



HABITATS REGULATIONS ASSESSMENT – VOLUME 3 - APPENDIX 4

Adverse Effect Matrices

Drax Bioenergy with Carbon Capture and Storage

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations, 2009 - Regulation 5(2)(g)

Document Reference Number: 6.8.3.4

Applicant: Drax Power Limited

PINS Reference: EN010120



REVISION: 01

DATE: May 2022

DOCUMENT OWNER: WSP UK Limited

AUTHOR: L. Richards

APPROVER: P. Peterson

PUBLIC

**Planning Inspectorate
Advice Note 10
Habitats Regulations Assessment**

**Appendix 2: Template for Integrity Matrices
STAGE 2: EFFECTS ON INTEGRITY**

Likely significant effects have been identified for the following sites:

[River Derwent Special Area of Conservation](#)
[Lower Derwent Valley Special Area of Conservation](#)
[Lower Derwent Valley Special Protection Area](#)
[Lower Derwent Valley Ramsar](#)
[Humber Estuary Special Area of Conservation](#)
[Humber Estuary Special Protection Area](#)
[Humber Estuary Ramsar](#)
[Thorne Moor SAC](#)
[Skipwith Common SAC](#)

These sites have been subject to further assessment in order to establish if the NSIP could have an adverse effect on their integrity. Evidence for the conclusions reached on integrity is detailed within the footnotes to the matrices below.

Matrix Key

✓ = Adverse effect on integrity **cannot** be excluded

✗ = Adverse effect on integrity **can** be excluded

C = construction

O = operation

D = decommissioning

HRA Integrity Matrix 1: River Derwent SAC

Name of European site and designation: River Derwent SAC																		
EU Code: UK0030253																		
Distance to NSIP: 0.7km																		
European site features	Adverse Effect on Integrity																	
	Loss or mechanical disturbance of functionally linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Visual disturbance			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation																		
river lamprey <i>Lampetra fluviatilis</i>							X(c)	X(c)	X(c)							X(f)	X(f)	X(f)
sea lamprey <i>Petromyzon marinus</i>							X(c)	X(c)	X(c)							X(f)	X(f)	X(f)
bullhead <i>Cottus gobio</i>																		
otter <i>Lutra lutra</i>	x(a)		X(a)	x(b)		X(b)	X(c)	X(c)	X(c)	X(d)		X(d)	X(e)		X(e)	X(f)	X(f)	X(f)

Evidence supporting conclusions

- a. This impact pathway is only relevant to the otter qualifying interest of the SAC, with no LSE predicted for other qualifying interests. This impact was identified in relation to the minor loss and disturbance of functionally-linked land that would occur in the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3). As described in **Table 3.3** of the **HRA Report** (document reference 6.8.1), potential loss and disturbance of functionally-linked habitat for otter, is limited to habitat enhancement measures in the Habitat Provision Area. These habitat enhancements are limited to hedgerow planting only. There would be no loss or modification of aquatic habitats or bankside vegetation, which provide the key functionally-linked land for otters within the Habitat Provision Area. The locations of the proposed hedgerow planting are set out on **Figure 1** of the **Outline Landscape and Biodiversity Strategy** (document reference 6.6.1). The proposed habitat measures would not reduce availability of suitable otter habitat in and adjacent to the Habitat Provision Area and as such no adverse effects on the otter qualifying interest are predicted. This assessment is set out in full between **paragraphs 4.2.1 and 4.2.7** of the **HRA Report** (document reference 6.8.1).
- b. Dust mitigation measures are described in **Section 1.3** of **Appendix 6.2** (Construction Dust Assessment) of **Chapter 6** (Air Quality) in Volume 3 of the ES (document reference 6.3.6.2). With application of dust mitigation measures as described, the residual effects of dust on all receptors are predicted to be negligible (see **Section 1.4** of **Appendix 6.2**

(Construction Dust Assessment) (document reference 6.3.6.2) as such no adverse effects on the otter qualifying interest are predicted (see **paragraphs 4.2.1 and 4.2.7** of the **HRA Report** (document reference 6.8.1)).

- c. This impact pathway is relevant to the otter, sea lamprey, and river lamprey qualifying interest of the SAC, with no LSE predicted for other qualifying interests. This impact was identified in relation to the potential for increased water-borne pollution of Carr Dyke and the River Ouse during construction and operation of the Proposed Scheme. As described in **paragraph 3.5.13** of the **HRA Report** (document reference 6.8.1), increased water-borne pollution could impact water quality in Carr Dyke and River Ouse, potentially leading to LSE through reductions in the suitability of riparian habitats for otter, river lamprey and sea lamprey. With mitigation measures in place (see **paragraph 4.1.13** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.5** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12) construction and decommissioning phase impacts are predicted to be negligible. With mitigation measures in place for the operational phase (see **paragraph 4.1.26** of the **HRA Report** (document reference 6.8.1)), the assessment of effects on the Water Environment (see **paragraph 12.11.14** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12) also predicts that impacts on the Carr Dyke and River Ouse would be neutral. As such, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.77 to 4.2.80** (construction and decommissioning) and **paragraphs 4.2.177 to 4.2.180** of the **HRA Report** for the full assessment.
- d. This impact pathway is relevant to the otter qualifying interest of the SAC, with no LSE predicted for other qualifying interests. This impact was identified in relation to the potential for increased sediment loading of Carr Dyke during construction of the Proposed Scheme. As described in **paragraph 3.5.11** of the **HRA Report** (document reference 6.8.1), increased sediment loading could impact water quality in Carr Dyke, potentially leading to LSE through reductions in the suitability of riparian habitats for otter. With mitigation measures in place (see **paragraph 4.1.10** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.2 to 12.11.3** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12) predicts that impacts on the Carr Dyke would be negligible. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.45 to 4.2.48** of the **HRA Report** for the full assessment).
- e. This impact pathway is only relevant to the otter qualifying interest of the SAC, with no LSE predicted for other qualifying interests. This impact was identified in relation to the potential for visual disturbance of otter that would occur in and around the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3). As set out in **Table 3.5** of the **HRA Report** (document reference 6.8.1), the risk of visual disturbance arises from the use of the woodyard Drax Power Station Site Construction Laydown Area, in the north of the Drax Power Station Site (see **Figure 3** of the **HRA Report**). This area may also be used for construction of the Carbon Dioxide Delivery Terminal Compound (see **paragraph 2.2.44** of **Chapter 2** (Site and Project Description) of Volume 1 of the ES (document reference 6.1.2). A series of mitigation measures have been proposed, as set out between **paragraphs 4.1.14 to 4.1.19** of the **HRA Report**. With these mitigation measures in place, the potential for visual disturbance of otters during construction and decommissioning is considered to be negligible. As such no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.113 to 4.2.121** of the **HRA Report** for the full assessment).
- f. Several potential in-combination impact pathways and effects were identified in the HRA screening. Temporary loss and/or disturbance of minor watercourses for cable installation for Development 3 could occur, with affected watercourses potentially used by the population of otters associated with the River Derwent SAC (see **paragraph 4.3.2** of the **HRA Report** (document reference 6.8.1). Following analysis of the potential in-combination effects as set out in **Paragraph 4.3.9** of the **HRA Report**, no adverse effects on integrity are predicted to arise. The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to accidental releases of water-borne pollutants. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1.1 in Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). This identifies that with mitigation measures in place from the Proposed Scheme (as set out in **paragraph 4.1.11 to 4.1.13** of the **HRA Report**) and standard good construction practice measures assumed to be delivered from Development 3, effects are expected to be temporary, short-term, with a slight adverse (and hence not significant) effect during construction. Effects during operation are predicted to be neutral on the basis of the mitigation incorporated into the Proposed Scheme. As such, no adverse effects on integrity are predicted to arise in relation to water-borne pollution. This analysis is set out in full between **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**.

