EP SHB

South Humber Bank Energy Centre

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Appendix 10G: Habitats Regulations Assessment Signposting

Applicant: EP SHB Limited
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DOCUMENT HISTORY

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1.0 INTRODUCTION

1.1 This Appendix of the Environmental Statement (ES) represents a 'Habitats Regulations Assessment (HRA) Signposting Document' for the Proposed Development. The terms of reference used in this report are consistent with those defined within the main chapters of the ES (Volume I). References are included, under relevant subject headings, to those chapters, technical appendices and paragraphs within the ES that contain the information required by the competent authority to undertake an "appropriate assessment" under the terms of Regulation 63 of the Conservation of Habitats and Species Regulations 2017 (commonly referred to as the 'Habitats Regulations'). It is designed to serve two key functions:

- to assist the competent authority by making it easier to undertake and consult on a Habitats Regulations Assessment; and
- to act as a confirmatory checklist that can be used to ensure that the relevant information needed for a HRA is adequately presented within this ES.

Rationale for Scoping

1.2 It is a requirement of the EC Habitats Directive 1992 and the Habitats Regulations (Box 1.1) that plans and projects are subject to an 'appropriate assessment' if it is likely that they will lead to significant adverse effects on a Natura 2000 site (the collective name for European designated sites). It is the duty of the 'competent authority' to determine if significant adverse effects are likely and, if necessary, to then undertake the appropriate assessment, but the proponent of the Proposed Development can be asked to supply sufficient data/ reports to enable such a decision to be reached.

1.3 In the past, the term 'appropriate assessment' has been used to describe both the overall process and a particular stage of that process (see below). The term Habitats Regulations Assessment (HRA) has come into use in order to refer to the process that leads to an "Appropriate Assessment", thus avoiding confusion. Throughout this report, HRA is used to refer to the overall procedure required by the Habitats Regulations. The Habitats Regulations set out a stepwise process, including an 'appropriate assessment' to consider the impacts and effects of the Proposed Development on the Natura 2000 site. Although the necessity for an Appropriate Assessment has not been established, based on pre application engagement with the competent authority and Natural England, this document has been prepared on the assumption that the competent authority will conclude that one is required.

1.4 For statutory designated nature conservation sites subject to the provisions of the Habitats Regulations, it is usual to consider a search radius of 10 km when examining the potential pathways for air quality impacts on the sites.

1.5 One European designated site has been identified within this radius; this is the Humber Estuary Special Area of Conservation (SAC), Special Protection Area (SPA) and Ramsar site, which is approximately 175 m east of the Proposed Development. The SAC supports qualifying Annex I habitats that are potentially susceptible to the effects of emissions to air from the Proposed Development. The SPA/ Ramsar supports internationally important assemblages of wintering and passage waterbirds that may be displaced from functionally linked habitats outside the designation boundary as a result of the Proposed Development.

1.6 Surface water pathways to the designated habitats (and thus the qualifying species they support) have also been considered because the surrounding surface water drainage network, into which surface water from the construction and operation of the Proposed Development will outfall, drains into the Humber Estuary.

Box 1.1: The legislative basis for determining Likely Significant Effect and for subsequent Appropriate Assessment, if required

Habitats Directive 1992

"*Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives*."

Article 6 (3)

Conservation of Habitats and Species Regulations 2017

"*A competent authority, before deciding to … give any consent for a plan or project which 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) … must make an appropriate assessment of the implications for the site in view of that sites conservation objectives … The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site …*".

Regulation 63

Overview of HRA Procedure and Context

1.7 Office of Deputy Prime Minister (ODPM) Circular 06/2005 (Biodiversity and Geological Conservation - Statutory Obligations and Their Impact Within the Planning System) provides guidance on how the Habitats Regulations should be implemented. This is interpreted and summarised as follows:

- determination of whether the proposal is likely to have a significant effect, either alone or cumulatively (referred to as 'in-combination' in HRA terms) with other plans or projects, on a European site;
- if a significant effect is likely, the competent authority must conduct an Appropriate Assessment of the implications for the site in view of the site's conservation objectives (Natural England, 2008);
- in considering the project's effects on the site's conservation objectives, the competent authority must determine whether it can ascertain that the proposal will not adversely affect the integrity of the site;
- taking account of the way in which works are proposed to be carried-out, and the site conditions or other restrictions;
- being satisfied that there are no alternative solutions which would have a lesser effect on site integrity;
- considering whether there are Imperative Reasons of Overriding Public Interest (IROPI) to justify granting of permission for the development despite a potentially negative effect on site integrity; and
- in the absence of alternatives, and where the importance of the development outweighs the harm to a European site, consideration of proposed compensatory measures (to ensure that the overall coherence of the network of Natura 2000 sites is protected).

1.8 A flow chart of the HRA process (showing the decisions that are required at each stage) is provided as Plate 1.1 (below). A four-stage methodology for HRA would therefore include:

- HRA Stage 1: Screening (including a 'likely significant effect' judgement);
- HRA Stage 2: Appropriate Assessment;

- HRA Stage 3: Assessment of Alternative Solutions; and
- HRA Stage 4: Assessment where no alternative solutions exist and where adverse effects remain.

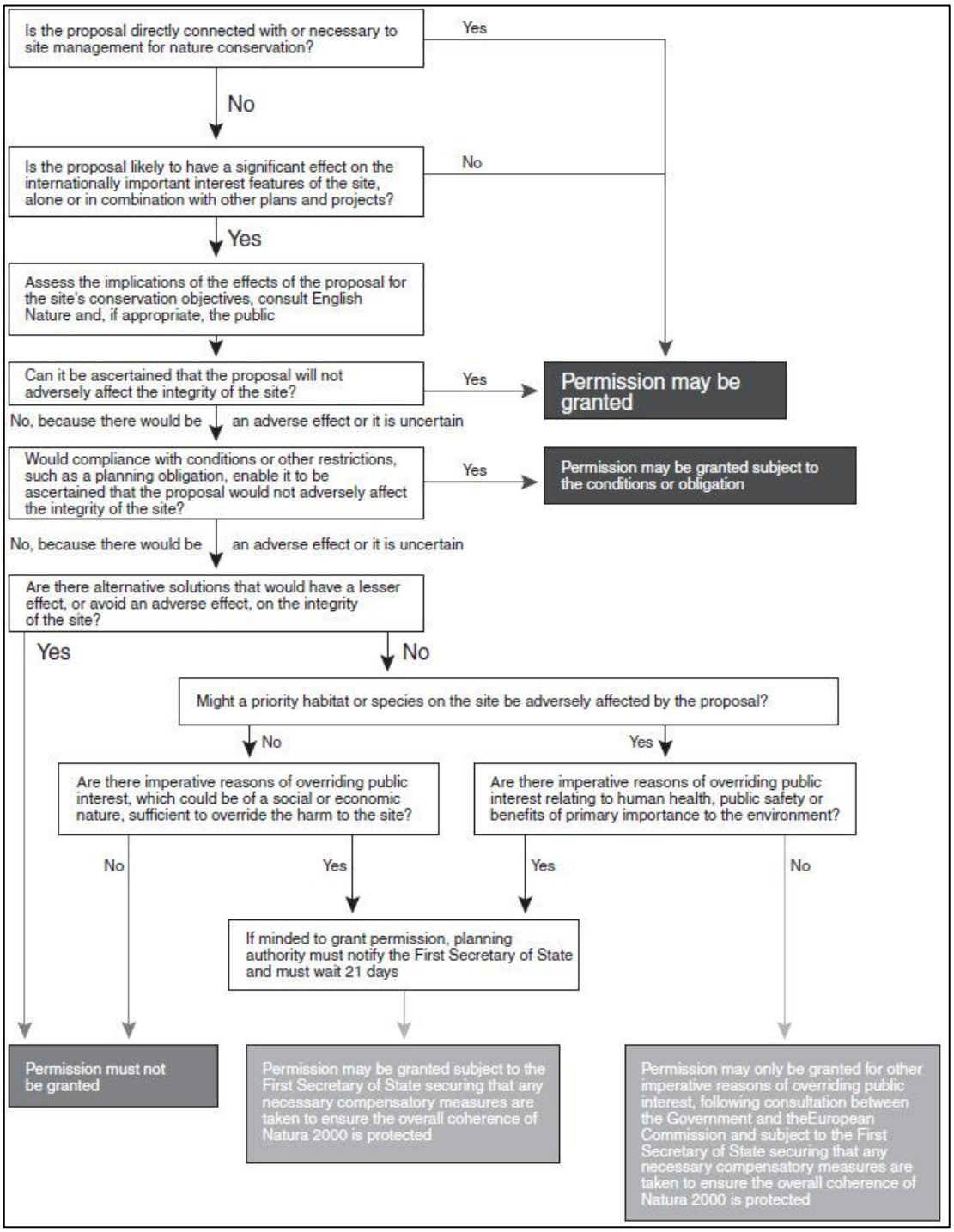
1.9 Whilst the Appropriate Assessment and any subsequent assessments are undertaken by a competent authority, the information needed to undertake the assessments is generally provided by the applicant. For the Proposed Development the necessary information is presented within the following chapters in ES Volume I:

