ENVIRONMENTAL STATEMENT – VOLUME 1 – CHAPTER 8 ECOLOGY

Drax Bioenergy with Carbon Capture and Storage

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

Document Reference Number: 6.1.8

Applicant: Drax Power Limited

PINS Reference: EN010120

REVISION: 01

DATE: May 2022

DOCUMENT OWNER: WSP UK Limited

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PUBLIC

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8.1. INTRODUCTION

8.1.1. This chapter reports the outcome of the assessment of likely significant environmental effects arising from the Proposed Scheme on Ecology.

8.1.2. Impacts during the construction, operation and decommissioning phases of the Proposed Scheme are assessed. A full description of the Proposed Scheme is described in **Chapter 2 (Site and Project Description)** of this ES (document reference 6.1.2).

8.1.3. This chapter (and its associated figures (**Volume 2**) and appendices (**Volume 3**)) are intended to be read as part of the wider ES with particular reference to **Chapter 6 (Air Quality)** (document reference 6.1.6), **Chapter 7 (Noise and Vibration)** (document reference 6.1.7)**, Chapter 11 (Ground Conditions) (**document reference 6.1.11) and **Chapter 12 (Water Environment)** (document reference 6.1.12) including **Appendix 12.2** (**Water Framework Directive Screening Report** (document reference 6.3.12.2). This chapter has relied on the following documents: **Preliminary Ecological Appraisal** (**Appendix 8.1** (document reference 6.3.8.1)), **Amphibian Survey Report** (**Appendix 8.2** (document reference 6.3.8.2)), **Wintering Bird Survey Report** (**Appendix 8.3** (document reference 6.3.8.3)), **Terrestrial Invertebrate Survey Report** (**Appendix 8.4** (document reference 6.3.8.4)) and **Biodiversity Net Gain Assessment** (document reference 6.10). This chapter also includes or refers to information prepared as part of the **Habitats Regulations Assessment report** (document reference 6.8.1), which in turn is informed by this and other chapters of the ES. Furthermore, documents from previous projects such as the Flue Gas Desulphurisation (FGD) (Demolition Planning Application) scheme (WSP, 2020a) and the Drax Repower (Drax Power Limited, 2018) scheme have also been relied on.

8.1.4. This chapter:

- **a.** Summarises the legislative and policy framework;
- **b.** Describes consultation undertaken to date;
- **c.** Describes the methodology followed for the assessment;
- **d.** Identifies the potential impacts as a result of the Proposed Scheme;
- **e.** Details the design, mitigation and enhancement measures that have been identified;
- **f.** Reports the assessment of the significant effects of the Proposed Scheme; and
- **g.** Details the monitoring that should be carried out for the Proposed Scheme.

8.1.5. The Proposed Scheme has the potential to affect Ecology as a result of:

- **a.** During construction / decommissioning:
  - i. Site and vegetation clearance

ii. Noise and vibration impacts
iii. Visual disturbance of species including by artificial lighting
iv. Releases of pollution via airborne and hydrological pathways

b. During operation:
i. Emissions to air
ii. Noise and vibration
iii. Visual disturbance of species including by artificial lighting
iv. Releases of pollution via airborne and hydrological pathways

OPTIONALITY

8.1.6. For the purposes of this assessment, the options, as described in **Chapter 2 (Site and Project Description)**, **para 2.3.4** affect the construction phase only as Important Ecological Features are exposed to construction phase impacts over a longer period of time. The following option only has therefore been assessed:

a. Option 1: The Carbon Capture Plant associated with Unit 2 is programmed to be constructed first along with the Common Plant, with the Carbon Capture Plant associated with Unit 1 to follow sequentially.

8.1.7. Optionality in relation to steam interconnection (**para 2.2.37**) and AIL route options (**para 2.3.26**) does not affect this assessment. There is no difference in potential effects on habitats or species arising from the steam interconnection optionality. This is because the biophysical changes associated with each option are essentially the same, with no difference in landtake for either option on the basis of the design at DCO Application stage. The AIL route is largely confined to the existing highway with minimal vegetation clearance which is primarily associated with the pruning of overhanging branches and as a result is scoped out of this assessment, regardless of the option selected.

8.2. LEGISLATIVE AND POLICY FRAMEWORK

LEGISLATIVE FRAMEWORK

8.2.1. The applicable legislative framework is summarised as follows.

International

Habitats Directive (92/43/ EEC)

8.2.2. The Habitats Directive (92/43/EEC) sets the standard for nature conservation across the EU and enables all 28 Member States to work together within the same strong legislative framework in order to protect the most vulnerable species and habitat types across their entire natural range within the EU. Measures must be taken by Member States to maintain and restore, at favourable conservation status, natural habitats and species of wild fauna and flora of community interest. It is implemented within England and Wales through the Conservation of Habitats and Species Regulations 2017 (as amended; hereafter referred to as 'the Habitats Regulations')

which allows (amongst other measures) for the designation of Special Areas of Conservation (SAC) and identifies European Protected Species (EPS) relevant to the UK. See National legislation section for a brief summary of post-Brexit changes to the Habitats Regulations.

Birds Directive (2009/147/EC)

8.2.3. The Birds Directive (2009/147/EC) provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. The directive places great emphasis on the protection of habitats suitable for supporting endangered and migratory species, introducing a system of Special Protection Areas (SPA) designated to protect important habitats. The Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2017 (as amended) implement the requirements of the Birds Directive in England and Wales.

Water Framework Directive (2000/60/EC)

8.2.4. This European Union Directive sets out requirements and processes for waterbodies to achieve good ecological and chemical status and the management of river basins more generally. Additional detail (including in relation to the UK Regulations which implement this Directive) is provided in **Chapter 12 (Water Environment)**.

National

The Environment Act 2021

8.2.5. The Environment Act legislates the enhancing of the environment in the UK by introducing measures and targets for improving air quality and waste management, increase recycling, restoring habitats and preventing species decline. This Act introduces a new legally binding target on increasing species abundance of British species by 2030. The Act also sets out the framework to a future requirement for NSIPs to obtain Biodiversity Net Gain.

Conservation of Habitats and Species Regulations 2017 (As Amended)

8.2.6. In the UK, the Habitats Directive was originally transposed into law by means of the Conservation (Natural Habitats, & c.) Regulations 1994 (as amended). The Regulations came into force on 30 October 1994 and have been amended several times. Subsequently the Conservation of Habitats and Species Regulations 2010, was created which consolidated all the various amendments made to the 1994 Regulations in respect of England and Wales. The 2010 regulations have now been superseded by the 2017 regulations, which have also been subject to amendment including as a result of the UK's exit from the European Union (see 'Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019', below). The Regulations provide for the designation and protection of 'European Sites' in England, the protection of 'European Protected Species', and the adaptation of planning and other controls for the protection of European Sites.

Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

8.2.7. The amendment made as a result of the United Kingdom's exit from the European Union (hereafter referred to as the '2019 Habitats Regulations'). Many of the changes to the Habitats Regulations arising from the 2019 Habitats Regulations relate to transferring powers from the European Commission to the appropriate authorities in England and Wales. The process for Habitats Regulations Assessment and the duties of Competent Authorities as defined in the Habitats Regulations remain largely unchanged. In addition, the 2019 Habitats Regulations brought about the following (non-exclusive list):

a. The creation of the National Site Network, which comprises protected sites designated under the 2017 Habitats Regulations.

b. The establishment of management requirements for the national site network.

c. Amendments to the Imperative Reasons of Overriding Public Interest ((IROPI) test to replace the European Commission's former role.

Wildlife and Countryside Act 1981 (As Amended)

8.2.8. The Wildlife and Countryside Act 1981 (as amended; hereafter referred to as the 'WCA') is the principal mechanism for the legislative protection of wildlife in Great Britain. This legislation is the means by which the Bern Convention and (partially) the European Union Directives on the Conservation of Wild Birds (79/409/EEC) and Habitats Directive are implemented in the UK. The WCA includes provisions, amongst others, for the identification and designation of protected species; for the safeguarding and designation of Sites of Special Scientific Interest (hereafter referred to as SSSI); and for the designation of invasive non-native species and measures to control the spread of these.