HRA Integrity Matrix 2: Lower Derwent Valley SAC

Name of European site and designation: Lower Derwent Valley SAC																					
EU Code: UK0012844																					
Distance to NSIP: 4.3km																					
European site features	Adverse Effect on Integrity																				
	Loss or mechanical disturbance of functionally linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Visual disturbance			Emissions of treated flue gas to air			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Lowland hay meadows (<i>Alopecurus parentsis</i> , <i>Sanguisorba officinalis</i>)																					
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)																					
Otter <i>Lutra lutra</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)				X(f)		x(h)

- a. This impact pathway is only relevant to the otter qualifying interest of the SAC, with no LSE predicted for other qualifying interests. This impact was identified in relation to the minor loss and disturbance of functionally-linked land that would occur in the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3). As described in **Table 3.3** of the **HRA Report** (document reference 6.8.1), potential loss and disturbance of functionally-linked habitat for otter, is limited to habitat enhancement measures in the Habitat Provision Area. These habitat enhancements are limited to hedgerow planting only. There would be no loss or modification of aquatic habitats or bankside vegetation, which provide the key functionally-linked land for otters within the Habitat Provision Area. The locations of the proposed hedgerow planting are set out on **Figure 1** of the **Outline Landscape and Biodiversity Strategy** (document reference 6.6.1). The proposed habitat measures would not reduce availability of suitable otter habitat in and adjacent to the Habitat Provision Area and as such no adverse effects on the otter qualifying interest are predicted. This assessment is set out in full between **paragraphs 4.2.8 and 4.2.13** of the **HRA Report** (document reference 6.8.1).
- b. Dust mitigation measures are described in **Section 1.3 of Appendix 6.2** (Construction Dust Assessment) of **Chapter 6** (Air Quality) in Volume 3 of the ES (document reference 6.3.6.2). With application of dust mitigation measures as described, the residual effects of dust on all receptors are predicted to be negligible (see **Section 1.4 of Appendix 6.2** (Construction Dust Assessment) (document reference 6.3.6.2). As such no adverse effects on the otter qualifying interest are predicted (see **paragraphs 4.2.42 to 4.2.44** of the **HRA Report** (document reference 6.8.1)).
- c. This impact pathway is relevant to the otter qualifying interest of the SAC, with no LSE predicted for other qualifying interests. This impact was identified in relation to the potential for increased water-borne pollution of Carr Dyke and the River Ouse during construction and operation of the Proposed Scheme. As described in paragraph **3.5.13** of the **HRA Report** (document reference 6.8.1), increased water-borne pollution could impact water quality in Carr Dyke and River Ouse, potentially leading to LSE through reductions in the suitability of riparian habitats for otter. With mitigation measures in place (see **paragraph 4.1.13** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph**

12.11.5 of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) construction and decommissioning phase impacts are predicted to be negligible. With mitigation measures in place for the operational phase (see **paragraph 4.1.26** of the **HRA Report** (document reference 6.8.1)), the assessment of effects on the Water Environment (see **paragraph 12.11.14** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) also predicts that impacts on the Carr Dyke and River Ouse would be neutral. As such, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.81 to 4.2.84** (construction and decommissioning) and **paragraphs 4.2.181 to 4.2.184** of the **HRA Report** for the full assessment.

- d. This impact pathway is relevant to the otter qualifying interest of the SAC, with no LSE predicted for other qualifying interests. This impact was identified in relation to the potential for increased sediment loading of Carr Dyke during construction of the Proposed Scheme. As described in **paragraph 3.5.11** of the **HRA Report** (document reference 6.8.1), increased sediment loading could impact water quality in Carr Dyke, potentially leading to LSE through reductions in the suitability of riparian habitats for otter. With mitigation measures in place (see **paragraph 4.1.10** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.2 to 12.11.3** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) predicts that impacts on the Carr Dyke would be negligible. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.49 to 4.2.52** of the **HRA Report** for the full assessment).
- e. This impact pathway is only relevant to the otter qualifying interest of the SAC, with no LSE predicted for other qualifying interests. This impact was identified in relation to the potential for visual disturbance of otter that would occur in and around the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3)). As set out in **Table 3.5** of the **HRA Report** (document reference 6.8.1), the risk of visual disturbance arises from the use of the woodyard Drax Power Station Site Construction Laydown Area, in the north of the Drax Power Station Site (see **Figure 3** of the **HRA Report**). This area may also be used for construction of the Carbon Dioxide Delivery Compound (see **paragraph 2.2.44** of **Chapter 2** (Site and Project Description) of Volume 1 of the ES (document reference 6.1.2)). A series of mitigation measures have been proposed, as set out between **paragraphs 4.1.14 to 4.1.19** of the **HRA Report**. With these mitigation measures in place, the potential for visual disturbance of otters during construction and decommissioning is considered to be negligible. As such no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.122 to 4.2.130** of the **HRA Report** for the full assessment).
- f. The potential for Likely Significant Effects on the qualifying interests of the SAC was identified during the HRA Screening (see **paragraph 3.5.29 to 3.5.41** of the **HRA Report** (document reference 6.8.1)). Potential LSE were identified in relation to acid deposition only, with no exceedances of screening criterion for other pollutants. With the operational emissions mitigation measures (see **paragraph 4.1.22** of the **HRA Report**), the Proposed Scheme's acid deposition maximum impact over Lower Derwent Valley SAC and Ramsar Site reduces to 1.1% of the Critical Load. Given the inherent conservatism in the air quality modelling the impact on Lower Derwent Valley SAC is considered to be analogous with an impact of 1% of the Critical Load. This is not expected to trigger any perceptible changes in the condition of the lowland hay meadow qualifying interest habitat or the ability of the habitats present to sustain the resident otter population. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.167 to 4.2.176** of the **HRA Report** for the full analysis).
- g. In-combination LSE in relation to operational emissions to air were identified for the lowland hay meadow and otter qualifying features of the SAC. Potential LSE were identified in relation to acid deposition only, with no exceedances of screening criterion for other pollutants (see **paragraph 4.3.26** of the **HRA Report** (document reference 6.8.1)). A maximum in-combination impact equivalent to 1.8% of the critical load for acid deposition has been modelled. The River Derwent has a high acid buffering capacity as per Environment Agency monitoring data. There have also been substantial reductions in SO₂ emissions and therefore their contribution to acid deposition from Drax in recent decades (see **paragraph 4.3.32 to 4.3.33** of the **HRA Report**). With the operational emissions mitigation measures (see **paragraph 4.1.22** of the **HRA Report**), and given the inherent conservatism in the air quality modelling no adverse effects on integrity are predicted to arise (see **paragraphs 4.3.26 to 4.3.35** of the **HRA Report** for the full analysis). The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to water-borne pollution. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1.1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). The risk of significant effects during operation is predicted to be neutral, on the basis of the mitigation incorporated into the Proposed Scheme (see **paragraphs 4.1.24 to 4.1.26** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise.
- h. Several potential in-combination impact pathways and effects were identified in the HRA screening in relation to the otter qualifying interest. Temporary loss and/or disturbance of minor watercourses for cable installation for Development 3 could occur, with affected watercourses potentially used by the population of otters associated with the Lower Derwent Valley SAC (see **paragraph 4.3.2** of the **HRA Report** (document reference 6.8.1)). Following analysis of the potential in-combination effects as set out in **Paragraph 4.3.9** of the **HRA Report**, no adverse effects on integrity are predicted to arise. The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to accidental releases of water-borne pollutants. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1.1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). This identifies that with mitigation measures in place from the Proposed Scheme (as set out in **paragraph 4.1.11 to 4.1.13** of the **HRA Report**) and standard good construction practice measures assumed to be delivered from Development 3, effects are expected to be temporary, short-term, with a slight adverse (and hence not significant) effect during construction. As such, no adverse effects on integrity are predicted to arise in relation to water-borne pollution. This analysis is set out in full between **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**