- Chapter 4: The Proposed Development;
- Chapter 6: Alternatives and Design Evolution;
- Chapter 7: Air Quality;
- Chapter 8: Noise and Vibration;
- Chapter 10: Ecology;
- Chapter 14: Water Resources, Flood Risk and Drainage; and
- Chapter 17: Cumulative and Combined Effects

1.10 ES Volume I concludes that the Proposed Development will not result in any significant adverse residual effects on the statutory designated sites identified above. It should be appreciated that the mechanism for Environmental Impact Assessment (EIA) used in the ES (including how terminology is used, and how the importance of receptors is evaluated) differs from that adopted for HRA. Consequently, whilst it is considered that all the information necessary to undertake an HRA is contained within the main chapters of the ES (Volume I), a separate process is still required to address the specific obligations of the Habitats Regulations. This is the role that this document seeks to bridge by assisting the competent authority in directing them to the necessary topic Chapters in ES Volume I.

1.11 One primary difference between EIA and HRA relates to the context of the assessments. HRA is specifically designed to consider the effects of a plan or project on the integrity of a Natura 2000 site, including its designated features (regardless of whether or not they are geographically located within the site at the time). It considers the whole of the Natura 2000 site in some detail, and by definition focuses on a site acknowledged to be of international importance. EIA, on the other hand, adopts a different perspective. It considers the impacts resulting from a development, and whether they have the potential to affect different receptors. The significance of the effect on any receptor is measured by combining the magnitude of the impact, and the importance and sensitivity of the receptor itself. EIA therefore seeks to establish the level at which significant effects occur, which may include Natura 2000 receptors at less than an international (possibly just at a local) level. Readers should be aware of this distinction when applying this signposting document.

Figure 1.1: Consideration of development proposals affecting Internationally Designated Nature Conservation Sites (ODPM, 2005)



Consideration of *People Over Wind, Peter Sweetman v Coillte Teoranta* ECJ Ruling

1.12 This report has been prepared having regard to all relevant case law relating to the Habitats Regulations. In particular, the recent ruling by the European Court of Justice (ECJ) in the case of *People Over Wind, Peter Sweetman v Coillte Teoranta* (C-323/17) has been taken into account, because it influences the approach to HRA Screening Stage 1.

1.13 This case held that "it is not appropriate, at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of the plan or project on that site" (paragraph 40). This establishes that 'mitigation measures' cannot be taken into account at the screening stage, but it is important to note that not all mitigation measures are excluded from consideration – only those "intended to avoid or reduce the harmful effects of the… project on that site". Mitigation measures which are, for example, intended to avoid effects on a local watercourse outside the European site designated boundary but which outfalls into the European designated site, can be taken into account as the benefit conveyed to the European site is coincidental and the measures would be delivered as part of good practice even if no European sites were present.

1.14 This represents a deviation from the approach usually adopted in the EcIA, which considers embedded mitigation (even those measures that are included to directly avoid or reduce harmful effects on a European designated site) to form a part of the Proposed Development, and takes these measures into account when assessing the potential impacts on qualifying habitats and species.

1.15 Where mitigation measures are mentioned in this report and taken into account at the screening stage, they are therefore ones which may reduce or avoid harmful effects on certain (local) habitats or species, but are not relied on to directly avoid or reduce harmful effects on the European sites that are the subject of this signposting report. This includes standard best practice mitigation measures incorporated into the Construction Environmental Management Plan (CEMP) such as surface water drainage attenuation. This approach is considered to be compliant with the People over Wind case.

2.0 BASELINE EVIDENCE GATHERING

Proposed Development Description and Alternatives

2.1 A detailed description of the Proposed Development is provided in Chapter 4: The Proposed Development, in ES Volume I.

2.2 The Proposed Development is an energy from waste power station with a maximum gross electrical output of 49.9 MWe.

2.3 The Proposed Development will operate 24 hours a day, 7 days a week with occasional offline periods for maintenance. The Proposed Development will utilise Refuse Derived Fuel (RDF) as the main source of fuel.

2.4 Consideration of the alternatives identified by the Applicant , and a comparison of their environmental effects, is provided in Chapter 6: Alternatives and Design Evolution in ES Volume I.

The Need for the Proposed Development

2.5 A description of the Proposed Development's rationale is presented in the Planning, Design and Access Statement that accompanies the planning application.

Designated Sites Scoped in to HRA Screening

2.6 Three European and international designations associated with the Humber Estuary have been scoped into the impact assessment in ES Chapter 10: Ecology and Nature Conservation.

2.7 A summary of the qualifying features for each of the three sites and their distance from the Proposed Development is summarised in Table 10G.1 below.