Countryside and Rights of Way (CRoW) Act 2000

8.2.9. The Countryside and Rights of Way Act 2000 (hereafter referred to as the 'CROW Act') extends the public's ability to enjoy the countryside whilst also providing safeguards for landowners and occupiers. It gives a statutory right of access to open country and registered common land; modernises the rights of way system; gives greater protection to SSSIs; provides better management arrangements for Areas of Outstanding Natural Beauty (AONBs); and strengthens wildlife enforcement legislation.

The Natural Environment and Rural Communities (NERC) Act 2006

8.2.10. The Natural Environment and Rural Communities Act (NERC Act) provides that any public body or statutory undertaker in England must have regard to the purpose of conservation of biological diversity in the exercise of their functions. The intention is to help ensure that biodiversity becomes an integral consideration in the development of policies and plans.

8.2.11. The Environment Act 2021 makes changes (not yet in force) to the NERC Act which updates the general duty to conserve biodiversity by adding a duty to not only

conserve but also enhance biodiversity. Public authorities are expected to produce reports on the action they have taken under this duty when designated by the Secretary of State.

The Protection of Badgers Act 1992

8.2.12. This Act makes it an offence to kill or take a badger, or to interfere with a badger sett unless such action is licenced by Natural England. Sett interference includes damaging or destroying a sett, obstructing access to a sett, and disturbing a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England takes this definition to include seasonally used setts.

The Hedgerows Regulations 1997

8.2.13. The Hedgerows Regulations (1997) make provision for the protection of important hedgerows in England and Wales. The regulations affect hedgerows which are 20 m or more in length or connected at both ends to another hedgerow of any length.

8.2.14. They relate to hedgerows which are on, or adjoining land used for agriculture and / or conservation purposes. They do not include hedges that are attached to or marking the boundaries of a private dwelling.

POLICY FRAMEWORK

8.2.15. The applicable policy framework is summarised as follows:

National

Overarching National Policy Statement (NPS) for Energy (EN-1) (Department of Energy and Climate Change, 2011).

8.2.16. Section 5.3 of the overarching National Policy Statement (NPS) for Energy (EN-1) refers to biodiversity and states that the Applicant should clearly set out any effects of the development on internationally, nationally and locally designated sites of nature conservation importance, on protected species and habitats and other species identified as being of principal importance for the conservation of biodiversity. The Applicant should also demonstrate how the development has taken measures to conserve and enhance biodiversity including how mitigation is proposed to address effects resulting from construction and operation. These elements are considered in **sections 8.8, 8.9** and **8.10** of this chapter.

8.2.17. EN-1 is currently in the process of being updated, with the Draft Overarching National Policy Statement for Energy (EN-1) (Department for Business, Energy and Industrial Strategy, 2021) currently out for consultation. Section 5.4 of the draft EN-1 refers to Biodiversity Net Gain and expands on the existing approach documented in the existing Overarching NPS. Proposals for supporting the delivery of Biodiversity Net Gain are provided in the **Biodiversity Net Gain Assessment Report** and **Outline Landscape and Biodiversity Strategy** (document reference 6.6)

8.2.18. **National Planning Policy Framework** (Ministry of Housing Communities and Local Government, 2021); England's framework of policies by which planning applications are made.

8.2.19. The National Planning Policy Framework (hereafter referred to as the 'NPPF') sets out the Government's planning policies for England. Although the NPPF does not contain specific policies for Nationally Significant Infrastructure Projects (NSIPs), such as the Proposed Scheme, it contains relevant policies specific to ecology and nature conservation (most notably section 118). Moreover, it sets out provisions for biodiversity, including protected sites and species for which local planning authorities (LPAs) must have regard. Planning Practice Guidance (PPG) has been published alongside the NPPF, and is regularly updated, to provide guidance on the implementation of the planning policies. It is also a matter of government policy that Ramsar Sites are considered in the HRA process as well as European Sites, with this set out in para 181 of the National Planning Policy Framework.

Local

Selby District Local Plan. – ENV9, ENV12 and ENV13. Updated in 2019. (Selby District Council, 2005)

8.2.20. Policy ENV9 relates to sites of local importance for nature conservation. This policy states that developments will not be permitted if they are likely to harm these sites unless there are no reasonable alternatives means of meeting the development need and it can be shown that there are reasons that outweigh the need to safeguard sites of local importance for nature conservation

8.2.21. ENV12 relates to impacts on natural features of or access to watercourses. Developments will not be permitted if they are likely to have an impact on these features unless it can be demonstrated that the importance of the development outweighs the interest of these features.

8.2.22. ENV13 relates to developments that are likely to impact the wildlife value of a pond. Developments will not be permitted unless their need outweighs the particular value of the pond and an equivalent habitat can be created on site or elsewhere in the locality with appropriate management measures incorporated into the development

Selby District Core Strategy Local Plan. SP18 (Selby District Council, 2013)

8.2.23. SP18 relates to protecting and enhancing the environment and how the high quality and local distinctiveness of the natural and human-made environment will be sustained. The policy includes nine policy sub-targets which promote safeguarding historic and natural environments, conserving historic assets, promoting effective stewardship of wildlife including protected sites and retaining features of biological and geological interest. The policy also states that developments are to ensure they seek to produce a net gain in biodiversity by designing-in wildlife and retaining the natural interest of a site where appropriate.

8.2.24. An assessment of the relevant policies is detailed further in the **Planning Statement** (document reference 5.2).

8.3. CONSULTATION

8.3.1. **Table 8.1** provides a summary of the consultation undertaken in support of the preparation of this assessment.

Table 8.1 - Consultation Summary Table

Date and Method of Consultation	Consultee	Summary of Key Topics discussed and Key Outcomes
27 January 2021	Natural England	Natural England provided a formal response to the EIA Scoping Opinion Request from PINS. In their Scoping Response to PINS, Natural England provided broad advice as to the matters that should be considered in the Applicant's ES, including statutory and non-statutory designated sites, protected and notable species, Habitats and Species of Principal Importance, and Ancient Woodland and ancient and veteran trees. The Applicant noted Natural England's response and can confirm that these matters are included in the Applicant's ES Ecology Chapter where relevant. These matters are included and discussed in **Section 8.10**.
16 February 2021	NYCC	NYCC provided a scoping response that stated broad agreement to the approach to ecological surveys and assessments and the approach to assessing ecological receptors as part of the EcIA.
22 February 2021 (Virtual meeting)	NYCC / SDC	A conference call with NYCC Principal Ecologist to discuss the scope and assumptions of the ecological survey and assessment work for BECCS. NYCC Ecologist (also representing SDC on ecology matters) agreed to the broad scope and approach taken by the Applicant.
1 September 2021 (teleconference)	NYCC / SDC	A conference call to discuss updates to the ecological survey scope with NYCC Principal Ecologist. The meeting comprised the Applicant providing an overview of the ecological survey and assessment work completed to date. The NYCC Ecologist provided an agreement in principle to the Applicants' proposed scope of ecological survey and assessment work. The Applicant agreed to produce an 'Ecological Survey Scope' note for submission to and agreement with the NYCC Ecologist (who is also acting on behalf of SDC). This was used to confirm agreement to the scope of ecological surveys between NYCC and the Applicant.
28 September 2021	NYCC	Ecological Survey Scope Document issued to NYCC. NYCC's ecologist confirmed agreement to the document. Details of ecological surveys and assessments are outlined in **Section 8.7.**
17 January 2022 (email)	Natural England	The Applicant confirmed their request for a meeting with NE in writing and provided a suggested list of topics for discussion.
9 February 2022	Natural England	DAS request issued to Natural England by the Applicant. A meeting date of 25th February agreed on by Natural England and the Applicant to discuss the suggested list of topics.
25 February 2022	Natural England	Teleconference between Natural England and the Applicant to discuss matters relating to ecology. These matters included air quality, the approach to assessing disturbance impacts on peregrine falcon, the approach to assessing best and most versatile agricultural land, biodiversity net gain and statements of common ground between the Applicant and Natural England.

8.3.2. An **EIA Scoping Opinion (Appendix 1.2)** (document reference 6.3.1.2) was received by the Applicant from the Planning Inspectorate (PINS) on behalf of the Secretary of State (SoS) on 26 February 2021, including formal responses from Statutory Consultees. The responses from PINS in relation to Ecology and how these requirements are addressed by the Applicant are set out in **Scoping Opinion Responses (Appendix 4.2)** (document reference 6.3.4.2).