HRA Integrity Matrix 3: Lower Derwent Valley SPA

Name of European site and designation: Lower Derwent Valley SPA																		
EU Code: UK0006096																		
Distance to NSIP: 4.3km																		
European site features	Adverse effect on Integrity																	
	Loss or mechanical disturbance of functionally linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Visual disturbance			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Northern Shoveler (<i>Spatula clypeata</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Eurasian wigeon (<i>Anas clypeata</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Bewick's swan (<i>Cygnus columbianus bewickii</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Golden plover (<i>Pluvialis apricaria</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Ruff (<i>Philomachus pugnax</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Teal (<i>Anas cracca</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Lapwing (<i>Vanellus vanellus</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Pochard (<i>Aythya farina</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Shoveler (<i>Anas clypeata</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Mallard (<i>Anas platyrhynchos</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)
Wigeon (<i>Anas Penelope</i>)	x(a)		x(a)	X(b)		X(b)	x(c)	x(c)	x(c)	x(d)		x(d)	x(e)		x(e)	x(f)	X(g)	x(f)

- a. This impact pathway was identified in relation to the minor loss and disturbance of functionally-linked land that would occur in the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3)). Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: Bewick swan; teal; shoveler; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.16** of the **HRA Report**). As described in **Table 3.3** of the **HRA Report** (document reference 6.8.1), potentially significant loss and disturbance of functionally-linked habitat, is considered to be limited to habitat enhancement measures in the Habitat Provision Area. The locations of the proposed hedgerow planting are set out on **Figure 1** of the **Outline Landscape and Biodiversity Strategy** (document reference 6.6.1). Only limited use of areas in and adjacent to the Habitat Provision Area by qualifying interest bird species has been recorded (see **paragraph 4.2.19** of the **HRA Report**). Given the minor change in landuse within the Habitat Provision Area, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.14 to 4.2.20** of the **HRA Report** for the full analysis.
- b. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: Bewick swan; teal; shoveler; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.16** of the **HRA Report**). Dust mitigation measures are described in **Section 1.3** of **Appendix 6.2** (Construction Dust Assessment) of **Chapter 6** (Air Quality) in Volume 3 of the ES (document reference 6.3.6.2). With application of dust mitigation measures as described, the residual effects of dust on all receptors are predicted to be negligible (see **Section 1.4** of **Appendix 6.2** (Construction Dust Assessment) (document reference 6.3.6.2)). As such, no adverse effects on the bird qualifying interests are predicted to arise (see **paragraphs 4.2.42 to 4.2.44** of the **HRA Report** (document reference 6.8.1)).
- c. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: Bewick swan; teal; shoveler; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.16** of the **HRA Report**). This impact was identified in relation to the potential for increased water-borne pollution of Carr Dyke and the River Ouse during construction and operation of the Proposed Scheme. As described in **paragraph 3.5.13** of the **HRA Report** (document reference 6.8.1), increased water-borne pollution could impact water quality in Carr Dyke and River Ouse, potentially leading to LSE through reductions in the suitability of riparian habitats for qualifying interest bird species. With mitigation measures in place (see **paragraph 4.1.13** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.4** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) construction and decommissioning phase impacts are predicted to be negligible. With mitigation measures in place for the operational phase (see **paragraph 4.1.26** of the **HRA Report** (document reference 6.8.1)), the assessment of effects on the Water Environment (see **paragraph 12.11.14** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) also predicts that impacts on the Carr Dyke and River Ouse would be negligible. As such, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.85 to 4.2.90** (construction and decommissioning) and **paragraphs 4.2.185 to 4.2.190** of the **HRA Report** for the full assessment.
- d. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: Bewick swan; teal; shoveler; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.16** of the **HRA Report**). This impact was identified in relation to the potential for increased sediment loading of Carr Dyke during construction of the Proposed Scheme. As described in **paragraph 3.5.11** of the **HRA Report** (document reference 6.8.1), increased sediment loading could impact water quality in Carr Dyke, potentially leading to LSE through reductions in the suitability of riparian habitats for qualifying interest bird species. With mitigation measures in place (see **paragraph 4.1.10** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.2 to 12.11.3** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) predicts that impacts on the Carr Dyke would be negligible. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.53 to 4.2.58** of the **HRA Report** for the full assessment).
- e. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: Bewick swan; teal; shoveler; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.16** of the **HRA Report**). This impact was identified in relation to the potential for visual disturbance of qualifying interest bird species, in the event that they use habitats in and adjacent to the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3)). Human activity, including visual disturbance by the presence of plant and in particular people, can result in disturbance of birds. Breeding and wintering bird survey work has recorded minimal activity by SPA and Ramsar species, including no evidence of breeding (see **paragraph 4.2.137** of the **HRA Report**) and a series of mitigation measures have been proposed to further minimise the risk of disturbing qualifying interest bird species (see **paragraphs 4.1.14 to 4.1.19** of the **HRA Report**). Mitigation measures include the provision of solid hoarding around the Woodyard Drax Power Station Construction Laydown Area, which would limit intervisibility between potential functionally-linked land and construction and decommissioning activities. With these mitigation measures in place and given the limited potential for significant disturbance even in their absence, no adverse effects on integrity are predicted to arise. The full assessment is presented between **paragraphs 4.2.131 to 4.2.139** of the **HRA Report**.
- f. Several potential in-combination impact pathways and effects were identified in the HRA screening. Temporary loss and/or disturbance of minor watercourses and farmland for cable installation for Development 3 could occur, with affected watercourses and farmland potentially used by the bird qualifying interests (see **paragraph 4.3.2** of the **HRA Report** (document reference 6.8.1)). Development 6 could also lead to loss and disturbance of habitats on Barlow Mound in the vicinity of the Proposed Scheme that could be used by qualifying interest bird species. Development 9 could also lead to effective loss of farmland habitats that could be used by wintering birds. Following analysis of the potential in-combination effects as set out in **Paragraph 4.3.4 to 4.3.9** of the **HRA Report**, no adverse effects on integrity are predicted to arise. The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to accidental releases of water-borne pollutants. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). This identifies that with mitigation measures in place from the Proposed Scheme (as set out in **paragraph 4.1.11 to 4.1.13** of the **HRA Report**) and standard good construction practice measures assumed to be delivered from Development 3, effects are expected to be temporary, short-term, with a slight adverse (and hence not significant) effect during construction

(see **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise in relation to water-borne pollution. Potential in-combination LSE were also identified in relation to increased risk of visual disturbance of bird qualifying interests in relation to Development 6 and combined impacts on potential functionally-linked land associated with the off-site Habitat Provision Area. There would be no intervisibility between Development 6 and the off-site Habitat Provision Area due to an intervening dense band of scrub. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.3.16 to 4.3.19** of the **HRA Report** for full analysis).

