sea lamprey <i>Petromyzon marinus</i>	n/a	xa	xb	n/a	xf	xb	n/a	xf	xb	xh	xh	xh	xi	xe	xb

**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- a. Project operating in oxy-mode will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted - *Paragraph 4.4.21.*
- b. Decommissioning of the Project will not result in release of significant pollutants to atmosphere, no impact on this receptor/feature predicted - *Paragraph 4.1.3.*
- e. No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in - *Paragraph 4.5.5.*
- f. Not sensitive to air pollutants in concentrations modelled- *Paragraph 4.4.4.*
- h. European site and its features will not be affected by jetty works - *Paragraph 4.1.1.*
- i. No direct impacts from the Project and therefore no potential for in-combination effects - *Paragraph 4.1.3.*
- j. Sensitive features at least 67 km from the Project and therefore no effects predicted - *Paragraph 4.4.47.*

**Stage 1 Matrix 6: Skipwith Common SAC**

Site Code: UK0030276

Distance to project: 8.0 km N

European site features	Likely Effects of NSIP														
	Emissions (Oxy-mode)			Emissions (Air-mode 100%)			Emissions (Air-mode 56%)			Jetty Works			In-combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Northern Atlantic wet heaths with <i>Erica tetralix</i>	n/a	xa	xb	n/a	✓k, l, m	xb	n/a	✓l, o	xb	xh	xh	xh	xi	xe	xb
European dry heaths	n/a	xa	xb	n/a	✓k, l, m	xb	n/a	✓l, o	xb	xh	xh	xh	xi	xe	xb

**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- a. Project operating in oxy-mode will not result in release of significant pollutants to atmosphere, no impact on this feature predicted - *Paragraph 4.4.21.*
- b. Decommissioning of the Project will not result in release of significant pollutants to atmosphere, no impact on this feature predicted - *Paragraph 4.1.3.*
- e. No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in - *Paragraph 4.5.5.*

- h.** European site and its features will not be affected by jetty works – *Paragraph 4.1.1.*
- i.** No direct impacts from the Project and therefore no potential for in-combination effects – *Paragraph 4.1.3.*
- k.** No unacceptable impacts identified in the Emissions to Air Technical Report other than acid deposition and SO<sub>2</sub> – *Paragraph 4.4.43 and Paragraph 4.4.44.*
- l.** Acid deposition process contribution exceeds 1% of annual mean critical load and 70% PEC during both the 3 year commissioning phase (operating in air mode for 100% of the time) and routine operation (i.e. 56% of the time in air mode), therefore taken forward to Stage 2 AA - *Paragraph 4.4.43 and Paragraph 4.4.44.*
- m.** SO<sub>2</sub> process contribution exceeds 1% of annual mean critical level during 3 years of commissioning (at 100% air mode), therefore taken forward to Stage 2 AA – *Paragraph 4.4.43.*
- o.** Acid deposition identified as an unacceptable impact in the Emissions to Air Technical Report - *Paragraph 4.4.44.*

**Stage 1 Matrix 7: Thorpe Marsh SAC**

Site Code: UK0012915

Distance to project: 9.37 km SE

European site features	Likely Effects of NSIP														
	Emissions (Oxy-mode)			Emissions (Air-mode 100%)			Emissions (Air-mode 56%)			Jetty Works			In-combination effects		
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Degraded raised bogs still capable of natural regeneration	n/a	xa	xb	n/a	✓o, l	xb	n/a	✓o, l	xb	xh	xh	xh	xi	xe	xb

**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- a.** Project operating in oxy-mode will not result in release of significant pollutants to atmosphere, no impact on this feature predicted - *Paragraph 4.4.21.*
- b.** Decommissioning of the Project will not result in release of significant pollutants to atmosphere, no impact on this feature predicted - *Paragraph 4.1.3.*
- e.** No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in - *Paragraph 4.5.5.*
- h.** European site and its features will not be affected by jetty works – *Paragraph 4.1.1.*
- i.** No direct impacts from the Project and therefore no potential for in-combination effects – *Paragraph 4.1.3.*
- l.** Acid deposition process contribution exceeds 1% of annual mean critical load and 70% PEC during both the 3 year commissioning phase (operating in air mode for 100% of the time) and routine operation (i.e. 56% of the time in air mode), therefore taken forward to Stage 2 AA - *Paragraph 4.4.43 and Paragraph 4.4.44.*

- Acid deposition identified as an unacceptable impact in the Emissions to Air Technical Report - *Paragraph 4.4.44*.