8.4. SCOPE OF THE ASSESSMENT

8.4.1. The scope of this assessment has been established through an ongoing scoping process. Further information can be found in **Chapter 4 (EIA Methodology)** (document reference 6.1.4).

8.4.2. This section provides an update to the scope of the assessment and updates the evidence base for scoping out elements following further iterative assessment.

ELEMENTS SCOPED OUT OF THE ASSESSMENT

8.4.3. The elements shown in **Table 8.2** are not considered to give rise to likely significant effects as a result of the Proposed Scheme and have therefore not been considered within this assessment.

Table 8.2 - Elements Scoped Out of the Assessment

Element scoped out	Justification
Alteration and degradation of habitats within statutory designated sites as a result of air pollution from construction and decommissioning.	Likely significant effects will not arise due to the distances from the Order Limits to any statutory designated site (in excess of 50 m as per information stated in the Institute of Air Quality Management's (IAQM) guidance on the assessment from demolition and construction (Institute of Air Quality Management (IAQM), 2014)). The air quality assessment within **Chapter 6 (Air Quality)** (document reference 6.1.6) has confirmed that emissions from traffic movements during construction and decommissioning would not trigger significant effects on ecological receptors. Construction would last for a relatively short period (approximately six years), with average construction traffic flows considerably below the peak flows reported in **Appendix 5.1 (Construction Traffic Management Plan)** in Volume 3 of the ES (document reference 6.3.5.3).

Element scoped out	Justification
Alteration and degradation of habitats within non-statutory designated sites as a result of air pollution from construction and decommissioning	Likely significant effects will not arise due to the distances from the Order Limits to any non-statutory designated site (in excess of 50 m as per information stated in the Institute of Air Quality Management's (IAQM) guidance on the assessment from demolition and construction (Institute of Air Quality Management (IAQM), 2014))
Disturbance to protected and notable species as a result of Abnormal Indivisible Load (AIL) traffic	Likely significant effects will not arise due to AIL traffic being largely confined to the existing highway boundary. Vegetation removal would be minor and limited to pruning of overhanging trees, whilst other works would be limited to minor clearance of the highway verge and removal and replacement of street furniture (signage).

ELEMENTS SCOPED INTO THE ASSESSMENT

Construction and Decommissioning Phases

8.4.4. The following elements are considered to have the potential to give rise to likely significant effects during construction and decommissioning of the Proposed Scheme and have therefore been considered within this assessment:

a. Permanent and temporary removal and / or disturbance of habitats within and adjacent to the Proposed Scheme which could result in damage or loss of HPI habitats or habitats otherwise of conservation importance including the severance of ecological networks;

b. Water-borne pollution (sediment loading and accidental release of chemicals) leading to deterioration of habitats including their supporting role for protected and otherwise notable species; and

c. Killing and / or injury of protected species and their supporting habitats due to site clearance and construction activities. Construction noise, vibration, lighting could lead to the loss of species populations.

Operational Phase

8.4.5. The following elements are considered to have the potential to give rise to likely significant effects during operation of the Proposed Scheme and have therefore been considered within this assessment:

a. Alteration and / or degradation of habitats within designated sites as a result of emissions to air and accidental release of hazardous materials;

b. Loss and / or disturbance of protected species and their supporting habitats due to increased noise and vibration, additional lighting and other visual features.

8.5. ASSESSMENT METHODOLOGY

8.5.1. The assessment in this ES is based on the Order Limits as defined in **Figure 1.1** (document reference 6.2.1.1). This report details the analysis and assessment of Likely Significant Effects predicted to arise from the Proposed Scheme on the following categories of ecological receptors:

a. Statutory designated sites;

b. Non-statutory designated sites;

c. Habitats of Principal Importance (HPI) and Species of Principal Importance (SPI); and

d. Protected and notable habitats and species

8.5.2. The Ecological Impact Assessment (EcIA) presented in this ES has been carried out pursuant to relevant legislation, planning policy and guidance. In accordance with the CIEEM EcIA Guidelines (CIEEM, 2018), an assessment will be carried out that collates relevant baseline information to predict the effects of the Proposed Scheme on ecological receptors.

8.5.3. The assessment will determine the potential effects arising from the construction and operational phases of the Proposed Scheme on Important Ecological Features (as defined below), both with and without consideration of secondary mitigation measures.

8.5.4. A significant effect is defined as an effect that could have an impact upon the structure, form, function and conservation status of a designated site, habitat and ecosystem or species population where these are defined as Important Ecological Features. The relative importance of ecological features will be valued against a geographic frame of reference.

8.5.5. Mitigation will be developed on an iterative basis, with the mitigation hierarchy followed; preference is first given to avoiding effects, then reducing remaining effects, before applying targeted mitigation where necessary. Where residual effects remain after application of targeted Mitigation Measures, compensation will then be considered. Best practice guidance for EcIA identifies that *"…Scoping should be a flexible, adaptive and iterative process based on consultations, literature searches, site visits and discussions with the wider project team."* (CIEEM, 2018).

ASSESSMENT OF SIGNIFICANCE

8.5.6. Significant effects on Important Ecological Features are assessed as either positive or negative. Where an effect is neither positive nor negative, this is assessed as not significant or negligible. Each significant effect is assessed based on a number of factors including the magnitude of impact (incorporating intensity, frequency and spatial range) and the sensitivity of habitats and species to developmental changes.

The importance and value of an ecological feature is determined on a geographical scale as follows:

a. International (within Europe);

b. National (relating to the UK, specifically England);

c. County (North Yorkshire);

d. District (Selby); and

e. Local (features that are of importance at a site level but are not valued at District or higher).

8.5.7. The geographical scale of importance for statutory and non-statutory designated sites is assigned based on their designation. For example, European Sites and Ramsar Sites are considered of International importance, because they are designated on the basis of supporting habitats and / or species which are of importance for nature conservation at an international / European level. Sites of Special Scientific Interest and National Nature Reserves are considered to be of 'National' importance because they are designated for supporting habitats, species, and other features of importance for nature conservation at a UK level.

8.5.8. The geographical scale of importance for habitats and species is assigned with reference to any designations or policy provisions that apply. For example, Habitats of Principal Importance (HPI), as identified by the provisions of Section 41 of the NERC Act, are considered of particular importance to the conservation of biodiversity in England. That is not to say that all HPI are considered of 'National Importance'. Extents of such habitats that form an appreciable part of the English resource, would however be considered of 'National Importance'.

8.5.9. The same approach applies to protected or otherwise notable species. For example, great crested newts are recognised as a priority for nature conservation at a European (International) level, by way of their identification as a European Protected Species (EPS) under the Habitats Regulations. Very large populations that make up an appreciable proportion of the European population might rightly be identified as of 'International Importance'. Smaller populations that are not exceptional in the locality they occur and do not contribute particularly to the maintenance of wider populations would be of lesser importance.

8.5.10. The geographical scale of importance for habitats and species is therefore subjective, with the following factors taken into account:

a. Legal protection;

b. Planning policies;

c. Distribution including relative to the Proposed Scheme;

d. Conservation status (i.e., is the habitat/species common and widespread, or rare with a highly localised distribution); and

e. Historical trends.

8.5.11. For the purposes of this assessment, ecological features of ‘Local’ importance or higher are assessed as being "Important Ecological Features" that can therefore experience significant effects. Ecological features of ‘Negligible’ importance are not considered sufficiently important to experience significant effects and are not assessed as being Important Ecological Features and therefore do not fit into a geographical scale. This includes common and widespread species and habitats that are not of conservation interest, not protected by planning policy and are valued lower than those at the Local level and hence cannot experience significant effects.

8.5.12. The relative importance of a significant effect is determined based on the extent to which its integrity or conservation status is compromised (i.e. the magnitude of the effect) and the value of the Important Ecological Feature, defined though the geographical scale. Characteristics such as duration and reversibility of an effect are also included, whereby duration is the time in which an impact is expected to last prior to recovery or replacement of the feature and reversibility is whether an impact is temporary or permanent.