- g.** The in-combination HRA screening assessment identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to water-borne pollution. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1.1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). The risk of significant effects during operation is predicted to be negligible, on the basis of the mitigation incorporated into the Proposed Scheme (see **paragraphs 4.1.24 to 4.1.26** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise. The full analysis of this is presented between **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**.

HRA Integrity Matrix 4: Lower Derwent Valley Ramsar

Name of European site and designation: Lower Derwent Valley Ramsar																								
EU Code: UK11037 (301)																								
Distance to NSIP: 4.3km																								
European site features	Adverse Effect on Integrity																							
	Loss or mechanical disturbance of functionally linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Visual disturbance			Emissions of treated flue gas to air			In combination effects					
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Stage of Development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D			
Traditionally managed species-rich alluvial flood meadow																				x(f)			x(h)	
Rich assemblage of wetland invertebrates (including <i>Cicadula ornata</i>)																				x(f)			x(h)	
Ruff (<i>Philomachus pugnax</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)	x(d)	x(d)	x(e)		x(e)				x(g)	x(i)	x(g)			
Whimbrel (<i>Numenius phaeopus</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)	x(d)	x(d)	x(e)		x(e)				x(g)	x(i)	x(g)			
Wigeon (<i>Anas Penelope</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)	x(d)	x(d)	x(e)		x(e)				x(g)	x(i)	x(g)			
Teal (<i>Anas cracca</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)	x(d)	x(d)	x(e)		x(e)				x(g)	x(i)	x(g)			
Assemblage of international importance – peak counts in winter: 31,942 waterfowl	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)	x(d)	x(d)	x(e)		x(e)				x(g)	x(i)	x(g)			

- a. This impact pathway was identified in relation to the minor loss and disturbance of functionally-linked land that would occur in the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3). Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: teal; and wigeon. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.23** of the **HRA Report**). As described in **Table 3.3** of the **HRA Report** (document reference 6.8.1), potentially significant loss and disturbance of functionally-linked habitat, is considered to be limited to habitat enhancement measures in the Habitat Provision Area. The locations of the proposed hedgerow planting are set out on **Figure 1** of the **Outline Landscape and Biodiversity Strategy** (document reference 6.6.1). Only limited use of areas in and adjacent to the Habitat Provision Area by qualifying interest bird species has been recorded (see **paragraph 4.2.19** of the **HRA Report**). Given the minor change in landuse within the Habitat Provision Area, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.21 to 4.2.27** of the **HRA Report** for the full analysis.
- b. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: teal; and wigeon. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.23** of the **HRA Report**). Dust mitigation measures are described in **Section 1.3**

- of **Appendix 6.2** (Construction Dust Assessment) of Chapter 6 (Air Quality) in Volume 3 of the ES (document reference 6.3.6.2). With application of dust mitigation measures as described, the residual effects of dust on all receptors are predicted to be negligible (see **Section 1.4 of Appendix 6.2** (Construction Dust Assessment) (document reference 6.3.6.2)). As such, no adverse effects on the bird qualifying interests are predicted to arise (see paragraphs **4.2.42 to 4.2.44** of the **HRA Report** (document reference 6.8.1)).
- c. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: teal; and wigeon. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.23** of the **HRA Report**). This impact was identified in relation to the potential for increased water-borne pollution of Carr Dyke and the River Ouse during construction and operation of the Proposed Scheme. As described in **paragraph 3.5.13** of the **HRA Report** (document reference 6.8.1), increased water-borne pollution could impact water quality in Carr Dyke and River Ouse, potentially leading to LSE through reductions in the suitability of riparian habitats for qualifying interest bird species. With mitigation measures in place (see **paragraph 4.1.13** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.4 of Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) construction and decommissioning phase impacts are predicted to be negligible. With mitigation measures in place for the operational phase (see **paragraph 4.1.26** of the **HRA Report** (document reference 6.8.1)), the assessment of effects on the Water Environment (see **paragraph 12.11.14 of Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) also predicts that impacts on the Carr Dyke and River Ouse would be negligible. As such, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.91 to 4.2.96** (construction and decommissioning) and **paragraphs 4.2.191 to 4.2.196** of the **HRA Report** for the full assessment.
 - d. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: teal; and wigeon. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.23** of the **HRA Report**). This impact was identified in relation to the potential for increased sediment loading of Carr Dyke during construction of the Proposed Scheme. As described in **paragraph 3.5.11** of the **HRA Report** (document reference 6.8.1), increased sediment loading could impact water quality in Carr Dyke, potentially leading to LSE through reductions in the suitability of riparian habitats for qualifying interest bird species. With mitigation measures in place (see **paragraph 4.1.10** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.2 to 12.11.3 of Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) predicts that impacts on the Carr Dyke would be negligible. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.59 to 4.2.64** of the **HRA Report** for the full assessment).
 - e. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: teal; and wigeon. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.23** of the **HRA Report** (document reference 6.8.1)). This impact was identified in relation to the potential for visual disturbance of qualifying interest bird species, in the event that they use habitats in and adjacent to the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3)). Human activity, including visual disturbance by the presence of plant and in particular people, can result in disturbance of birds. Breeding and wintering bird survey work has recorded minimal activity by SPA and Ramsar species, including no evidence of breeding (see **paragraph 4.2.137** of the **HRA Report**) and a series of mitigation measures have been proposed to further minimise the risk of disturbing qualifying interest bird species (see **paragraphs 4.1.14 to 4.1.19** of the **HRA Report**). Mitigation measures include the provision of solid hoarding around the Woodyard Drax Power Station Construction Laydown Area, which would limit intervisibility between potential functionally-linked land and construction and decommissioning activities. With these mitigation measures in place and given the limited potential for significant disturbance even in their absence, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.140 to 4.2.148** of the **HRA Report** for the full analysis.
 - f. The potential for Likely Significant Effects on the qualifying interests of the SAC was identified during the HRA Screening (see **paragraph 3.5.29 to 3.5.41** of the **HRA Report** (document reference 6.8.1)). Potential LSE were identified in relation to acid deposition only, with no exceedances of screening criterion for other pollutants. With the operational emissions mitigation measures (see **paragraph 4.1.22** of the **HRA Report**), the Proposed Scheme's acid deposition maximum impact over Lower Derwent Valley SAC and Ramsar Site reduces to 1.1% of the Critical Load. Given the inherent conservatism in the air quality modelling the impact on Lower Derwent Valley SAC is considered to be analogous with an impact of 1% of the Critical Load. This is not expected to trigger any perceptible changes in the condition of the qualifying interest (see **paragraphs 4.2.167 to 4.2.176** of the **HRA Report** for the full analysis).
 - g. Several potential in-combination impact pathways and effects were identified in the HRA screening. Temporary loss and/or disturbance of minor watercourses and farmland for cable installation for Development 3 could occur, with affected watercourses and farmland potentially used by the bird qualifying interests (see **paragraph 4.3.2** of the **HRA Report** (document reference 6.8.1)). Development 6 could also lead to loss and disturbance of habitats on Barlow Mound in the vicinity of the Proposed Scheme that could be used by qualifying interest bird species. Development 9 could also lead to effective loss of farmland habitats that could be used by wintering birds. Following analysis of the potential in-combination effects as set out in **Paragraph 4.3.4 to 4.3.9** of the **HRA Report**, no adverse effects on integrity are predicted to arise. The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to accidental releases of water-borne pollutants. Potential in-combination effects were identified in relation to Development 3 (see Table 3.11 of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1.1 in Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). This identifies that with mitigation measures in place from the Proposed Scheme (as set out in **paragraph 4.1.11 to 4.1.13** of the **HRA Report**) and standard good construction practice measures assumed to be delivered from Development 3, effects are expected to be temporary, short-term, with a slight adverse (and hence not significant) effect during construction (see **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise in relation to water-borne pollution. Potential in-combination LSE were also identified in relation to increased risk of visual disturbance of bird qualifying interests in relation to Development 6 and combined impacts on potential functionally-linked land associated with the off-site Habitat Provision Area. There would be no intervisibility between Development 6 and the off-site Habitat Provision Area due to an intervening dense band of scrub. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.3.16 to 4.3.19** of the **HRA Report** for full analysis).
 - h. In-combination LSE in relation to operational emissions to air were identified in relation to acid deposition only, with no exceedances of screening criterion for other pollutants (see **paragraph 4.3.26** of the **HRA Report** (document reference 6.8.1)). A maximum in-combination impact equivalent to 1.8% of the critical load for acid deposition has been modelled.