## **ANNEX 4: STAGE 2 MATRICES: ADVERSE EFFECT ON INTEGRITY**

## Stage 2 Matrices: Adverse Effect on Integrity

This annex of the RIES identifies the European sites and features for which the Applicant's conclusions with regards to adverse effects on integrity were disputed by Interested Parties. Therefore revised integrity matrices have been produced by the Planning Inspectorate.

### Key to Matrices:

- ✓ Likely significant effect cannot be excluded
- × Likely significant effect can be excluded
- C construction
- O operation
- D decommissioning

Information supporting the conclusions is detailed in footnotes for each table with reference to relevant supporting documentation.

Where an impact is not considered relevant for a feature of a European Site the cell in the matrix is formatted as follows:

n/a



**Stage 2 Matrix A: River Derwent SAC**

Site Code: UK0030253

Distance to project: 0.66 km NE

European site features	Adverse effect on integrity					
	<i>SO<sub>2</sub> concentrations due to emissions operating in air-mode 100% of the time</i>			<i>In-combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	<b>n/a</b>	<b>xa</b>	<b>xb</b>	<b>xn/a</b>	<b>xc</b>	<b>xb</b>

**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- a. Neither SO<sub>2</sub> levels specifically or emissions to air more generally are identified as a vulnerability or threat to the site on either the River Derwent SAC Natura 2000 Standard Data Form or SSSI Citation. The assessment criteria set out in *Section 4.4.4* and applied in *Section 4.4.5* use the 10 µg m<sup>-3</sup> criterion for SO<sub>2</sub> for more sensitive receptors, based on the vulnerability to direct damage of mosses, liverworts and lichens which are often sensitive to lower concentrations than those causing injury to higher plants. The characteristic water moss *Fontinalis squamosal* does not occur in the lower reaches of the River Derwent, which are unsuitable for the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation for which the SAC is designated. Even with the conservative 10 µg m<sup>-3</sup> criteria, the unacceptable impact identified by the air quality modelling equates to a PEC for the three year's operating in air mode for up to 100% of the time of 7.38 µg m<sup>-3</sup>. This level does not

exceed the Critical Level for SO<sub>2</sub> of 10 µg m<sup>-3</sup> for the most sensitive characteristic species of the *Water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion* vegetation habitat. The habitat itself does not occur in the lower reaches of the River Derwent. As a result, the increase in SO<sub>2</sub> will not result in any effects on the vegetation of the Annex I qualifying interest feature habitat, and therefore will not result in an adverse effect on the integrity of the site – *Paragraph 5.2.9* and *Paragraph 5.2.10*.

- b.** Decommissioning of power station will not result in release of significant pollutants to atmosphere, no impact on this feature predicted - *Paragraph 4.1.3*.
- c.** No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in - *Paragraph 4.5.5*.

**Stage 2 Matrix B: Skipwith Common SAC**

Site Code: UK0030276

Distance to project [element, if needed]: 8 km N

European site features	Adverse effect on integrity								
	<i>SO<sub>2</sub> concentrations due to emissions operating in air-mode 100% of the time.</i>			<i>Acid deposition due to emissions operating in air-mode 100% of the time and air-mode 56% of the time.</i>			<i>In-combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
<b>Northern Atlantic wet heaths with <i>Erica tetralix</i></b>	n/a	xd	xb	n/a	xe	xb	xn/a	xc	xb
<b>European dry heaths</b>				n/a	xe	xb	xn/a	xc	xb