8.5.13. In the context of the EcIA, the significance of an effect is assessed as either significant (an appreciable effect on the structure, form, function and conservation status) or not-significant (no or negligible effect on structure, form, function and conservation status).

8.5.14. **Table 8.3** below sets out how an effect is classified in other ES chapters and how it relates to the CIEEM EcIA Guidelines based on professional judgement.

Table 8.3 EIA Classification terminology and how it relates to CIEEM's EcIA guidelines

EIA Significance as detailed in Chapter 4	**Related CIEEM Assessment Significance Terminology**	
Significant (beneficial) Very Large to Moderate	Significant (beneficial)	Positive effect on conservation status of an Important Ecological Feature at a county, national or international scale
		Positive effect on conservation status, structure, form or function of an Important Ecological Feature at a District scale
		Positive effect on conservation status, structure, form or function of an Important Ecological Feature at a Local scale
Not-significant Slight to Neutral	Not-significant	No effect on structure, form, function or conservation status of an Important Ecological Receptor

EIA Significance as detailed in Chapter 4	Related CIEEM Assessment Significance Terminology	
Significant (adverse) Moderate to Very Large	Significant (adverse)	Adverse effect on structure, form, function or conservation status of an Important Ecological Feature at a Local scale
		Adverse effect on structure, form, function or conservation status of an Important Ecological Feature at a District scale
		Adverse effect on structure, form, function or conservation status an Important Ecological Feature at a County, National or International scale

8.5.15. In addition, a **Habitats Regulations Assessment (HRA) Report** has been completed (document reference 6.8.1). This assesses the potential for the Proposed Scheme to lead to adverse effects on the integrity of internationally designated sites. This is not presented in this ES and is being carried out separately in accordance with the requirements of the Habitats Regulations and NSIP Advice Note 10. The findings presented in the HRA Report have been used to inform the assessment within the ES where relevant.

BIODIVERSITY NET GAIN

8.5.16. In light of the direction of travel provided for by the Environment Act 2021 and the Government's recent consultation on its implementation, a **BNG Assessment Report** (document reference 6.10) has been completed alongside the EcIA presented in this ES. The BNG assessment has been developed pursuant to best practice guidance detailed in CIEEM, IEMA and CIRIA's BNG: Good Practice Principles for Development (IEMA, 2016) and has been prepared using the Biodiversity Metric 3.0 published by Natural England.

8.5.17. Baseline habitat data collected as part of the PEA and additional habitat surveys have been used to inform the habitat calculations for the BNG assessment.

METHOD OF BASELINE DATA COLLECTION

Desk Study

8.5.18. A desk-based assessment was undertaken as part of a **Preliminary Ecological Appraisal (PEA),** which is provided in **Appendix 8.1**. As part of the desk-based assessment a request for biological records was made to North and East Yorkshire Ecological Data Centre (NEYEDC) for designated sites and protected and notable species within a 2 km buffer of the Order Limits. The request included non-statutory

designated sites, Ancient Woodland, Habitats and Species of Principal Importance (HPI / SPI), internationally and nationally protected species, species protected by planning policy and species of local conservation interest. Freely available Natural England datasets were used to search for Internationally designated sites within 15 km of Drax Power Station Site's Main Stack. This distance was applied based on the Environment Agency and DEFRA's air emissions risk assessment guidance (Environment Agency and Department of Food and Rural Affairs, 2016), which identifies this as an appropriate upper bound for the assessment of air quality impacts on internationally and nationally designated sites.

8.5.19. Furthermore, potentially large emitting plant outside of this distance, specifically associated with Keadby 2 and Keadby 3 (22 km from Site) that could act cumulatively with the Proposed Scheme were also included. Additionally, following Statutory Consultation responses from Doncaster Council, an energy from waste plant in Kirk Sandall (21 km from the Site) was included in the cumulative assessment of operational air quality effects. This captured other developments with operational emissions which could have cumulative air quality impacts on human and ecological receptors within the operational phase study area, enabling these to also be included in the cumulative air quality modelling.

Site Visit and Surveys

8.5.20. The **PEA** is also based on the results of an extended Phase 1 Habitat Survey. The extended Phase 1 Habitat Survey was carried out over several visits across a period of five months between February 2021 and July 2021 using Joint Nature Conservation Committee's (JNCC) Phase 1 Habitat Survey Methodology (JNCC, 2016). The survey was carried out on accessible land within the Order Limits including publicly accessible land and land controlled or otherwise accessible to the Applicant.

8.5.21. As part of the extended Phase 1 Habitat Survey, a Preliminary Ground Level Roost Assessment for trees (PGLRA) within the Order Limits and an external inspection of buildings (as per (Collins, 2016)) within the Drax Power Station Site was carried out. Findings of these integrated assessments have been included in the **PEA** report.

8.5.22. The **PEA**, which had due regard to best practice CIEEM guidance (CIEEM, 2017), was finalised in September 2021. The **PEA** report provides an assessment of the ecological baseline relevant to the Proposed Scheme. This has been used to identify those ecological features which could be subject to significant effects and hence are likely to be relevant to the Proposed Scheme.

8.5.23. Alongside the **PEA**, various ecological surveys and assessments have been carried out targeting selected ecological receptors. These comprised:

a. Great crested newt population size class assessment and Environmental DNA (eDNA) sampling (March – June 2021) (**Appendix 8.2 (Amphibian Survey Report)**;

b. Wintering bird surveys (October 2020 – March 2021) (**Appendix 8.3 (Wintering Bird Survey Report)**);

c. Terrestrial invertebrate surveys and sampling (August 2021) (**Appendix 8.4 (Terrestrial Invertebrate Survey Report)**); and

d. Biodiversity Net Gain Assessment.

8.5.24. No other targeted ecological surveys and assessments are considered necessary to support the Proposed Scheme. Ecological data obtained for previous projects such as the Drax Repower Scheme and the Flue Gas Desulphurisation Scheme (planning permission granted via Decision No: 2020/0994/FULM in 2020) have been used alongside the updated surveys mentioned above to inform the assessment in the ES. This approach has been discussed and agreed with NYCC's ecologist (also acting on behalf of SDC). These surveys and assessments are listed below:

a. Peregrine falcon nesting survey (see **Appendix 8.6 (Ecological Impact Assessment - FGD Demolition)** (document reference 6.3.8.6));

b. Bat surveys – external inspections, ground level tree assessments, building surveys, and activity transects (**Appendix 8.7 (Bat Building Emergence Survey Report – Repower)** and **Appendix 8.8 (Bat Tree Roost Assessment Survey Report – Repower)** (document reference 6.3.8.7 and 6.3.8.8));

c. Otter and water vole survey (**Appendix 8.9 (Otter and Water Vole Survey Report – Repower)** (document reference 6.3.8.9));

d. Badger survey (**Appendix 8.10 (Badger Survey Report - Repower (Confidential)**) (document reference 6.3.8.10));

e. Reptile survey (**Appendix 8.11 (Reptile Survey Report – Repower)** (document reference 6.3.8.11)); and

f. Breeding Bird Survey (**Appendix 8.12 (Breeding Bird Survey Report – Repower)** (document reference 6.3.8.12)).

g. Wintering Bird Survey (**Appendix 8.13 (Wintering Bird Survey Report – Repower)** (document reference 6.3.8.13)).