There have been substantial reductions in SO₂ emissions and therefore their contribution to acid deposition from Drax in recent decades (see **paragraph 4.3.32 to 4.3.33** of the **HRA Report**). With the operational emissions mitigation measures (see **paragraph 4.1.22** of the **HRA Report**), and given the inherent conservatism in the air quality modelling no adverse effects on integrity are predicted to arise (see **paragraphs 4.3.26 to 4.3.35** of the **HRA Report** for the full analysis). The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to water-borne pollution. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1.1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). The risk of significant effects during operation is predicted to be negligible, on the basis of the mitigation incorporated into the Proposed Scheme (see **paragraphs 4.1.24 to 4.1.26** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise. The full analysis of this is presented between **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**.

HRA Integrity Matrix 5: Skipwith Common SAC

Name of European site and designation: Skipwith Common SAC			
EU Code: UK0030276			
Distance to NSIP: 7.6 km			
European site features	Adverse effects on Integrity		
<i>Effect</i>	<i>In combination effects</i>		
<i>Stage of Development</i>	<i>C</i>	<i>O</i>	<i>D</i>
Northern Atlantic wet heaths with <i>Erica tetralix</i>		xa	
European dry heaths		Xa	

- a. In the absence of mitigation, potential LSE were identified in relation to in-combination operational air quality impacts (see **Table 3.14** of the **HRA Report** (document reference 6.8.1)). Potential LSE were predicted in relation to acid deposition only, with no exceedances of screening criterion for other pollutants. With the application of the mitigation measures described in **paragraph 4.1.22** of the **HRA Report**, the in-combination acid deposition impact reduces from 1.1% of critical load, to 0.8% of critical load (see **Table 6.22** in **Chapter 6** (Air Quality) of Volume 1 of the ES (document reference 6.1.6)). Given this reduces the in-combination impact to below the 1% screening criterion threshold, no adverse effects on integrity are predicted to arise (see **paragraph 4.3.45** of the **HRA Report**).

HRA Integrity Matrix 6: Thorne Moor SAC

Name of European site and designation: Thorne Moor SAC						
EU Code: UK0012915						
Distance to NSIP: 9.1 km						
European site features	Adverse effects on Integrity					
<i>Effect</i>	<i>Emissions of treated flue gas to air</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>
Degraded raised bogs still capable of natural regeneration		x(a)			x(b)	

- a. In the absence of mitigation, the potential for Likely Significant Effects on the qualifying interests of the SAC was identified during the HRA Screening (see **paragraph 3.5.29 to 3.5.44** of the **HRA Report** (document reference 6.8.1). Potential LSE were identified in relation to acid deposition only, with no exceedances of screening criterion for other pollutants. With the application of the mitigation measures described in **paragraph 4.1.22** of the **HRA Report**, impacts reduce from 1.3% of critical load, to 0.7% of critical load (see **Table 6.18** in **Chapter 6** (Air Quality) of Volume 1 of the ES (document reference 6.1.6). Given this reduces the impact to below the 1% screening criterion threshold, no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.167 to 4.2.170** of the **HRA Report**).
- b. In the absence of mitigation, the potential for Likely Significant Effects on the qualifying interests of the SAC was identified during the HRA Screening (see **Table 3.14** of the **HRA Report** (document reference 6.8.1). Potential LSE were identified in relation to in-combination exceedances of screening criterion for acid deposition (2.3% of critical load), nitrogen deposition (1.8% of critical load) and ammonia (NH₃) (1.1% of critical level). There are no in-combination exceedances of the 1% screening criteria for other pollutants. The detailed results of the air quality modelling are presented in **Tables 6.20, 6.21, and 6.22** in Chapter 6 (Air Quality) of Volume 1 of the ES. Given the cumulative impact for NH₃ is only marginally above 1% of critical level at the point of greatest predicted impact, no perceptible effects on SAC vegetation are predicted to arise. As set out in paragraph **4.3.25** of the **HRA Report** there are a series of conservative assumptions built into the air quality modelling. Given this series of assumptions, in reality the 1% screening threshold for annual mean NH₃ is unlikely to be exceeded in-combination except occasionally. This is because this would require all developments and the Proposed Scheme to be operating at or near full load for an entire calendar year, which is extremely unlikely to actually occur. With mitigation applied, there would be a cumulative impact of up to 1.7% of critical load for nitrogen deposition, with the Proposed Scheme contributing up to 0.4%. This level of deposition falls within the bounds of natural variation and is predicted to lead to negligible (and imperceptible) vegetative change across the SAC. As highlighted in **paragraph 4.3.25** of the **HRA Report** the in-combination impact has also been modelled based on several conservative assumptions, and in reality, deposition rates would be lower. With the Proposed Scheme's air quality mitigation measures applied, the maximum in-combination impact for acidification is 1.9% of the critical load. Again, no perceptible vegetative changes of the SAC degraded raised bog habitat are predicted to arise from this level of deposition, in the context of the baseline deposition levels, the magnitude of the in-combination air quality impacts, and in light of the significant reductions in SO₂ emissions and their contribution to acid deposition from Drax Power Station and other sources in recent decades. In light of the above, no adverse effects to integrity are predicted to arise. This analysis is set out in full in **paragraphs 4.3.36 to 4.3.45** of the **HRA Report**.