Table 10G.1: Natura 2000 Sites Scoped into HRA Screening

SITE	APPROX. DISTANCE FROM SITE	TOTAL AREA (HA)	SUMMARY OF PRIMARY REASONS FOR SITE SELECTION	SUMMARY OF QUALIFYING FEATURES
Humber Estuary SAC	175 m east	36,657.15	Estuaries Mudflats and sandflats not covered by seawater at low tide	Sandbanks which are slightly covered by sea water all the time Coastal lagoons *Salicornia* and other annuals colonizing mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Embryonic shifting dunes Shifting dunes along the shoreline with European marram grass (*Ammophila arenaria*) (white dunes) Fixed coastal dunes with

SITE	APPROX. DISTANCE FROM SITE	TOTAL AREA (HA)	SUMMARY OF PRIMARY REASONS FOR SITE SELECTION	SUMMARY OF QUALIFYING FEATURES
				herbaceous vegetation (grey dunes) Dunes with common sea buckthorn (*Hippophae• rhamnoides*) River lamprey (Lampetra fluviatilis) Sea lamprey (*Petromyzon marnius*) Grey seal (*Halichoerus grypus*)
Humber Estuary SPA	175 m east	37,630.24	Populations of European importance of Annex I and Annex II over-wintering wildfowl and wading birds. Internationally important assemblage of migratory and wintering birds.	N/A
Humber Estuary Ramsar site	175 m east	37,987.8	Estuarine habitats including dune systems, intertidal mud and sand flats, saltmarshes and brackish lagoons. Grey seal Internationally important populations of passage wildfowl and waders.	N/A

Conservation Objectives

2.8 The conservation objectives for each relevant site are summarised in Table 10G.2 below.

Table 10G.2: Conservation Objectives for Relevant Natura 2000 Sites

SITE	CONSERVATION OBJECTIVES

SITE	CONSERVATION OBJECTIVES
Humber Estuary SAC	Ensure that the integrity of the qualifying natural habitat is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring; • the extent and distribution of qualifying natural habitats and habitats of qualifying species; • the structure and function (including typical species) of the 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.
Humber Estuary SPA	Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring; • the extent and distribution of the habitats of the qualifying features • the structure and function of the qualifying features • the supporting processes on which the habitats of the qualifying features rely • the populations of each of the qualifying features, and • the distribution of the qualifying features within the site
Humber Estuary Ramsar site	Not specifically listed. Assumed as for Humber Estuary SAC and SPA.

3.0 STAGE 1: SCREENING FOR LIKELY SIGNFICANT EFFECTS

Identification of Potential Construction Impacts

Source-Receptor Pathways Scoped In

3.1 The potential source-receptor pathways by which the Proposed Development could impact the qualifying features of each Natura 2000 site during construction, and which were scoped into the ecological impact assessment, are as follows:

- physical displacement of SPA/ Ramsar birds – loss of high tide feeding, roosting and loafing habitat within the Proposed Development that is functionally linked to the Humber Estuary;
- noise/ vibration and visual disturbance to SPA/ Ramsar birds – disturbance to birds feeding, roosting and loafing in the large arable field to the south of the Proposed Development, which is functionally linked to the Humber Estuary, and on mudflats within the boundary of the Natura 2000 site;
- surface water quality – potential pathways for the surface water pollution to the adjacent drainage network, and ultimately to the Humber Estuary SAC/ SPA/ Ramsar into which the surface water drainage flows during the construction phase of the Proposed Development e.g. sedimentation, vehicle fuel spill; and
- air quality - potential pathways identified through emissions to air from fugitive dust emissions during the construction phase of Proposed Development resulting in smothering of susceptible habitats within the Humber Estuary SAC/ SPA/ Ramsar.

Source-Receptor Pathways Scoped Out

3.2 There is no suitable habitat for the qualifying species of breeding birds (bittern, marsh harrier, avocet and little tern) within the potential zone of influence of noise and visual disturbance arising from the Proposed Development. This pathway is therefore scoped out.

3.3 No pathways by which underwater noise could give rise to likely significant effects on marine mammals and fish that are part of the Humber Estuary SPA/ SAC/ Ramsar/ SSSI have been identified, given that any works associated with the Proposed Development will be 175 m from the nearest part of the designated site. Over this distance it is reasonable to conclude that there would be no propagation of underwater noise such that the qualifying features could be affected. This pathway is therefore scoped out.

3.4 Given the distance between the Natura 2000 sites and the Proposed Development there is no pathway that could result in direct habitat loss or direct physical damage to any of the designated habitats.

3.5 Similarly, there are no groundwater pathways over this distance through which the Proposed Development could give rise to any effects on the groundwater dependent terrestrial ecosystems (GWTEs) of the Natura 2000 sites. These pathways are therefore scoped out.

3.6 Given the distance between the Proposed Development and the South Humber Gateway (SHG) mitigation area at Cress Marsh (*c*. 500 m), it is considered that there is no potential for likely significant effects on birds using this habitat as a result of noise and visual disturbance during construction. All construction activities will be on the eastern side of the existing power station, which provides screening of the construction works to waterbirds using the Cress Marsh mitigation area. These pathways are therefore scoped out.

Identification of Potential Operational Impacts

Source-Receptor Pathways Scoped In

3.7 The potential source-receptor pathways by which the Proposed Development could impact the qualifying features of each Natura 2000 site during operation, and which were scoped into the ecological impact assessment are as follows:

- noise and visual disturbance to SPA/ Ramsar birds – disturbance to birds feeding, roosting and loafing in the large arable field to the south of the Proposed Development, which is functionally linked to the Humber Estuary, and on mudflats within the boundary of the Natura 2000 site;
- surface water quality – potential pathways for the surface water pollution to the adjacent drainage network, and ultimately to the Humber Estuary SAC/ SPA/ Ramsar into which the surface water drainage flows e.g. sedimentation, vehicle fuel spill; and
- air quality - potential pathways identified through emissions to air during the operational phase of Proposed Development resulting in effects on susceptible habitats within the Humber Estuary SAC/ SPA/ Ramsar.

Source-Receptor Pathways Scoped Out

3.8 There is no suitable habitat for the qualifying species of breeding birds (bittern, marsh harrier, avocet and little tern) within the potential zone of influence of noise and visual disturbance arising from the operation of the Proposed Development. This pathway is therefore scoped out.

3.9 Potential air quality impacts on intertidal and subtidal habitats in the Humber Estuary SAC/ SSSI were scoped out of the assessment because intertidal habitats are not susceptible to the effects of changes in air quality arising from stack emissions during operation (increased nitrogen and acid deposition) because of their regular tidal inundation. Subtidal habitats have similarly been scoped out.

Summary of HRA Signposting

3.10 Table 10G.3 below presents the signposting to the relevant ES Volume I chapters in which detailed assessment of the relevant potential construction source-receptor pathways identified above can be found.

3.11 Table 10G.4 below presents the signposting to the relevant ES Volume I chapters in which detailed assessment of the relevant operational construction source-receptor pathways identified above can be found.