Guidance and Data

8.5.25. The following guidance documents and data sources have been used during the preparation of this Chapter:

a. Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit (JNCC, 2016)

b. Guidelines on Preliminary Ecological Appraisal (CIEEM, 2017)

c. Guidelines on Ecological Impact Assessment (CIEEM, 2018)

d. Advice Note on Lifespan of Ecological Reports and Surveys (CIEEM, 2019)

e. Guidelines for Accessing, Sharing and Using Biodiversity Data in the UK (CIEEM, 2020)

Assessment Assumptions and Limitations

8.5.26. The following assumptions and limitations apply to this chapter:

Assumptions

a. As described in Chapter 2 (Site and Project Description), the Applicant has full planning permission for the demolition of the redundant Flue Gas Desulphurisation (FGD) Plant and associated restoration works at Drax Power Station (2020/0994/FULM). The decommissioning and demolition works of Absorber Units 4, 5 and 6 are scheduled to take place prior to the start of the construction of the Proposed Scheme and their removal has therefore been assumed for the baseline. The demolition of Absorber Units 1, 2 and 3 are scheduled to take place following the completion of the Proposed Scheme and this has therefore been considered in **Chapter 18 (Cumulative Effects)** (document reference 6.1.18);

b. Detailed construction information is not yet available for the Proposed Scheme and this assessment therefore draws on the professional experience of the assessor of other similar projects;

c. Unless otherwise stated, the ecological baseline pertaining to protected and notable species has not changed significantly since the ecological impact assessment within the Drax Repower Environmental Statement in 2018 (Drax Power Limited, 2018). This is because the habitats within Drax Power Station Site have by and large not changed significantly since then and this has been reconfirmed through the updated **PEA** (document reference 6.3.8.1) (as per CIEEM's guidance on the lifespan of ecological reports and surveys (CIEEM, 2019)). The surveys undertaken specifically for the Proposed Scheme (great crested newts, wintering birds, and terrestrial invertebrates) were carried out as a result of habitats becoming more suitable for these species in localised areas within and in proximity to Drax Power Station Site, or due to differences in the Order Limits for the Proposed Scheme relative to the Drax Repower scheme;

d. It is assumed that the culvert carrying the Carr Dyke under the Drax Power Station Site will not be excavated or otherwise disturbed during construction of the Proposed Scheme; and

e. There will be no aerial emissions of ammonia from the Carbon Capture Wastewater Treatment Plant. This is because the design of the Carbon Capture Wastewater Treatment Plant has been modified during the pre-application development of the design and no longer includes an emission point to release ammonia to air (see **Section 2.2** of **Chapter 2 (Site and Project Description)**.

8.6. STUDY AREA

8.6.1. Various study areas are used for the ecological assessment, which comprise a number of different distance buffers per ecological receptor. The following study areas were considered for the purposes of the ES:

a. Within 15 km of the Main Stack for international and national statutory designated sites.

b. Within 2 km of the Order Limits for non-statutory designated sites and HPI.

c. A study area of up to 2 km from the Order Limits for protected and notable species and within the Order Limits for the purposes of the Phase 1 Habitat Survey and subsequent ecological surveys.

8.6.2. These study areas have been developed based on standard good practice produced by CIEEM (CIEEM, 2017) (CIEEM, 2018) (CIEEM, 2020) in addition to professional judgement and to ensure the potential Zone of Influence (ZoI) for the Proposed Scheme are appropriately covered. The study areas have also been informed by emerging design information and in response to work completed by other technical specialists. This is a consistent approach with impacts considered by other chapters such as **Chapter 6 (Air Quality)** in relation to air quality impacts on designated sites and **Chapter 7 (Noise and Vibration)** in relation to acoustic impacts on protected and notable species.

8.7. BASELINE CONDITIONS

EXISTING BASELINE

8.7.1. This section outlines the ecological baseline of the Site which has been obtained from ecological survey and assessments undertaken to support the Proposed Scheme between 2020 and 2021. Information obtained from ecological surveys undertaken for the FGD Planning Permission scheme in 2020 and the Drax Repower scheme in 2018 have also been used to inform this assessment.

8.7.2. The survey data obtained for these projects have been reviewed as per CIEEM's advice note on the lifespan of ecological reports and surveys (CIEEM, 2019). The validity of pre-existing survey data has been assessed by way of an updated **PEA**, to ascertain if significant changes have occurred. Given that habitats within the Order Limits have not changed significantly and the Proposed Scheme is largely located within the Drax Power Station Site and other areas subject to extensive previous ecological survey, it is considered that the data remains valid and appropriate to support the assessment in this ES. Moreover, this approach has been agreed by NYCC's ecologist (see **Section 8.3**).

Designated Sites

8.7.3. Internationally designated sites are valued as being of 'international importance' and include Special Areas of Conservation (SAC), Special Protection Areas (SPA), Candidate Special Areas of Conservation (cSAC), Potential Special Protection Areas (pSPA), Possible Special Areas of Conservation (pSAC) and Ramsar Sites. Nationally designated sites, including Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR) are valued as being of 'national importance'. Local Nature Reserves (LNR) are valued as being of 'County' importance, as are non-statutory designated sites. This reflects the geographical basis of the designations, i.e., International Sites support habitats and species that are deemed important at an international biogeographical level, whilst SSSI are designated on the basis of supporting the best examples of particular habitats, species and ecosystems at a National level. All designated sites identified as part of the desk-based assessment are listed in **Tables 8.4 to 8.6.** Statutory designated sites are displayed on **Figure 8.1** (document reference 6.2.8.1). Non-statutory sites and displayed on **Figure 8.2** (document reference 6.2.8.2).

8.7.4. Distances from the Main Stack for each statutory designated site, as listed in **Table 8.4** and **8.5** below reflect those included in **Chapter 6 (Air Quality)**. These have been included for the purposes of modelling operational emissions to air as per best practice (Environment Agency and Department of Food and Rural Affairs, 2016).

Table 8.4 - Statutory Designated Sites of International Importance within 15 km of the Order Limits

Site Name	Designation	Approximate Distance and Orientation to Site	Approximate Distance and Orientation to Main Stack
River Derwent	Special Area of Conservation (SAC)	0.7 km North	2.2 km northeast
Lower Derwent Valley	Special Protection Area (SPA), SAC, Ramsar	4.3 km northeast	6.4 km northeast
Humber Estuary	SAC, SPA, Ramsar	6.3 km east	7.2 km east
Skipwith Common	SAC	7.6 km north	9.4 km north
Thorne & Hatfield Moors	SPA	9.1 km southeast	10.1 km southeast
Thorne Moor	SAC	9.1 km southeast	10.1 km southeast

Table 8.5 - Statutory Designated Sites within 15 km of the Order Limits

Site Name	Designation	Distance to Site	Approximate Distance and Orientation to Main Stack
River Derwent	SSSI	0.7 km North	2.2 km northeast
Barlow Common	LNR[1]	2.2 km west	2.9 km west
Eskamhorn Meadows	SSSI	2.3 km southeast	3.3 km south-southeast
Lower Derwent Valley	NNR	4.3 km northeast	6.4 km northeast
Barn Hill Meadows	SSSI	5.5 km northeast	6.8 km east
Humber Estuary	SSSI	6.3 km east	7.2 km east
Derwent Ings	SSSI	6.5 km northeast	8.6 km northeast
Went Ings Meadows	SSSI	8.0 km south	8.8 km south
Breighton Meadows	SSSI	4.3 km northeast	6.4 km northeast
Skipwith Common	SSSI	7.6 km north	9.4 km north
Burr Closes, Selby	SSSI	8.5 km northwest	9.3 km northwest
Thorne, Crowle and Goole Moors	SSSI	9.1 km southeast	10.1 km southeast
Forlorn Hope[2]	SSSI	14.8 km southwest	Distance is beyond 15 km

[1] In accordance with EA guidance, air quality modelling of LNR within 2 km of the Main Stack has been completed.
[2] Included within table as SSSI is within 15 km of the Power Station Site. The SSSI is not included in the assessment of effects of operational emissions to air, as it is outside the study area.

Table 8.6 - Non-Statutory Designated Sites of County Importance within 2 km of the Order Limits

Site Name	Designation	Distance to Site
Disused Railway Embankment	Site of Importance for Nature Conservation (SINC) (no longer designated)	0.6 km east
Barmby-on-the-Marsh	Local Wildlife Site (LWS)	1.3 km east
Brockholes	SINC	0.7 km south east
Meadow East of Orchard Farm	SINC	1.2 km west
Barmby Pond	LWS	1.9 km north west
Cobble Croft Wood	SINC	1.4 km west
Common Plantation	SINC	1.4 km west
Hagg Green Lane	SINC	1.7 km north
Sand Pitt Wood and Barffs Close Plantation	SINC	1.9 km west

Habitats

8.7.5. The Order Limits is divided into various Land Use parcels as displayed on the Site Layout Plan in **Figure 1.2 (Indicative Site Layout Plan)** (document reference 6.2.1.2) and comprises a range of habitats. Much of the Drax Power Station Site is dominated by areas of hard standing, existing buildings and other related power station infrastructure but also comprises natural habitats such as amenity and semi-improved grassland located in the north, pockets of broadleaved woodland and scrub in the south and north and landscaped areas in the east and north west. An area in the north west of the Drax Power Station referred to as the Woodyard comprises a mosaic of semi-improved grassland, scrub, swamp and woodland.