HRA Integrity Matrix 7: Humber Estuary SAC

Name of European site and designation: Humber Estuary SAC						
EU Code: UK0030170						
Distance to NSIP: 6.3 km						
European site features	Adverse effect on Integrity					
	Accidental releases of waterborne pollutants			In combination effects		
Effect	C	O	D	C	O	D
Stage of Development						
Estuaries						
Mudflats and sandflats not covered by seawater at low tide						
Sandbanks which are slightly covered by sea water all the time						
Coastal lagoons						
<i>Salicornia</i> and other annuals colonising mud and sand						
Atlantic salt meadows						
Embryonic shifting dunes						
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> "white dunes"						
Fixed coastal dunes with herbaceous vegetation "grey dunes"						
Dunes with <i>Hippopha rhamnoides</i>						

Name of European site and designation: Humber Estuary SAC						
EU Code: UK0030170						
Distance to NSIP: 6.3 km						
European site features	Adverse effect on Integrity					
<i>Effect</i>	<i>Accidental releases of waterborne pollutants</i>			<i>In combination effects</i>		
Sea lamprey <i>Petromyzon marinus</i>	x(a)	x(a)	x(a)	x(b)	x(b)	x(b)
River lamprey <i>Lampetra fluviatilis</i>	x(a)	x(a)	x(a)	x(b)	x(b)	x(b)
Grey seal <i>Halichoerus grypus</i>						

- a. This impact pathway is relevant to the sea lamprey, and river lamprey qualifying interest of the SAC, with no LSE predicted for other qualifying interests. This impact was identified in relation to the potential for increased water-borne pollution of the River Ouse during construction and operation of the Proposed Scheme. As described in paragraph **3.5.13** of the **HRA Report** (document reference 6.8.1), increased water-borne pollution could impact water quality in the River Ouse, potentially leading to LSE through reductions in the suitability of riparian habitats for river lamprey and sea lamprey. With mitigation measures in place (see **paragraph 4.1.13** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.4** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12) construction and decommissioning phase impacts are predicted to be negligible. With mitigation measures in place for the operational phase (see **paragraph 4.1.26** of the **HRA Report** (document reference 6.8.1)), the assessment of effects on the Water Environment (see **paragraph 12.11.14** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12) also predicts that impacts on the Carr Dyke and River Ouse would be negligible. As such, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.97 to 4.2.100** (construction and decommissioning) and **paragraphs 4.2.197 to 4.2.200** of the **HRA Report** for the full assessment.
- b. The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to accidental releases of water-borne pollutants. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report** (document reference 6.8.1)). The cumulative assessment of effects on the Water Environment is presented in **Table 1.1** in **Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). This identifies that with mitigation measures in place from the Proposed Scheme (as set out in **paragraph 4.1.11** to **4.1.13** of the **HRA Report**) and standard good construction practice measures assumed to be delivered from Development 3, effects are expected to be temporary, short-term, with a slight adverse (and hence not significant) effect during construction. Effects during operation are predicted to be neutral on the basis of the mitigation incorporated into the Proposed Scheme (as set out in **paragraphs 4.1.24 to 4.1.26** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise in relation to water-borne pollution. This analysis is set out in full between **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**.

HRA Integrity Matrix 8: Humber Estuary SPA

Name of European site and designation: Humber Estuary SPA																		
EU Code: UK9006111																		
Distance to NSIP: 6.3km																		
European site features	Adverse effect on Integrity																	
	Loss or mechanical disturbance of functionally linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Visual disturbance			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
Eurasian teal <i>Anas crecca</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
Eurasian wigeon <i>Anas penelope</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
mallard <i>Anas platyrhynchos</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
turnstone <i>Arenaria interpres</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
common pochard <i>Aythya farina</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
greater scaup <i>Aythya marila</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
brent goose <i>Branta bernicla bernicla</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
common goldeneye <i>Bucephala clangula</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
sanderling <i>Calidris alba</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
avocet <i>Recurvirostra avosetta</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
bittern <i>Botaurus stellaris</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
hen harrier <i>Circus cyaneus</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)

Name of European site and designation: Humber Estuary SPA																		
EU Code: UK9006111																		
Distance to NSIP: 6.3km																		
European site features	Adverse effect on Integrity																	
	Effect	Loss or mechanical disturbance of functionally linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Visual disturbance			In combination effects	
golden plover <i>Pluvialis apricaria</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
bar-tailed godwit <i>Limosa lapponica</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
ruff <i>Philomachus pugnax</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
marsh harrier <i>Circus aeruginosus</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
little tern <i>Sternula albifrons</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
common ringed plover <i>Charadrius hiaticula</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
Eurasian curlew <i>Numenius arquata</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
whimbrel <i>Numenius Phaeopus</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
greenshank <i>Tringa nebularia</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
lapwing <i>Vanellus vanellus</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
shelduck <i>Tadorna tadorna</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
knot <i>Calidris canutus</i>	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)

Name of European site and designation: Humber Estuary SPA																		
EU Code: UK9006111																		
Distance to NSIP: 6.3km																		
European site features	Adverse effect on Integrity																	
	Effect	Loss or mechanical disturbance of functionally linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Visual disturbance			In combination effects	
dunlin <i>Calidris alpina</i> (passage and wintering)	✓b		✓b	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
redshank <i>Tringa totanus</i>	✓b		✓b	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
black-tailed godwit <i>Limosa limosa</i>	✓b		✓b	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
Eurasian oystercatcher <i>Haematopus ostralegus</i>	✓b		✓b	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)
grey plover <i>Pluvialis squatarola</i>	✓b		✓b	x(b)		x(b)	x(c)	x(c)	x(c)	x(d)		x(d)	X(e)		X(e)	X(f)	x(g)	X(f)

- a. This impact pathway was identified in relation to the minor loss and disturbance of functionally-linked land that would occur in the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3)). Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; marsh harrier; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.30** of the **HRA Report**). As described in **Table 3.3** of the **HRA Report** (document reference 6.8.1), potentially significant loss and disturbance of functionally-linked habitat, is considered to be limited to habitat enhancement measures in the Habitat Provision Area. The locations of the proposed hedgerow planting are set out on **Figure 1** of the **Outline Landscape and Biodiversity Strategy** (document reference 6.6.1). Only limited use of areas in and adjacent to the Habitat Provision Area by qualifying interest bird species has been recorded (see **paragraph 4.2.33** of the **HRA Report**). Given the minor change in landuse within the Habitat Provision Area, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.28 to 4.2.34** of the **HRA Report** for the full analysis.
- b. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; marsh harrier; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.30** of the **HRA Report**). Dust mitigation measures are described in **Section 1.3 of Appendix 6.2** (Construction Dust Assessment) of **Chapter 6** (Air Quality) in Volume 3 of the ES (document reference 6.3.6.2). With application of dust mitigation measures as described, the residual effects of dust on all receptors are predicted to be negligible (see **Section 1.4 of Appendix 6.2** (Construction Dust Assessment) (document reference 6.3.6.2)). As such, no adverse effects on the bird qualifying interests are predicted to arise (see **paragraphs 4.2.42 to 4.2.44** of the **HRA Report** (document reference 6.8.1)).
- c. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; marsh harrier; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.30** of the **HRA Report**). This impact was identified in relation to the potential for increased water-borne pollution of Carr Dyke and the River Ouse during construction and operation of the Proposed Scheme. As described in **paragraph 3.5.13** of the **HRA Report** (document reference 6.8.1), increased water-borne pollution could impact water quality in Carr Dyke and River Ouse, potentially leading to LSE through reductions in the suitability of riparian habitats for qualifying interest bird species. With mitigation measures in place (see **paragraph 4.1.13** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.4** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) construction and decommissioning phase impacts are predicted to be negligible. With mitigation measures in place for the operational phase (see **paragraph 4.1.26** of the **HRA Report** (document reference 6.8.1)), the assessment of effects on the Water Environment (see **paragraph 12.11.14** of **Chapter 12** (Water Environment) of Volume 1 of the

ES (document reference 6.1.12) also predicts that impacts on the Carr Dyke and River Ouse would be negligible. As such, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.101 to 4.2.106** (construction and decommissioning) and **paragraphs 4.2.201 to 4.2.206** of the **HRA Report** for the full assessment.