Table 10G.3: HRA Signposting: Likely Significant Effects during Construction

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
Humber Estuary SAC					
Embryonic shifting dunes Shifting dunes along the shoreline with European marram grass (*Ammophila arenaria*) (white dunes) Fixed coastal dunes with herbaceous vegetation (grey dunes) Dunes with common sea buckthorn (*Hippophae• rhamnoides*)	Changes in air quality during construction phase	Dust deposition during site clearance works resulting in smothering of vegetation and damage to habitats	These habitat types are not present in close proximity to the Proposed Development. The nearest terrestrial habitat within the designations (coastal saltmarsh) is approximately 500 m from the Proposed Development, and at this distance no dust smothering would be anticipated. This pathway was therefore scoped out of the ecological impact assessment.	Chapter 10: Ecology Paragraph 10.6.3 Chapter 7: Air Quality Paragraph 7.6.8	No
Estuaries Mudflats and sandflats not covered by seawater at low tide Sandbanks which are slightly covered by	Surface water pollution during construction phase	Pollution/ siltation of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drains during construction phase will adequately minimise risk to local surface water bodies (consequently minimising risk to the Humber Estuary too).	Chapter 10: Ecology Paragraphs 10.6.29 to 10.6.31 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.21	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
seawater all the time Coastal lagoons *Salicornia* and other annuals colonising mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)					
Humber Estuary SPA					
Populations of European importance of Annex I and Annex II over-wintering wildfowl and wading birds. Internationally important assemblage of migratory and wintering birds.	Loss of habitat within Proposed Development boundary	Permanent displacement of birds from habitat that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Loss of habitat will be addressed through South Humber Bank strategic mitigation. Impacts on passage and wintering waterbirds will therefore be avoided, because this habitat will be delivered prior to the commencement of construction. However, this has not been taken into account in the stage 1 screening due to the *People Over Wind* ruling.	Chapter 10: Ecology Paragraphs 10.5.3 to 10.5.4 (impact avoidance) and 10.6.5 to 10.6.6 (assessment)	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Surface water pollution during construction phase to habitats supporting internationally important bird populations	Pollution/ siltation of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drains during construction phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.29 to 10.6.31 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.21	No
	Noise impacts during construction to birds using Pyewipe mudflats	Disturbance/ displacement of birds from mudflats. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Piling activity results in estimated levels of 75 dB L_{Amax} at the nearest part of the Estuary. This is significantly higher than the ambient noise level at the measured location on the edge of the SAC.	Chapter 10: Ecology Paragraphs 10.6.7 to 10.6.13 Chapter 8: Noise and Vibration Paragraph 8.6.13	Yes
	Noise/ vibration impacts during construction to birds using arable field to the south (field 39)	Disturbance/ displacement of birds from field to the south that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced	Piling activity results in predicted noise levels of 62 dB $L_{Aeq,1hr}$, which in excess of the ambient noise level. Peak noise resulting from piling is estimated to be 76 dB L_{Amax}.	Chapter 10: Ecology Paragraphs 10.6.14 to 10.6.20 Chapter 8: Noise and Vibration Paragraph 8.6.14 (noise) and paragraphs 8.6.18 to 8.6.22 (vibration)	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		survival rates.			
	Noise/ vibration impacts during construction to birds using arable fields to the north (fields 30 and 31)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Piling activity results in predicted noise levels of 59 dB $L_{Aeq,1hr}$, which is slightly higher than the ambient noise level. Peak noise resulting from piling is estimated to be 72 dB L_{Amax}.	Chapter 10: Ecology Paragraphs 10.6.21 to 10.6.24 Chapter 8: Noise and Vibration Paragraph 8.6.14 (noise) and paragraphs 8.6.18 to 8.6.22 (vibration)	Yes
	Visual impacts during construction to birds using Pyewipe mudflats	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing	Minimal risk of visual disturbance, seawall provides substantial screening to birds on the mudflats.	Chapter 10: Ecology Paragraph 10.6.25	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.			
	Visual impacts during construction to birds using arable field to the south (field 39)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Nature and scale of development similar to existing, but potential for some visual impacts identified.	Chapter 10: Ecology Paragraphs 10.6.26 to 10.6.28	Yes
Humber Estuary Ramsar					
Estuarine habitats including dune systems, intertidal mud and sand flats, saltmarshes and	Surface water pollution during construction phase to habitats	Pollution/ siltation of Humber Estuary via adjacent surface water drain, into which surface water run-off from the	Standard environmental measures to control pollution to the drains during construction phase will adequately minimise	Chapter 10: Ecology Paragraphs 10.6.29 to 10.6.31 Chapter 14: Water	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
brackish lagoons.		Proposed Development will outfall.	risk.	Resources, Flood Risk and Drainage Paragraph 14.6.21	
Grey seal	Surface water pollution during construction phase to habitats supporting breeding grey seal	Pollution/ siltation of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall. Impacts on fish resources/ food chain sustaining breeding colony.	Standard environmental measures to control pollution to the drains during construction phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.29 to 10.6.31 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.21	No
Internationally important populations of passage wildfowl and waders.	Surface water pollution during construction phase to habitats supporting internationally important bird populations	Pollution/ siltation of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drains during construction phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.29 to 10.6.31 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 14.6.21	No
	Noise impacts during construction to birds using Pyewipe mudflats	Disturbance/ displacement of birds from mudflats. This may result in reduced feeding times, increased energy expenditure and reduced	Piling activity results in estimated levels of 75 dB L_{Amax} at the nearest part of the Estuary. This is significantly higher than the ambient noise level at	Chapter 10: Ecology Paragraphs 10.6.7 to 10.6.13 Chapter 8: Noise and Vibration	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		survival rates.	the measured location on the edge of the SAC.	Paragraph 8.6.13	
	Noise/ vibration impacts during construction to birds using arable field to the south (field 39)	Disturbance/ displacement of birds from field to the south that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Piling activity results in predicted noise levels of 62 dB $L_{Aeq,1hr}$, which in excess of the ambient noise level. Peak noise resulting from piling is estimated to be 76 dB L_{Amax}.	Chapter 10: Ecology Paragraphs 10.6.14 to 10.6.20 Chapter 8: Noise and Vibration Paragraph 8.6.14 (noise) and paragraphs 8.6.18 to 8.6.22 (vibration)	Yes
	Noise/ vibration impacts during construction to birds using arable fields to the north (fields 30 and 31)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Piling activity results in predicted noise levels of 59 dB $L_{Aeq,1hr}$, which is slightly higher than the ambient noise level. Peak noise resulting from piling is estimated to be 72 dB L_{Amax}.	Chapter 10: Ecology Paragraphs 10.6.21 to 10.6.24 Chapter 8: Noise and Vibration Paragraph 8.6.14 (noise) and paragraphs 8.6.18 to 8.6.22 (vibration)	Yes

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME I REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Visual impacts during construction to birds using Pyewipe mudflats	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Minimal risk of visual disturbance, seawall provides substantial screening to birds on the mudflats.	Chapter 10: Ecology Paragraph 10.6.25	No
	Visual impacts during construction to birds using arable field to the south (field 39)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Nature and scale of development similar to existing, but potential for some visual impacts identified.	Chapter 10: Ecology Paragraphs 10.6.26 to 10.6.28	Yes