8.7.6. The Habitat Provision Area located to the north of the Drax Power Station Site comprises a mosaic of improved and marshy grasslands, arable farmland, waterbodies, ditches and both semi-natural and plantation broadleaved woodland. The semi-natural broadleaved woodland identified comprised elements of a willow carr woodland, dominated by *Salix* sp., and basin mire. Swamp habitats were also

identified within this area of the Order Limits, with the River Ouse banksides bordering the northern extent of this area.

8.7.7. Land within the East Construction Laydown Area comprises arable farmland with bordering intact species-rich hedgerows and tree lines. The area required for Road Modifications comprises predominantly hard-standing and road verges comprising amenity grassland. All habitats recorded within the Order Limits are listed in **Table 8.7** below with their respective habitat areas and are displayed in **Figure 8.3** (document reference 6.2.8.3).

8.7.8. There are two areas outside of the Order Limits, referred to as Arthur's Wood and Fallow Field that have been identified for the provision of ecological mitigation and compensation. These areas are collectively referred to as the Off-Site Habitat Provision Area and displayed within the blue line on **Figure 1.3** (document reference 6.2.1.3).

8.7.9. Arthur's Wood comprises multiple parcels of broadleaved woodland, comprising a mixture of oak (*Quercus robur),* ash *(Fraxinus excelsior),* beech (*Fagus sylvatica),* silver birch (*Betula pendula)* and a ground flora of bramble (*Rubus fruticosa* agg), bluebell (*Hyacinthoides non-scripta)* and Himalayan balsam (*Impatiens glandulifera)*. Fallow Field is made up of rank grassland and former arable land which has recently fallen out of agricultural production, separated by a ditch and a native hedgerow. The western border of Fallow Field is curtailed by ash, hawthorn (*Crataegus monogyna)* and bramble scrub.

Table 8.7 - Summary of Habitats Present within the Order Limits

Land Use Area	Habitats Present	Approximate Area (ha)
Drax Power Station[3]	Broad-leaved woodland – plantation Broad-leaved woodland – semi-natural Coniferous woodland – plantation Mixed woodland - plantation Parkland and scattered trees – broadleaved Scrub – dense / continuous Scrub - scattered Neutral grassland – semi-improved Poor semi-improved grassland	109.37

[3] Including the street furniture and minor vegetation works associated with Works No. 4 (works to facilitate construction access), as set out in **Section 2.3 of Chapter 2 (Site and Project Description)** of Volume 1 of the ES (document reference 6.1.2).

Land Use Area	Habitats Present	Approximate Area (ha)
	Tall ruderal Swamp Standing water Running water Cultivated / disturbed land – amenity grassland Cultivated / disturbed land – introduced shrub Intact hedge, native species-rich Intact hedge. native species-poor Hedge and trees, native species-rich Buildings Bare ground Hardstanding	
Habitat Provision Area	Neutral grassland – semi-improved Improved grassland Poor semi-improved grassland Cultivated / disturbed land – arable Intact hedge, native species rich Intact hedge, native species poor Hedge and trees, native species poor	5.05
East Construction Laydown Area	Broadleaved woodland – plantation Parkland and scattered trees, broadleaved Improved grassland Cultivated / disturbed land – arable Cultivated / disturbed land – amenity Intact hedgerow, native species poor Hedge and trees, native species-poor Dry ditch	7.92

8.7.10. Habitats such as amenity grassland, hardstanding, buildings, bare aground and introduced shrub are considered to be habitats of negligible conservation importance. These habitats are not HPI nor do they form part of any local biodiversity lists. They provide limited suitability to support or sustain protected and notable species.

8.7.11. Six HPIs as identified through the provisions of Section 41 of the Natural Environmental and Rural Communities (NERC) Act were identified as part of the Proposed Scheme PEA. Of the six HPI identified, only hedgerows were identified within the Order Limits. These occur in the Habitat Provision Area, the Off-Site Habitat Provision Area, the north of the Drax Power Station Site, and the East Construction Laydown Area. A limited extent of lowland deciduous mixed woodland and, ponds were identified in proximity to the Order Limits to the north, north-west and north-east. Mudflats were also identified outside the Order Limits to the north, along the banks of the River Ouse. Traditional orchards were identified to the south east of the Order Limits and coastal and floodplain grazing marsh was identified to the west. HPIs are displayed on **Figure 8.3** (document reference 6.2.8.3).

Protected and Notable Species

8.7.12. A range of protected and notable species have been identified within 2 km of the Order Limits. Several habitat types within and in proximity to the Order Limits have been identified as suitable to support protected and notable species. Protected and notable species records are displayed on **Figure 8.5** (document reference 6.2.8.5).

Bats

8.7.13. No records of bat roosts were provided within 2 km of the Order Limits by NEYEDC. 20 records of bats foraging, or commuting were provided by NEYEDC. These records comprised three species of bat which were common pipistrelle (*Pipistrellus pipistrellus)*, soprano pipistrelle (*Pipistrellus pygmaeus)* and noctule (*Nyctalus noctula)*. In addition, records of unidentified bats, that were not identified to species level, were provided. The closest records were all recorded to the west and north of the Order Limits.

8.7.14. Buildings within the Drax Power Station Site were assessed as having low or negligible suitability for roosting bats as per the Bat Conservation Trust guidelines, when assessed during the 2021 extended Phase 1 Habitat Survey. Dusk emergence and dawn re-entry surveys were undertaken on a number of buildings within the Drax Power Station Site during the ecological surveys which were carried out for the Drax Repower scheme in 2017 (WSP, 2018a) and the FGD Planning Permission application in 2020 (WSP, 2020a). No bats were recorded roosting within the Site during the surveys and given the overall low quality of available roosting habitat, no bat roosts are expected to be present within the Drax Power Station Site.

8.7.15. Relatively low bat activity was recorded across all bat activity surveys undertaken in 2018 for the Drax Repower scheme which included the Drax Power Station Site and the Laydown Area. Of the activity recorded, common pipistrelle were the most

dominant species. Bats were mostly recorded flying along edges of woodlands and hedgerows.

8.7.16. The land within the Drax Power Station Site is largely hard standing with infrastructure that is well lit during the night and is largely unsuitable for foraging and commuting bats. The most suitable habitats comprise areas of woodland, scrub, and semi-improved grassland in the north of the Drax Power Station Site. Habitats within the Habitat Provision Area and East Construction Laydown Area such as woodland, hedgerows, and ponds all provide suitable commuting and foraging habitat for bats.

8.7.17. Within the Off-Site Habitat Provision Area, habitats such as broadleaved woodland, hedgerow and scrub provide suitable commuting and foraging habitat for bats.

8.7.18. Commuting and foraging bats are considered to be an Important Ecological Feature at a Local scale.

Badger

8.7.19. Twenty-four records of badger (*Meles meles)* were provided within 2 km of the Order Limits within the last 10 years by NEYEDC. The most recent record was recorded approximately 100 m west of the Order Limits in 2018.

8.7.20. Habitat suitable for supporting badger, in the form of woodland, grassland and hedgerows was present within the Order Limits. Suitable habitat is also present within the Off-Site Habitat Provision Area in the form of woodland, hedgerows and grassland. Signs of badgers including setts, latrines and footprints have been identified within the Order Limits during the ecological surveys for the Drax Repower scheme (WSP, 2018b)

8.7.21. For badger welfare purposes, information on locations of setts is not disclosed here. This information will be provided as a confidential appendix to the ES, provided to PINS and appropriate stakeholders as determined by PINS (for example Natural England and NYCC's Ecologist).

8.7.22. Badgers are common and widespread across the UK. Badger is not identified as a SPI or included on the Selby Biodiversity Action Plan (BAP). The legislation protecting them is in place largely for reasons of preventing animal cruelty rather than because they are considered a priority for conservation. The populations associated with the Proposed Scheme are not of any special local importance. As such, badgers are not considered to be an Important Ecological Feature. Measures to ensure compliance with the legislation protecting them are likely to be required.