**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- b.** Decommissioning of power station will not result in release of significant pollutants to atmosphere, no impact on this feature predicted - *Paragraph 4.1.3.*
- c.** No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in - *Paragraph 4.5.5.*
- d.** SO<sub>2</sub> is not identified as a vulnerability or threat to the site on either the Skipwith Common SAC Natura 2000 Standard Data Form or SSSI Citation. The assessment criteria set out in *Section 4.4.4* and applied in *Section 4.4.5* use the 10 µg/m<sup>3</sup> criterion for SO<sub>2</sub> for more sensitive receptors, based on the vulnerability to direct damage of mosses, liverworts and lichens which are often sensitive to lower concentrations than those causing injury to higher plants. The Annex I habitat *Northern Atlantic wet heaths with Erica tetralix and European dry heaths* vegetation sub-community which occurs on Skipwith Common supports a poorly developed moss community and would be expected to be more resilient

to low levels of SO<sub>2</sub> than a habitat with a higher number of mosses, lichens and bryophytes. The Annex I habitat *Northern Atlantic wet heaths with Erica tetralix* community supports three characteristic species of *Sphagnum* moss *Sphagnum palustre*, *S. squarrosum* and *S. recurvum* which are less sensitive to SO<sub>2</sub> than some moss, liverwort and lichen species and have a critical level for SO<sub>2</sub> of 20 µg m<sup>-3</sup> – *Paragraphs 5.3.10 – 5.3.13*.

- e. The site vulnerabilities are listed as a lack of management activities resulting in scrub encroachment. Acid deposition is not reported to be a significant factor. Current background levels of acid deposition at Skipwith Common SAC (1.67 keq ha<sup>-1</sup> yr<sup>-1</sup>) exceed the critical load for acid deposition at the site (0.802 keq ha<sup>-1</sup> yr<sup>-1</sup>) by 108% without showing any impacts on the integrity of the site. During the first three years of operation, the process contribution from the Project (0.0417 keq ha<sup>-1</sup> yr<sup>-1</sup>) equates to 2.5% of background levels. The process contribution from the Project operating in air mode for 56% of the year (0.0234 keq ha<sup>-1</sup> yr<sup>-1</sup>) equates to 1.4% of background levels. Given the current background levels of acid deposition which do not appear to be affecting the site, and the very small increase (2.5% of background levels for 3 years followed by 1.4% of background levels) predicted, the Project will not result in any adverse effect on the integrity of site - *Paragraphs 5.3.5 – 5.3.7*.

**Stage 2 Matrix C: Thorne Moor SAC**

Site Code: UK0012915

Distance to project [element, if needed]: 9.37 km SE

European site features	Adverse effect on integrity					
	<i>Acid deposition due to emissions operating in air-mode 100% of the time and air-mode 56% of the time.</i>			<i>In-combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>	<i>C</i>	<i>O</i>	<i>D</i>
<b>Degraded raised bogs still capable of natural regeneration</b>	<b>n/a</b>	<b>xf</b>	<b>xb</b>	<b>xn/a</b>	<b>xc</b>	<b>xb</b>

**Evidence supporting conclusions (paragraph references refer to the HRA report (Doc Ref: APP-059) :**

- b.** Decommissioning of power station will not result in release of significant pollutants to atmosphere, no impact on this feature predicted - *Paragraph 4.1.3.*
- c.** No projects with potential in-combination effects identified within the air quality in-combination effects study area as set out in - *Paragraph 4.5.5.*
- f.** The site vulnerabilities describe how while much of the raised bog has been successfully restored to active bog through maintenance of water levels, a large area is classed as degraded because restoration to its previous habitat is still in the early stages. The vulnerabilities which affect the ability to successfully restore the degraded bog include peat-cutting, water abstraction from the underlying aquifer (and surrounding agricultural drainage). Acid deposition is not reported to be a significant factor. Current background levels of acid deposition at Thorne Moor SAC ( $1.71 \text{ keq ha}^{-1} \text{ yr}^{-1}$ ) exceed the critical load for acid deposition at the site ( $0.462 \text{ keq ha}^{-1} \text{ yr}^{-1}$ ) by 270% without showing any impacts on the integrity of the site. During the first three years of operation, the process contribution from the Project ( $0.0310 \text{ keq ha}^{-1} \text{ yr}^{-1}$ ) equates to 1.8% of background levels. The process contribution from the Project operating in air mode for 56% of the year ( $0.0174 \text{ keq ha}^{-1} \text{ yr}^{-1}$ ) equates to 1% of background levels. Given the current background levels of acid

deposition which do not appear to be affecting the site, and the very small increase (1.8% of background levels for 3 years followed by 1% of background levels) predicted, the Project will not result in any adverse effect on the integrity of site – *Paragraph 5.4.5* and *Paragraph 5.4.6*.