Table 10G.4: HRA Signposting: Likely Significant Effects during Operation

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
Humber Estuary SAC					
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Embryonic shifting dunes Shifting dunes along the shoreline with European marram grass (*Ammophila arenaria*) (white dunes) Fixed coastal dunes with herbaceous vegetation (grey dunes) Dunes with common sea buckthorn (*Hippophae• rhamnoides*)	Changes in air quality during operational phase	NO_x emissions resulting in changes to critical levels and potential effects on vegetation assemblage.	Annual mean NO_x change > 1% of critical level. This exceeds the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraphs 10.6.61 – 10.6.63 Chapter 7: Air Quality Paragraphs 7.6.33 to 7.6.35	Yes
		Nutrient nitrogen deposition resulting in changes to critical loads and potential effects on vegetation assemblage.	Change is >1% of critical load. This exceeds the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraphs 10.6.64 – 10.6.65 Chapter 7: Air Quality Paragraphs 7.6.33 to 7.6.35	Yes
		Acid deposition resulting in changes to critical loads and potential effects on vegetation assemblage.	Change resulting from Proposed Development is negligible and is well below the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraph 10.6.66 Chapter 7: Air Quality Paragraphs 7.6.33 to 7.6.35	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		SO_2 emissions resulting in changes to critical levels and potential effects on vegetation assemblage.	Change <1% of critical load and is not significant. This does not exceed the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraph 10.6.67 Chapter 7: Air Quality Paragraphs 7.6.33 to 7.6.35	No
Estuaries Mudflats and sandflats not covered by seawater at low tide Sandbanks which are slightly covered by seawater all the time Coastal lagoons *Salicornia* and other annuals colonising mud and sand Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)	Surface water pollution during operational phase	Pollution of Humber Estuary via adjacent surface water drains, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drain during operational phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.69 – 10.6.70 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 10.6.39	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
Humber Estuary SPA					
Populations of European importance of Annex I and Annex II over-wintering wildfowl and wading birds. Internationally important assemblage of migratory and wintering birds.	Surface water pollution during operational phase to habitats supporting internationally important bird populations	Pollution of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drain during operational phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.69 – 10.6.70 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 10.6.39	No
	Noise impacts during operation to birds using Pyewipe mudflats	Disturbance/ displacement of birds from mudflats. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are 5 dB below the ambient noise level of 52 dB L_{Aeq}.	Chapter 10: Ecology Paragraphs 10.6.71 – 10.6.73 Chapter 8: Noise and Vibration Table 8.28 and paragraphs 8.6.36 and 8.6.40	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Noise impacts during operation to birds using arable field to the south (field 39)	Disturbance/ displacement of birds from field to the south that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are within ambient range across central portion of field where birds are most likely to be located.	Chapter 10: Ecology Paragraphs 10.6.76 – 10.6.77 Chapter 8:Noise and Vibration Table 8.29 and paragraphs 8.6.37, 8.6.38 and 8.6.40	No
	Noise impacts during operation to birds using arable fields to the north (fields 30 and 31)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are within ambient range across central and eastern portions of field where birds are most likely to be located.	Chapter 10: Ecology Paragraphs 10.6.74 – 10.6.75 Chapter 8: Noise and Vibration Table 8.30 and paragraphs 8.6.37, 8.6.39 and 8.6.40	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Visual impacts during operation to birds using Pyewipe mudflats	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Topic scoped out of assessment due to distance and presence of similar structures in the surrounding environment.	Chapter 10: Ecology Paragraph 10.6.53	No
	Visual impacts during operation to birds using arable field to the south (field 39)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Reasonable to assume that waterbirds using this field are habituated to presence of existing power station; Proposed Development operation not significantly different to this.	Chapter 10: Ecology Paragraphs 10.6.78 – 10.6.79	No
Humber Estuary Ramsar					

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
Estuarine habitats including dune systems, intertidal mud and sand flats, saltmarshes and brackish lagoons.	Changes in air quality during operational phase	NOx emissions resulting in changes to critical levels and potential effects on vegetation assemblage.	Annual mean NOx change > 1% of critical level. This exceeds the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraphs 10.6.61 – 10.6.63 Chapter 7: Air Quality Paragraphs 7.6.33 to 7.6.35	Yes
		Nutrient nitrogen deposition resulting in changes to critical loads and potential effects on vegetation assemblage.	Change is >1% of critical load. This exceeds the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraphs 10.6.64 – 10.6.65 Chapter 7: Air Quality Paragraphs 7.6.33 to 7.6.35	Yes
		Acid deposition resulting in changes to critical loads and potential effects on vegetation assemblage.	Change <1% of critical load and is not significant. This does not exceed the 1% screening threshold beyond which the effects should be considered in more detail.	Chapter 10: Ecology Paragraph 10.6.66 Chapter 7: Air Quality Paragraphs 7.6.33 to 7.6.35	No
		SO_2 emissions resulting in changes to critical levels and potential	Change <1% of critical load and is not significant. This does not exceed the	Chapter 10: Ecology Paragraph 10.6.67	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
		effects on vegetation assemblage.	1% screening threshold beyond which the effects should be considered in more detail.	Chapter 7: Air Quality Paragraphs 7.6.33 to 7.6.35	
	Surface water pollution during operational phase to habitats	Pollution of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drain during operational phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.69 – 10.6.70 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 10.6.39	No
Grey seal	Surface water pollution during operational phase to habitats supporting breeding grey seal	Pollution of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drain during operational phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.69 – 10.6.70 Chapter 14: Water Resources, Flood Risk and Drainage Paragraph 10.6.39	No
Internationally important populations of passage wildfowl and waders.	Surface water pollution during operational phase to habitats supporting internationally important bird	Pollution of Humber Estuary via adjacent surface water drain, into which surface water run-off from the Proposed Development will outfall.	Standard environmental measures to control pollution to the drain during operational phase will adequately minimise risk.	Chapter 10: Ecology Paragraphs 10.6.69 – 10.6.70 Chapter 14: Water Resources, Flood	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	populations			Risk and Drainage Paragraph 10.6.39	
	Noise impacts during operation to birds using Pyewipe mudflats	Disturbance/ displacement of birds from mudflats. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are 5 dB below the ambient noise level of 52 dB L_{Aeq}.	Chapter 10: Ecology Paragraphs 10.6.71 – 10.6.73 Chapter 8: Noise and Vibration Table 8.28 and paragraphs 8.6.36 and 8.6.40	No
	Noise impacts during operation to birds using arable field to the south (field 39)	Disturbance/ displacement of birds from field to the south that is 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are within ambient range across central portion of field where birds are most likely to be located.	Chapter 10: Ecology Paragraphs 10.6.76 – 10.6.77 Chapter 8:Noise and Vibration Table 8.29 and paragraphs 8.6.37, 8.6.38 and 8.6.40	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Noise impacts during operation to birds using arable fields to the north (fields 30 and 31)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Predicted operational noise levels are within ambient range across central and eastern portions of field where birds are most likely to be located.	Chapter 10: Ecology Paragraphs 10.6.74 – 10.6.75 Chapter 8: Noise and Vibration Table 8.30 and paragraphs 8.6.37, 8.6.39 and 8.6.40	No
	Visual impacts during operation to birds using Pyewipe mudflats	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Topic scoped out of assessment due to distance and presence of similar structures in the surrounding environment.	Chapter 10: Ecology Paragraph 10.6.53	No

QUALIFYING FEATURE	POTENTIAL IMPACT	POTENTIAL PATHWAY FOR EFFECTS	SUMMARY OF EVIDENCE PRESENTED IN ES	ES VOLUME 1 REFERENCE	LIKELY SIGNIFICANT EFFECT PREDICTED?
	Visual impacts during operation to birds using arable field to the south (field 39)	Disturbance/ displacement of birds from fields to the north that are 'functionally linked' to the Humber Estuary by providing high tide roosting, feeding and loafing habitat. This may result in reduced feeding times, increased energy expenditure and reduced survival rates.	Reasonable to assume that waterbirds using this field are habituated to presence of existing power station; Proposed Development operation not significantly different to this.	Chapter 10: Ecology Paragraphs 10.6.78 – 10.6.79	No

4.0 IN-COMBINATION EFFECTS WITH OTHER PLANS OR PROJECTS

4.1 As part of the Stage 1 Screening exercise, it is also necessary to undertake an assessment in combination with other plans or projects. Relevant projects considered as part of the cumulative effects assessment undertaken for the ecological impact assessment, along with potential cumulative effect topics of relevance to the HRA in-combination assessment are signposted below, along with the relevant signposting to ES Volume I chapters.