Otter

8.7.23. Numerous records of European otter (*Lutra lutra)* were identified from the desk study. Otter are known to inhabit the River Ouse located to the north of the Order Limits and connecting watercourses such as the River Derwent. Various ditches and watercourses within the Order Limits, predominantly within the Habitat Provision Area provide suitable habitat for otter. Otter surveys were undertaken for the Repower scheme in 2018 (WSP, 2018d). No natal dens, resting places or other evidence of

otter was recorded within the Drax Power Station Site. Otter prints and spraints were identified to the north near Carr Dyke, with a potential couch identified to the north west (within 50 m of the Habitat Provision Area).

8.7.24. There are no suitable aquatic or terrestrial habitats for otter within the Drax Power Station Site or the East Construction Laydown Area. Additionally, there are no suitable aquatic habitats within the Off-Site Habitat Provision Area. Otters are considered to be an Important Ecological Feature at up to a County scale, when assessed in the context of the entire Site.

Water vole

8.7.25. Numerous records of water vole (*Arvicola amphibius)* were identified from the desk study. The closest desk study record was located 400 m from the Order Limits with confirmed burrows previously identified to the east of the Order Limits during the ecological surveys for the Drax Repower scheme in 2018 (WSP, 2018d). Waterbodies, ditches and grasslands are present within the Habitat Provision Area which could support water vole. There is no suitable habitat for water vole within the Drax Power Station Site or the Laydown Area. Water voles are considered to be an Important Ecological Feature at up to a District scale, when assessed in the context of the entire Site.

Breeding and wintering birds

8.7.26. Numerous protected and notable bird species records were identified from the desk study, some listed as SPI and / or included on the Selby Local BAP. Records of Schedule 1 bird species such as barn owl (*Tyto alba)* and peregrine falcon (*Falco peregrinus)* have also been identified in proximity to the Order Limits, including birds listed as qualifying features of proximal statutory designated sites.

8.7.27. Peregrine falcon have been confirmed as breeding on the Main Stack during surveys in spring 2020 (WSP, 2020c). Small pockets of scrub and treelines in the north of the Drax Power Station Site provide suitability for a range of breeding birds such as SPI and Selby Local BAP species including hedgerow habitats within the Habitat Provision Area. Given the limited extent of the habitat mosaic in the north of the Drax Power Station Site, this habitat would not support diverse assemblages of wintering birds.

8.7.28. Wintering passerines, waterfowl and wading birds have been identified within the Order Limits, primarily within and in proximity to the East Construction Laydown Area and in proximity to the Habitat Provision Areas during Drax Repower wintering bird surveys. These include fieldfare (*Turdus pilaris)*, redwing (*Turdus iliacus)*, snipe (*Gallinago gallinago)* and woodcock (*Scolopax rusticola)*. Suitable habitat for breeding birds is present within the Off-Site Habitat Provision Area in the form of hedgerows, scrub, woodland and grassland. This area offers some habitat for wintering birds albeit this is limited to grassland and disused arable land only.

8.7.29. Wintering bird surveys undertaken for the Proposed Scheme targeted areas in proximity to the River Ouse and areas to the east of the East Construction Laydown

Area, primarily for identifying important bird species listed as qualifying features of statutory designated sites. Wintering visitors and wetland birds including Golden plover (*Pluvialis apricaria)*, marsh harrier (*Circus aeruginosus)*, pink footed goose (*Anser brachyrhynchus)*, wigeon (*Anas penelope)* and whooper swan (*Cygnus cygnus)* were identified as part of these surveys. These bird species were identified outside of the Order Limits to the east and north east of the East Construction Laydown Area in areas that were associated with the survey requirements for the Existing Drax Jetty (which was initially considered as a possible option for receiving water-borne deliveries of AILs, but was subsequently removed from the Proposed Scheme). SPA bird species recorded more than 250 m from the current Order Limits included golden plover, marsh harrier and lapwing. These were recorded in fields and other habitats adjacent to the River Ouse in the vicinity of the Drax Jetty.

8.7.30. The southern extent of the River Derwent SSSI (approximately 0.7 km north of the Habitat Provision Area) includes assemblages of breeding birds as a notifiable feature. The Humber Estuary SPA and SSSI located 4.9 km to the east is notified in part for its internationally and nationally important numbers of wintering waterfowl and nine passage waders, and nationally important assemblage of breeding birds. Additionally, the Humber Estuary is a designated Ramsar Site for internationally important numbers of waterfowl in winter and nationally important breeding populations in summer.

8.7.31. Breeding and wintering birds are considered to be an Important Ecological Feature at a District scale, in the context of the entire Site.

Reptiles

8.7.32. 20 reptile records were returned within 2 km of the Site, all of which were for grass snake (*Natrix helvetica).* The most recent record was approximately 800 m north west of the Order Limits in 2018.

8.7.33. The Order Limits includes a mosaic of grassland, scrub, woodland and waterbodies which provide potential sheltering, basking and foraging habitat for widespread reptile species such as grass snake, common lizard (*Zootoca vivipara)* and slow worm (*Anguis fragilis).* Other features present such as dead wood, log piles and compost heaps could be utilised by widespread reptiles for shelter, foraging and breeding.

8.7.34. The majority of the Drax Power Station Site is unsuitable for reptiles with the only section of suitable habitat located in the north. The East Construction Laydown Area comprises predominantly arable land and is also largely unsuitable for reptiles. The Habitat Provision Area borders the north of the Drax Power Station Site and comprises a mosaic of grassland, ponds and woodland which provide suitable habitat for grass snake and other reptiles. No reptiles were identified during previous presence / absence surveys for the Drax Repower scheme which targeted suitable habitats within the Power Station Site, undertaken in 2018 (WSP, 2018c). The Off-Site Habitat Provision Area supports rank grassland and disused arable land which offers suitable basking and refuge areas for reptiles.

8.7.35. Reptiles are considered to be an Important Ecological Feature at up to a Local scale. Breeding populations of reptile are unlikely to be resident within the Drax Power Station Site, although habitats in the north of the Drax Power Station Site may be used by grass snakes on an occasional basis.

Amphibians

8.7.36. Records of great crested newt (*Triturus cristatus)*, smooth newt (*Lissotriton vulgaris)*, common toad (*Bufo bufo)* and common frog (*Rana temporaria)* were identified from the desk study. The closest desk study record for great crested newt was located 2.9 km from the Order Limits.

8.7.37. Great crested newt presence was identified in a waterbody to the northwest of the Order Limits during ecological surveys for the FGD Planning Permission in June 2020 (WSP, 2020b). Further population size class assessments were undertaken on five ponds (as displayed on **Figure 8.4**) for the Proposed Scheme (see **Appendix 8.2** (**Amphibian Survey Report**)). The surveys identified a small population of great crested newts using two ponds. Additionally, great crested newt presence was identified in Pond 2 following eDNA sampling. The Off-Site Habitat Provision Area supports suitable terrestrial habitat for amphibians which includes grassland and hedgerow borders. Woodland edges could also be used for hibernation. The dry ditch lining the hedgerow within this area could also support aquatic habitat for amphibians should water levels in this area increase in future.

8.7.38. Amphibian populations present within the ZoI of the Proposed Scheme are assessed as being an ecological feature of up to District importance.

Fish

8.7.39. The River Ouse, located more than 30 m from the Habitat Provision Area beyond the northern edge of the Order Limits, is likely to be critical in sustaining populations of fish species associated with upstream and downstream designated sites. These include the River Derwent SAC and SSSI and The Humber Estuary SAC, SSSI, and Ramsar Site. Relevant fish species include river lamprey (*Lampetra fluviatilis)*, sea lamprey (*Petromyzon marinus)*, and salmonids such as Atlantic salmon (*Salmo salar).* These are considered Important Ecological Features of up to International Importance

Terrestrial Invertebrates

8.7.40. Six records of invertebrate species were returned within 2 km of the Site. One record was of the small heath butterfly (*Coenonympha pamphilus)* approximately 55 m west of the Order Limits. The small heath butterfly is identified as a SPI via the provisions of Section 41 of the NERC Act. It can be found in a variety of habitats which typically include heathland and coastal dunes, but it can also be found on road verges, moorland and in woodland rides. Caterpillar foodplants include fine grasses, especially fescues (*Festuca* spp*.),* meadow-grasses (*Poa* spp.), and bents (*Agrostis* spp).