- d. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; marsh harrier; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.30** of the **HRA Report**). This impact was identified in relation to the potential for increased sediment loading of Carr Dyke during construction of the Proposed Scheme. As described in **paragraph 3.5.11** of the **HRA Report** (document reference 6.8.1), increased sediment loading could impact water quality in Carr Dyke, potentially leading to LSE through reductions in the suitability of riparian habitats for qualifying interest bird species. With mitigation measures in place (see **paragraph 4.1.10** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.2 to 12.11.3** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12 predicts that impacts on the Carr Dyke would be negligible. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.65 to 4.2.70** of the **HRA Report** for the full assessment).
- e. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; marsh harrier; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.30** of the **HRA Report**). This impact was identified in relation to the potential for visual disturbance of qualifying interest bird species, in the event that they use habitats in and adjacent to the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3). Human activity, including visual disturbance by the presence of plant and in particular people, can result in disturbance of birds. Breeding and wintering bird survey work has recorded minimal activity by SPA and Ramsar species, including no evidence of breeding (see **paragraph 4.2.155** of the **HRA Report**) and a series of mitigation measures have been proposed to further minimise the risk of disturbing qualifying interest bird species (see **paragraphs 4.1.14 to 4.1.19** of the **HRA Report**). Mitigation measures include the provision of solid hoarding around the Woodyard Drax Power Station Construction Laydown Area, which would limit intervisibility between potential functionally-linked land and construction and decommissioning activities. With these mitigation measures in place and given the limited potential for significant disturbance even in their absence, no adverse effects on integrity are predicted to arise. The full assessment is presented between **paragraphs 4.2.149 to 4.2.157** of the **HRA Report**.
- f. Several potential in-combination impact pathways and effects were identified in the HRA screening. Temporary loss and/or disturbance of minor watercourses and farmland for cable installation for Development 3 could occur, with affected watercourses and farmland potentially used by the bird qualifying interests (see **paragraph 4.3.2** of the **HRA Report** (document reference 6.8.1)). Development 6 could also lead to loss and disturbance of habitats on Barlow Mound in the vicinity of the Proposed Scheme that could be used by qualifying interest bird species (see **paragraph 4.3.3** of the **HRA Report**). Development 9 could also lead to effective loss of farmland habitats that could be used by wintering birds (see **paragraph 4.3.4** of the **HRA Report**). Following analysis of the potential in-combination effects as set out in **Paragraph 4.3.4 to 4.3.9** of the **HRA Report**, no adverse effects on integrity are predicted to arise. The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to accidental releases of water-borne pollutants. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1 in Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). This identifies that with mitigation measures in place from the Proposed Scheme (as set out in **paragraph 4.1.11 to 4.1.13** of the **HRA Report**) and standard good construction practice measures assumed to be delivered from Development 3, effects are expected to be temporary, short-term, with a slight adverse (and hence not significant) effect during construction (see **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise in relation to water-borne pollution. Potential in-combination LSE were also identified in relation to increased risk of visual disturbance of bird qualifying interests in relation to Development 6 and combined impacts on potential functionally-linked land associated with the off-site Habitat Provision Area. There would be no intervisibility between Development 6 and the off-site Habitat Provision Area due to an intervening dense band of existing scrub. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.3.16 to 4.3.19** of the **HRA Report** for full analysis).
- g. The in-combination HRA screening assessment identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to water-borne pollution. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1.1 in Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). The risk of significant effects during operation is predicted to be negligible, on the basis of the mitigation incorporated into the Proposed Scheme (see **paragraphs 4.1.24 to 4.1.26** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise. The full analysis of this is presented between **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**.

HRA Integrity Matrix 9: Humber Estuary Ramsar

Name of European site and designation: Humber Estuary Ramsar																		
EU Code: UK0012915																		
Distance to NSIP: 6.3 km																		
European site features	Adverse effects on Integrity																	
	Loss or physical disturbance of functionally linked land			Emission of dust			Accidental releases of waterborne pollutants			Increased risk of pollution from sediment load			Visual disturbance			In combination effects		
Effect	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
Stage of Development																		
Dune systems and humid dune slacks																		
Estuarine waters																		
Intertidal mud and sand flats																		
Saltmarshes																		
Coastal brackish/saline lagoons																		
Grey seals (<i>Halichoerus grypus</i>)																		
Natterjack toad (<i>Bufo calamita</i>)																		
Assemblages of international importance – 153,934 waterfowl (non-breeding season)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(e)		x(e)	x(f)		x(f)	x(g)	x(i)	x(g)
Eurasian golden plover (<i>Pluvialis apricaria latifrons</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(e)		x(e)	x(f)		x(f)	x(g)	x(i)	x(g)
Red knot (<i>Calidris canutus islandica</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(e)		x(e)	x(f)		x(f)	x(g)	x(i)	x(g)
Dunlin (<i>Calidris alpina alpina</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(e)		x(e)	x(f)		x(f)	x(g)	x(i)	x(g)
Black-tailed godwit (<i>Limosa limosa islandica</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(e)		x(e)	x(f)		x(f)	x(g)	x(i)	x(g)
Redshank (<i>Tringa totanus brittanica</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(e)		x(e)	x(f)		x(f)	x(g)	x(i)	x(g)
Common shelduck (<i>Tadorna tadorna</i>)	x(a)		x(a)	x(b)		x(b)	x(c)	x(c)	x(c)	x(e)		x(e)	x(f)		x(f)	x(g)	x(i)	x(g)
River lamprey (<i>Lampetra</i>)							x(d)	x(d)	x(d)							x(h)	x(h)	x(h)

Name of European site and designation: Humber Estuary Ramsar																			
EU Code: UK0012915																			
Distance to NSIP: 6.3 km																			
European site features		Adverse effects on Integrity																	
<i>Effect</i>		<i>Loss or physical disturbance of functionally linked land</i>			<i>Emission of dust</i>			<i>Accidental releases of waterborne pollutants</i>			<i>Increased risk of pollution from sediment load</i>			<i>Visual disturbance</i>			<i>In combination effects</i>		
<i>fluviatilis</i>)																			
Sea lamprey (<i>Petromyzon marinus</i>)								x(d)	x(d)	x(d)							x(h)	x(h)	x(h)