4.2 Plans or projects (schemes) that could potentially result in cumulative and combined effects with the Proposed Development are identified in Chapter 17: Cumulative and Combined Effects of the ES Volume I. Developments have been scoped in to the screening task only where they could potentially affect the European site through loss of functionally linked habitat, noise or visual disturbance/ displacement to Humber Estuary SPA/ Ramsar waterbirds, or air quality impacts on sensitive habitats.

4.3 A summary of the HRA stage 1 screening exercise for cumulative construction impacts arising from the shortlisted schemes identified in Chapter 17 is provided in Table 10G.5. A summary of the HRA stage 1 screening exercise for cumulative operational impacts arising from the shortlisted schemes identified in Chapter 17 is provided in Table 10G.6. Topics are highlighted in shaded cells where likely significant effects have been identified and they have been taken forward to HRA stage 2 appropriate assessment.

Table 10G.5: HRA Signposting: Potential Likely Significant In-Combination Effects during Construction

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	NOISE DISTURBANCE TO SPA/ RAMSAR	**NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT**	**LOSS OF FUNCTIONALLY LINKED HABITAT**
1 – Stallingborough Link Road DM/0094/18/FUL	No – HRA concluded that the distance of the scheme from the designated site (c. 1 km), along with visual screening provided by existing developments north-east of Moody Lane that were between the scheme and the SPA/ Ramsar, resulted in there being no potential for construction-related disturbance to qualifying features within the boundaries of the designations.	Yes – HRA concluded that there was potential for temporary noise disturbance to functionally linked habitat and could not rule out likely significant effects.	Yes – HRA identified potential for scheme to result in loss of supporting habitat (i.e. functionally linked land).
2 – Cress Marsh Mitigation Area DM/0099/18/FUL	No – construction anticipated to be completed by the time construction of the Proposed Development commences.	No – construction anticipated to be completed by the time construction of the Proposed Development commences.	No – scheme will deliver functionally linked habitat and is therefore scoped out of potential cumulative effects assessment.
3 – Engineering Works – Paragon House SM/0147/16/FUL	No – due to distance from Estuary (c. 1.2 km) and presence of industrial areas between the scheme and the Estuary.	No - not considered in impact assessment therefore assume scoped out.	No – habitats not used by large aggregations of waterbirds above 1% Humber Estuary populations, and are not considered to be functionally linked to the SPA/ Ramsar.

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	NOISE DISTURBANCE TO SPA/ RAMSAR	**NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT**	**LOSS OF FUNCTIONALLY LINKED HABITAT**
4 – Renewable Energy Power Facility – Kiln Lane DM/0848/14/FUL	No - not considered in impact assessment therefore assume scoped out.	No - not considered in impact assessment therefore assume scoped out.	No – habitats within the scheme boundary are not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
5 – Selvic Shipping CHP Boilers DM/0449/17/FUL	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
6 – Waste Tyre Pyrolysis – Immingham Rail Freight DM/0333/17/FUL	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
7 – VPI Immingham Gas Engines PA/2018/918	No – HRA concluded no likely significant effects.	No – HRA concluded no likely significant effects	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
8 – Great Coates Renewable Energy Centre DM/0329/18/FUL	No – HRA concluded no likely significant effects. Operational noise levels within ambient range at Pyewipe mudflats.	No – HRA concluded no likely significant effects	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
9 – Waste to Energy – Immingham Rail Freight DM/0628/18/FUL	No - not considered in impact assessment therefore assume scoped out.	No - not considered in impact assessment therefore assume scoped out.	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.

PLAN/ PROJECT	POTENTIAL LIKELY SIGNIFICANT CUMULATIVE EFFECT?		
	NOISE DISTURBANCE TO SPA/ RAMSAR	**NOISE DISTURBANCE TO FUNCTIONALLY LINKED HABITAT**	**LOSS OF FUNCTIONALLY LINKED HABITAT**
10 – North Beck Energy Centre DM/0026/18/FUL	No – implementation of best practice construction methods means that there will be no potential for cumulative effects.	No – not considered in noise impact assessment so assume scoped out	No – habitats not suitable for wintering birds and therefore not functionally linked to the SPA/ Ramsar.
11 – Stallingborough Interchange Business Park DM/0105/18/FUL	No – not specifically addressed in impact assessment, but reasonable to scope out on the basis of distance (*c*. 2 km from SPA/ Ramsar)	No – not considered in impact assessment so assume scoped out.	No – habitats do not support important assemblages of SPA/ Ramsar wintering birds and are therefore not functionally linked to the SPA/ Ramsar.
12 – VPI Immingham DCO PA/SCO/2017/155	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.	No – habitats do not support important assemblages of SPA/ Ramsar wintering birds and are therefore not functionally linked to the SPA/ Ramsar.

Table 10G.6: HRA Signposting: Potential Likely Significant In-Combination Effects during Operation

Plan/ Project	**Potential Likely Significant Cumulative Effect?**		
	Air Quality	**Noise disturbance to SPA/ Ramsar**	**Noise disturbance to Functionally Linked Habitat**
1 – Stallingborough Link Road DM/0094/18/FUL	No – no potential for cumulative air quality effects identified	No – HRA concluded that the distance of the scheme from the designated site (c. 1km), along with visual screening provided by existing developments north-east of Moody Lane that were between the scheme and the SPA/ Ramsar, resulted in there being no potential for operational disturbance to qualifying features within the boundaries of the designations.	Yes – HRA concluded that there was potential for noise disturbance to functionally linked habitat and could not rule out likely significant effects due to an increase in ambient noise.
2 – Cress Marsh Mitigation Area DM/0099/18/FUL	No – scheme will not result in emissions to air	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.
3 – Engineering Works – Paragon House SM/0147/16/FUL	No – scheme will not result in emissions to air	No – due to distance from Estuary (c. 1.2 km) and presence of industrial areas between the scheme and the Estuary.	No - not considered in impact assessment therefore assume scoped out.

Plan/ Project	Potential Likely Significant Cumulative Effect?		
	Air Quality	**Noise disturbance to SPA/ Ramsar**	**Noise disturbance to Functionally Linked Habitat**
4 – Renewable Energy Power Facility – Kiln Lane DM/0848/14/FUL	No – no potential for cumulative air quality effects identified. Air quality assessment for the scheme concluded that emissions were insignificant and would not affect the Humber Estuary designated site.	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.
5 – Selvic Shipping CHP Boilers DM/0449/17/FUL	No – no potential for cumulative air quality effects identified	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.
6 – Waste Tyre Pyrolysis – Immingham Rail Freight DM/0333/17/FUL	Yes	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.
7 – VPI Immingham Gas Engines PA/2018/918	Yes	No – no potential for cumulative noise impacts identified	No – no potential for cumulative noise impacts identified
8 – Great Coates Renewable Energy Centre DM/0329/18/FUL	Yes	No – no potential for cumulative noise effects identified.	No – no potential for cumulative noise effects identified.

Plan/ Project	Potential Likely Significant Cumulative Effect?		
	Air Quality	**Noise disturbance to SPA/ Ramsar**	**Noise disturbance to Functionally Linked Habitat**
9 – Waste to Energy – Immingham Rail Freight DM/0628/18/FUL	No – no potential for cumulative air quality effects identified. Scheme occupies the same space as Development Ref: 6 and it is not possible for both developments to occur.	No – noise impact assessment concluded that there would be no increase in ambient noise during operation.	No – noise impact assessment concluded that there would be no increase in ambient noise during operation.
10 – North Beck Energy Centre DM/0026/18/FUL	Yes	No – no potential for cumulative noise effects identified	No – no potential for cumulative noise effects identified
11 – Stallingborough Interchange Business Park DM/0105/18/FUL	No – information provided in the planning application is inadequate to undertake dispersion modelling.	No – operational noise for this scheme is 5dB below ambient levels.	No – not considered in impact assessment so assume scoped out.
12 – VPI Immingham DCO PA/SCO/2017/155	No – insufficient information provided in published scoping report to inform cumulative assessment for air quality	No – no potential for cumulative noise effects identified	No – no potential for cumulative noise effects identified

5.0 STAGE 2: APPROPRIATE ASSESSMENT

Introduction

5.1 The Proposed Development has been identified at the HRA stage 1 screening as resulting in likely significant effects on the Humber Estuary SAC/ SPA/ Ramsar as a result of the following pathways:

- loss of functionally linked habitat used by SPA/ Ramsar waterbirds during construction alone and in combination;
- noise disturbance to SPA/ Ramsar waterbirds using Pyewipe mudflats during construction;
- noise disturbance to SPA/ Ramsar waterbirds using functionally linked arable field (Field 39) to the south of the Proposed Development alone and in combination;
- noise disturbance to SPA/ Ramsar waterbirds using functionally linked arable fields (Fields 30 and 31) to the north of the Proposed Development;
- visual disturbance to SPA/ Ramsar waterbirds using functionally linked arable field (Field 39) to the south of the Proposed Development alone and in combination; and
- changes in air quality during the operation of the Proposed Development resulting in impacts on sensitive SAC/ Ramsar habitats alone and in combination.

Construction Impacts

Loss of Functionally Linked Habitat

5.2 The loss of functionally linked habitat within the Main Development Area, in the absence of mitigation, has the potential to displace SPA/ Ramsar waterbirds, which could result in decreased resting/ feeding times and increased energy expenditure (as birds seek new areas to roost/ feed in that are further from the mudflats), and have subsequent impacts on body condition and winter survival rates.

5.3 When examining the potential for adverse effects on integrity, the Stage 2 appropriate assessment has taken into account the committed mitigation at Cress Marsh to be delivered to meet Policy 9 of the Local Plan. As per the policy, the Applicant will commute a sum of money based on the relevant site area lost to the Cress Marsh South Humber Gateway (SHG) strategic mitigation site. North East Lincolnshire Council has confirmed that the Cress Marsh scheme is being constructed over winter 2018/19 and the habitat will be in place by the time of the commencement of construction of the Proposed Development. There will therefore be no net loss of functionally linked habitat available for SPA/ Ramsar waterbirds.

5.4 It is considered that the rationale presented in Chapter 10: Ecology paragraphs 10.6.5 to 10.6.6, embedded mitigation and the commitment by the Applicant to commute a sum of money to the Cress Marsh scheme (via a Section 106 agreement) as presented in Chapter 10: Ecology paragraphs 10.5.3 to 10.5.4 is sufficient to provide evidence that the Proposed Development will result in no adverse effects on the integrity of the Humber Estuary SPA/ Ramsar.

Noise Disturbance to Pyewipe Mudflats

5.5 The impact assessment has identified that construction noise during piling works will give rise to noise levels of up to 75 dB L_{Amax} at the nearest part of the mudflats to the Proposed Development. Noise levels of this magnitude may be expected to result in disturbance to birds. However, the assessment concludes that there would only be a

minor adverse effect on birds given that there would be some attenuation of noise reaching the mudflats as a result of the seawall.

5.6 Predicted ambient noise levels across the nearest mudflats for the majority of the construction activities (excluding piling) are below 44 dB $L_{Aeq,1hr}$ and are therefore within the ambient range. The majority of construction activities would therefore not be expected to disturb birds.

5.7 Piling activity associated with construction would be temporary, and the elevated noise levels would only reach the portion of Pyewipe mudflats closest to the Main Development Area. This may result in some localised disturbance, which would likely cause displacement of waterbirds within the mudflat area, rather than causing them to leave the mudflats altogether. However, this would be temporary for the duration of the piling activity nearest the SPA/ Ramsar boundary, and thus would occur over a relatively short period of time (i.e. weeks rather than months). Any such short-term displacement would not reasonably be considered likely to adversely affect the survival of waterbirds, or result in them being permanently displaced from the Pyewipe mudflats or wider Estuary.

5.8 It is also necessary to examine the context of any temporary displacement of birds against the availability of large areas of this mudflat, which is at its narrowest point (and thus least area of exposed mudflat across low tide) in the closest part to the Proposed Development, and which extends for over 6 km south-east, that would be unaffected by elevated noise resulting from piling. It is reasonable to assume that such a large area of mudflat would be able to accommodate any birds displaced from the area potentially affected by piling noise

5.9 The ecological assessment of noise impacts on birds feeding, roosting and loafing at Pyewipe mudflats is presented in Chapter 10: Ecology paragraphs 10.6.7 to 10.6.13. It is concluded that piling noise reaching this location will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

Noise Disturbance to Arable Field to the South (Field 39)

5.10 The potential for piling activity to result in the displacement of birds (either partially or entirely) from or within field 39, which is adjacent to the southern boundary of the Main Development Area, was identified in the ecological impact assessment. Although only temporary in duration given the limited duration of piling, this has the potential to result in increased energy expenditure while birds attempt to seek alternative feeding, roosting and loafing locations, and reduced feeding times over the high tide period when favoured mudflats are covered by seawater. This has implications on body condition and winter survival rates.

5.11 At this stage, the noise mitigation measures to be employed have not been fixed; this is to enable sufficient flexibility when the build contract is let for contractors to determine the best available technique for noise abatement during piling works. For the purposes of this appropriate assessment, it is assumed that mitigation will be one of the following options:

- seasonal piling restrictions – piling will be restricted for two hours either side of high tide in the period September to March inclusive, to avoid the most sensitive winter months, and the time period when birds are most likely to be present in the fields (i.e. when they are pushed off the coastal mudflats at high tide); or
- Continuous Flight Auger (CFA) piling – this technique is virtually vibration free, and one of the quietest forms of piling because it does not require the loud ‘bangs’

associated with drop hammer piling techniques. If this technique is adopted, it will be possible to reduce construction noise to within ambient levels.