- a. This impact pathway was identified in relation to the minor loss and disturbance of functionally-linked land that would occur in the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3). Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.37** of the **HRA Report**). As described in **Table 3.3** of the **HRA Report** (document reference 6.8.1), potentially significant loss and disturbance of functionally-linked habitat, is considered to be limited to habitat enhancement measures in the Habitat Provision Area. The locations of the proposed hedgerow planting are set out on **Figure 1** of the **Outline Landscape and Biodiversity Strategy** (document reference 6.6.1). Only limited use of areas in and adjacent to the Habitat Provision Area by qualifying interest bird species has been recorded (see **paragraph 4.2.40** of the **HRA Report**). Given the minor change in landuse within the Habitat Provision Area, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.35 to 4.2.41** of the **HRA Report** for the full analysis.
- b. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.37** of the **HRA Report**). Dust mitigation measures are described in **Section 1.3** of **Appendix 6.2** (Construction Dust Assessment) of **Chapter 6** (Air Quality) in Volume 3 of the ES (document reference 6.3.6.2). With application of dust mitigation measures as described, the residual effects of dust on all receptors are predicted to be negligible (see **Section 1.4** of **Appendix 6.2** (Construction Dust Assessment) (document reference 6.3.6.2). As such, no adverse effects on the bird qualifying interests are predicted to arise (see **paragraphs 4.2.42 to 4.2.44** of the **HRA Report** (document reference 6.8.1)).
- c. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.37** of the **HRA Report**). This impact was identified in relation to the potential for increased water-borne pollution of Carr Dyke and the River Ouse during construction and operation of the Proposed Scheme. As described in paragraph **3.5.13** of the **HRA Report** (document reference 6.8.1), increased water-borne pollution could impact water quality in Carr Dyke and River Ouse, potentially leading to LSE through reductions in the suitability of riparian habitats for qualifying interest bird species. With mitigation measures in place (see **paragraph 4.1.13** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.4** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12)) construction and decommissioning phase impacts are predicted to be negligible. With mitigation measures in place for the operational phase (see **paragraph 4.1.26** of the **HRA Report** (document reference 6.8.1)), the assessment of effects on the Water Environment (see **paragraph 12.11.14** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12) also predicts that impacts on the Carr Dyke and River Ouse would be negligible. As such, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.107 to 4.2.112** (construction and decommissioning) and **paragraphs 4.2.207 to 4.2.212** of the **HRA Report** for the full assessment.
- d. This impact pathway is relevant to the sea lamprey and river lamprey qualifying interest of the Ramsar, with no LSE predicted for other qualifying interests. This impact was identified in relation to the potential for increased water-borne pollution of the River Ouse during construction and operation of the Proposed Scheme. As described in paragraph **3.5.13** of the **HRA Report** (document reference 6.8.1), increased water-borne pollution could impact water quality in the River Ouse, potentially leading to LSE through reductions in the suitability of riparian habitats for river lamprey and sea lamprey. With mitigation measures in place (see **paragraph 4.1.13** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.4** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12) construction and decommissioning phase impacts are predicted to be negligible. With mitigation measures in place for the operational phase (see **paragraph 4.1.26** of the **HRA Report** (document reference 6.8.1)), the assessment of effects on the Water Environment (see **paragraph 12.11.14** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12) also predicts that impacts on the Carr Dyke and River Ouse would be negligible. As such, no adverse effects on integrity are predicted to arise. See **paragraphs 4.2.107 to 4.2.112** (construction and decommissioning) and **paragraphs 4.2.207 to 4.2.212** of the **HRA Report** for the full assessment.
- e. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.37** of the **HRA Report**). This impact was identified in relation to the potential for increased sediment loading of Carr Dyke during construction of the Proposed Scheme. As described in **paragraph 3.5.11** of the **HRA Report** (document reference 6.8.1), increased sediment loading could impact water quality in Carr Dyke, potentially leading to LSE through reductions in the suitability of

riparian habitats for qualifying interest bird species. With mitigation measures in place (see paragraph **4.1.10** of the **HRA Report**) the assessment of effects on the Water Environment (see **paragraph 12.11.2 to 12.11.3** of **Chapter 12** (Water Environment) of Volume 1 of the ES (document reference 6.1.12 predicts that impacts on the Carr Dyke would be negligible. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.2.71 to 4.2.76** of the **HRA Report** for the full assessment).

- f. Based on their habitat preferences, these species could potentially use habitats within the Zone of Influence of the Proposed Scheme: lapwing; curlew; shoveler; mallard; wigeon; and golden plover. Other qualifying interest bird species are not expected to use habitats within the ZoI of the Proposed Scheme (see **paragraph 4.2.37** of the **HRA Report**). This impact was identified in relation to the potential for visual disturbance of qualifying interest bird species, in the event that they use habitats in and adjacent to the Habitat Provision Area (see **Figure 3** of the **HRA Report** (document reference 6.8.2.3). Human activity, including visual disturbance by the presence of plant and in particular people, can result in disturbance of birds. Breeding and wintering bird survey work has recorded minimal activity by Ramsar species, including no evidence of breeding (see **paragraph 4.2.164** of the **HRA Report**) and a series of mitigation measures have been proposed to further minimise the risk of disturbing qualifying interest bird species (see **paragraphs 4.1.14 to 4.1.19** of the **HRA Report**). Mitigation measures include the provision of solid hoarding around the Woodyard Drax Power Station Construction Laydown Area, which would limit intervisibility between potential functionally-linked land and construction and decommissioning activities. With these mitigation measures in place and given the limited potential for significant disturbance even in their absence, no adverse effects on integrity are predicted to arise. The full assessment is presented between **paragraphs 4.2.158 to 4.2.166** of the **HRA Report**.
- g. Several potential in-combination impact pathways and effects were identified in the HRA screening. Temporary loss and/or disturbance of minor watercourses and farmland for cable installation for Development 3 could occur, with affected watercourses and farmland potentially used by the bird qualifying interests (see **paragraph 4.3.2** of the **HRA Report** (document reference 6.8.1)). Development 6 could also lead to loss and disturbance of habitats on Barlow Mound in the vicinity of the Proposed Scheme that could be used by qualifying interest bird species (see **paragraph 4.3.3** of the **HRA Report**). Development 9 could also lead to effective loss of farmland habitats that could be used by wintering birds (see **paragraph 4.3.4** of the **HRA Report**). Following analysis of the potential in-combination effects as set out in **Paragraph 4.3.4 to 4.3.9** of the **HRA Report**, no adverse effects on integrity are predicted to arise. The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to accidental releases of water-borne pollutants. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1 in Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). This identifies that with mitigation measures in place from the Proposed Scheme (as set out in **paragraph 4.1.11 to 4.1.13** of the **HRA Report**) and standard good construction practice measures assumed to be delivered from Development 3, effects are expected to be temporary, short-term, with a slight adverse (and hence not significant) effect during construction (see **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise in relation to water-borne pollution. Potential in-combination LSE were also identified in relation to increased risk of visual disturbance of bird qualifying interests in relation to Development 6 and combined impacts on potential functionally-linked land associated with the off-site Habitat Provision Area. There would be no intervisibility between Development 6 and the off-site Habitat Provision Area due to an intervening dense band of existing scrub. As such, no adverse effects on integrity are predicted to arise (see **paragraphs 4.3.16 to 4.3.19** of the **HRA Report** for full analysis).
- h. The in-combination HRA screening assessment also identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to accidental releases of water-borne pollutants. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report** (document reference 6.8.1)). The cumulative assessment of effects on the Water Environment is presented in **Table 1 in Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). This identifies that with mitigation measures in place from the Proposed Scheme (as set out in **paragraph 4.1.11 to 4.1.14** of the **HRA Report**) and standard good construction practice measures assumed to be delivered from Development 3, effects are expected to be temporary, short-term, with a slight adverse (and hence not significant) effect during construction. Effects during operation are predicted to be neutral on the basis of the mitigation incorporated into the Proposed Scheme (as set out in **paragraphs 4.1.24 to 4.1.26** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise in relation to water-borne pollution. This analysis is set out in full between **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**.
- i. The in-combination HRA screening assessment identified the potential for combined impacts with other plans and projects to worsen the impacts and hence effects of the Proposed Scheme alone, in relation to water-borne pollution. Potential in-combination effects were identified in relation to Development 3 (see **Table 3.11** of the **HRA Report**). The cumulative assessment of effects on the Water Environment is presented in **Table 1 in Appendix 18.5** (Cumulative Effects Assessment Matrix) in Volume 3 of the ES (document reference 6.3.18.5). The risk of significant effects during operation is predicted to be negligible, on the basis of the mitigation incorporated into the Proposed Scheme (see **paragraphs 4.1.24 to 4.1.26** of the **HRA Report**). As such, no adverse effects on integrity are predicted to arise. The full analysis of this is presented between **paragraphs 4.3.12 to 4.3.15** of the **HRA Report**.