5.12 The assessment of piling noise on the field to the south of the Proposed Development is presented in Chapter 10: Ecology paragraphs 10.6.14 to 10.6.20. The mitigation measures are discussed in Chapter 10: Ecology paragraphs 10.7.1 to 10.7.2. It is concluded that piling noise reaching this location will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

Noise Disturbance to Arable Fields to the North (Fields 30 and 31)

5.13 The potential for piling activity to result in the displacement of birds (either partially or entirely) from or within fields 30 and 31, which are on the opposite side of South Marsh Road to the Proposed Development, was identified in the ecological impact assessment. Although only temporary in duration given the limited duration of piling, this has the potential to result in increased energy expenditure while birds attempt to seek alternative feeding, roosting and loafing locations, and reduced feeding times over the high tide period when favoured mudflats are covered by seawater. This has implications on body condition and winter survival rates.

5.14 The assessment concluded that there could be minor localised displacement of birds within the fields, although it was considered that the noise levels were not sufficiently high to result in complete displacement from the fields, particularly given that the southern and western extents of these fields (particularly field 30) were subject to relatively high ambient noise levels as result of traffic along Hobson Way and South Marsh Road.

5.15 The assessment of piling noise on the fields to the north of the Proposed Development is presented in Chapter 10: Ecology paragraphs 10.6.21 to 10.6.24. It is concluded that piling noise reaching these locations will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

Visual Disturbance to Arable Field to the South (Field 39)

5.16 The assessment concluded that there could be minor localised displacement of birds within the field given its proximity to construction works. Precautionary mitigation in the form of a 2.5 m high close-boarded fence will be installed along part of the southern boundary of the Site (see Figure 4.2 in ES Volume II) to provide visual screening from vehicle and personnel movements during construction to any waterbirds feeding, roosting or loafing in the field.

5.17 The assessment of visual impacts on the field to the south of the Proposed Development is presented in Chapter 10: Ecology paragraphs 10.6.26 to 10.6.28. Embedded mitigation measures are described in Chapter 10: Ecology paragraph 10.6.27. It is concluded that visual disturbance at this location will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

Operational Impacts

Changes in Air Quality

5.18 The assessment of likely significant effects concluded that there was a risk of air quality impacts on the nearest sensitive habitats within the SAC/ Ramsar as a result of increased NOx emissions and increased nutrient N deposition during operation.

5.19 The assessment of air quality impacts on the relevant designated habitats is presented in Chapter 10: Ecology paragraphs 10.6.55 to 10.6.67. It is concluded that air quality impacts will not result in an adverse effect on the integrity of the Humber Estuary SPA/ Ramsar.

In Combination Impacts (Construction)

Losses of Functionally Linked Habitat

Cumulative Effects with Stallingborough Link Road

5.20 The applicant for this scheme has committed to commuting a sum of money via Local Plan Policy 9 to the South Humber Gateway strategic mitigation scheme, which will draw down 6.3 ha of mitigation habitat. With this mitigation, there is therefore no potential for cumulative adverse effects on the integrity of the Humber Estuary SPA/ Ramsar as a result of the loss of functionally linked habitat.

Noise Disturbance to Functionally Linked Habitats

Cumulative Effects with Stallingborough Link Road

5.21 As described above, the applicant for this scheme has committed to commuting a sum of money via Policy 9 to the South Humber Gateway strategic mitigation scheme, which will draw down 6.3 ha of mitigation habitat. With this mitigation, there is therefore no potential for cumulative adverse effects on the integrity of the Humber Estuary SPA/ Ramsar as a result of operational disturbance to functionally linked habitat.

In Combination Impacts (Operation)

Changes in Air Quality

Cumulative Effects with Waste Tyre Pyrolysis, VPI Immingham Energy Park A, Great Coates Renewable Energy Centre and North Beck Energy Centre

5.22 The assessment of likely significant effects concluded that there was a risk of cumulative air quality impacts on the nearest sensitive habitats within the SAC/ Ramsar as a result of increased NO_x emissions and increased nutrient N deposition during the simultaneous operation of these four schemes.

5.23 The cumulative assessment for air quality is presented in Chapter 17: Cumulative and Combined Effects paragraphs 17.5.12 to 17.5.14 and paragraphs 17.8.4 to 17.8.13. The assessment has concluded that there would be no adverse cumulative air quality effects on the Humber Estuary SAC/ SPA/ Ramsar, and it is considered that the assessment is sufficient to demonstrate no adverse effects on integrity for the Proposed Development in-combination with these four schemes.

Noise Disturbance to Functionally Linked Habitat

Cumulative Effects with Stallingborough Link Road

5.24 The HRA concluded that with mitigation to deliver alternative habitat for waterbirds as part of the South Humber Gateway strategic mitigation strategy, the scheme would not result in any adverse effects on the integrity of the Humber Estuary SPA/ Ramsar as a result of noise disturbance to functionally linked habitat. It is therefore concluded that there will be no adverse in-combination effects on the integrity of the Humber Estuary SPA/ Ramsar if/ when the scheme and the Proposed Development are operational at the same time.

6.0 CONCLUSIONS

6.1 The Proposed Development will be constructed on land adjacent to the Humber Estuary SAC/ SPA/ Ramsar, and will result in the loss of habitat that is considered functionally linked to the SPA/ Ramsar due to the aggregations of feeding, roosting and loafing waterbirds it supports over the high tide period.

6.2 Mitigation for this loss will be delivered through the South Humber Gateway strategic mitigation approach which has been put in place through the Local Plan process, and the applicant has committed to commute a sum of money to draw down from the habitat currently being created at Cress Marsh. The stage 2 appropriate assessment has therefore concluded that the loss of functionally linked habitat within the Proposed Development boundary will not result in any adverse effects on the integrity of the Humber Estuary SPA/ Ramsar.

6.3 There is one other development in the area that will result in the loss of functionally linked habitat (Stallingborough Link Road), and the potential for likely significant effects at the stage 1 screening stage was identified. However, the Stallingborough Link Road scheme is also committed to the delivery of habitat mitigation through the South Humber Gateway strategic mitigation route, and the stage 2 appropriate assessment has concluded that there would be no adverse effects on the Humber Estuary SPA/ Ramsar in-combination with the Proposed Development as a result of the losses of functionally linked habitat.

6.4 Likely significant effects as a result of noise impacts during construction (primarily associated with drop hammer piling noise) were identified at the stage 1 screening stage. However, following detailed assessment in Chapter 8: Noise and Vibration, it is concluded that construction noise would not give rise to an adverse effect on the integrity of the Humber Estuary SAC/ SPA/ Ramsar. This conclusion applies to the Proposed Development alone or in-combination with other plans or projects.

6.5 Likely significant effects as a result of noise impacts during operation were also identified at the stage 1 screening stage. However, following detailed assessment in Chapter 8: Noise and Vibration, it is concluded that construction noise would not give rise to an adverse effect on the integrity of the Humber Estuary SAC/ SPA/ Ramsar, alone or in-combination with other plans or projects.

6.6 Likely significant effects as a result of changes in air quality during operation were identified at the stage 1 screening stage. However, following detailed assessment in Chapter 7: Air Quality, it is concluded that cumulative air quality impacts will not result in an adverse effect on the integrity of the Humber Estuary SAC/ SPA/ Ramsar, alone or in-combination with other plans or projects.

7.0 REFERENCES

- European Commission (2007) Guidance Document on Article 6(4) of the 'Habitats Directive' 92/43/EEC. Published on the internet at:
- http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/guidance_art6_4_en.pdf
- European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- Office of the Deputy Prime Minister (ODPM) (2005) Government circular: Biodiversity and geological conservation – statutory obligations and their impact within the planning system