8.7.41. More than 75 species of terrestrial invertebrate were identified during terrestrial invertebrate surveys of suitable habitat of the Woodyard in the north of the Drax Power Station Site in 2021. Lepidoptera (butterflies and moths) were the most dominant taxonomic group of invertebrates recorded during the survey. Survey locations are displayed on **Figure 8.6** of **Volume 2** of this ES (document reference 6.2.8.6).

8.7.42. Six species were identified as protected and / or notable during the survey including: alder leaf beetle (*Angelastica alni)*, cinnabar moth (*Tyria jacobaeae)*, dusky thorn moth (*Ennomos fuscantaria)*, shaded Broad-bar moth (*Scotopteryx chenopodiata)*, the crescent moth (*Helotropha leucostigma)* and the rustic moth (*Hoplodrina blanda)*, Of the six species, the alder leaf beetle is the only Red Data Book (RDB) species, listed as RDB category K (RDB K), referred to as 'insufficiently known' as per the Pantheon database (Webb, 2018). The remaining five are all SPI via the provisions of Section 41 of the NERC Act.

8.7.43. Suitable habitat for terrestrial invertebrates is present within the Off-Site Habitat Provision Area in the form of rank grassland and broadleaved woodland, although the botanical species diversity within these areas and recent agricultural use suggest especially rare or diverse populations are unlikely to be present.

8.7.44. The invertebrate population is considered to be an Important Ecological Feature of District importance.

Vascular Plants

8.7.45. Much of the Drax Power Station Site comprises hard standing and power station infrastructure. Neutral grassland recorded to the northern limits of the Power Station Site supports an array of vascular plants, mostly common and widespread species. No protected and / or notable vascular plant species were identified as part of the desk study.

8.7.46. During the Phase 1 habitat survey undertaken in July 2021 green-winged orchid (*Anacamptis morio)* was recorded within patchy semi-improved grassland in the north of the Drax Power Station Site. Although widespread in England, the green-winged orchid is classified as Near Threatened on the Vascular Plant Red Data List for Great Britain. It is scarce within North Yorkshire, with only one or two sites recorded as supporting this species and no records within Selby District. Green-winged orchid is considered to be an Important Ecological Feature of District importance.

8.7.47. Small pockets of bluebell *Hyacinthoides non-scripta* were identified within the northern limits of Arthur's Wood in the Off-Site Habitat Provision Area. This species is protected from uprooting via Schedule 6 of the Wildlife and Countryside Act. No other protected or otherwise notable species of vascular plant were identified. Much of the habitat within this area, particularly Fallow Field, comprised low quality arable land and grassland habitat.

Invasive Non-Native Species

8.7.48. Eighteen records of invasive non-native plants were recorded within 2 km of the Order Limits. Those listed were giant hogweed (*Heracleum mantegazzianum)*, Himalayan balsam (*Impatiens glandulifera)* and Rhododendron (*Rhododendron ponticum).*

8.7.49. Stands of Indian balsam (*Impatiens glandulifera)* and cotoneaster (*Cotoneaster* sp.) have previously been recorded within the Drax Power Station Site. These plants are invasive non-native species, listed on Schedule 9 of the WCA (1981, as amended). Indian balsam was also identified within Arthur's Wood within the Off-Site Habitat Provision Area.

8.7.50. INNS are not considered to be Important Ecological Features, but measures may be required during construction to avoid infringing the legislation intended to prevent their spread by human activities.

Future Baseline

8.7.51. The future ecological baseline is expected to remain similar to the existing baseline for at least the next five to 10 years, with no significant changes anticipated. Certain habitats such as the grasslands, scrub and woodland in the north of the Power Station Site including those in the Habitat Provision Area and Off-Site Habitat Provision Area are likely to become more suitable for species such as reptiles and provide further opportunities for breeding birds and foraging and commuting bats if management remains the same. Habitats are likely to mature with grasslands and scrub undergoing succession in the absence of any prescriptive management. Although this is unlikely to alter the valuations of the species groups presented in the Existing Baseline section above.

8.7.52. The climate in the UK is expected to warm over the next 50 years according to UK Climate Projections with hot summers becoming more common. Land is expected to become dryer with soils losing moisture and rainfall patterns are expected to become more variable which could lead to a decline in marshy grassland, carr woodland and other water reliant habitats.

8.7.53. Whilst it is likely that there may be changes in population numbers and distribution of species in the long term within the Order Limits and Off-site Habitat Provision Area, it is problematic to assess the potential impacts of climate warming on ecological features including analysing their population trends as these are also influenced by other environmental factors. The changing of land use as a result of the Proposed Scheme is likely to have a greater influence on biodiversity specifically during construction which is when the majority of effects would take place.

8.8. SENSITIVE RECEPTORS

8.8.1. The following sensitive receptors referred to as Important Ecological Features (IEF) have been assessed:

a. Statutory designated sites of international importance;

b. Statutory designated sites of national importance;
c. Non-statutory designated sites;
d. Habitats of Principal Importance;
e. Bats;
f. Badger;
g. Otter;
h. Water vole;
i. Amphibians;
j. Breeding and wintering birds;
k. Terrestrial invertebrates;
l. Vascular plants;
m. Invasive non-native species; and
n. Fish.

8.9. PRELIMINARY ASSESSMENT OF LIKELY IMPACTS AND EFFECTS

8.9.1. This section details the assessment of significant effects taking account of primary mitigation, as described in **Chapter 2 (Site and Project Description)** but in the absence of secondary mitigation. Secondary mitigation for the Proposed Scheme is described in **Section 8.10** below

CONSTRUCTION AND DECOMMISSIONING PHASES

8.9.2. The likely significant effects for Ecology associated with the construction and decommissioning phases are set out below. It is assumed that both construction and decommissioning would comprise similar activities and take place within a similar footprint.

STATUTORY DESIGNATED SITES

Loss or Mechanical Disturbance of Functionally-linked Land

8.9.3. Functionally-linked land can be defined as the land outside of the boundary of a Site of International and / or National Importance, but which supports the qualifying interests for which the International or National Site has been designated. For example, grassland habitats outside the boundary of a SPA may be used for foraging or roosting by birds that are a qualifying interest of a nearby SPA. Although the grasslands do not fall inside the boundary of the SPA they may be of importance for supporting the bird population of the SPA. There can also be functional linkages for qualifying habitats of an International or National Site, such as those habitats outside of a SAC or SSSI boundary that are homogenous and support the ecological function of habitats within the SAC or SSSI.

8.9.4. Some International and National Sites share a boundary (e.g. Lower Derwent Valley SPA and Lower Derwent Valley NNR) and share the same qualifying interests. Where this occurs, no additional assessment of the national sites is undertaken as the effects are anticipated to be the same.

8.9.5. The River Derwent SAC, Lower Derwent Valley SPA, Lower Derwent Valley Ramsar, Humber Estuary SPA and Humber Estuary Ramsar are all International Sites that could be subjected to significant effects as a result of loss or disturbance to functionally-linked land (see **Table 3.3** of the **HRA Report** (document reference 6.8.1).

8.9.6. Eskhamhorn Meadows SSSI, Burr Closes SSSI, Humber Estuary SSSI, and Thorne, Crowle and Goole Moors SSSI are designated in part for their breeding and wintering bird interest. Given the suitability of habitats in proximity to the Order Limits, these sites could be impacted through the same pathways as the International Sites stated above.

Dust Emissions

8.9.7. As set out in **Section 6.8** of **Chapter 6 (Air Quality)** of Volume 1 of the ES, dust emissions from construction activities could be relevant to ecological receptors up to 50 m from construction activities. There are no qualifying ecological receptors within 50 m of the construction phase study area (see **Figure 6.1** of **Chapter 6 (Air Quality)** of Volume 2 of the ES (document reference 6.1.6) and as such no modelling of dust impacts on ecological receptors (including International Sites) has been completed.

8.9.8. The Habitat Provision Area and Carr Dyke are located to the north and north-east of the Woodyard respectively. Some of the habitats within these areas are within 50 m of the Woodyard. Construction and decommissioning activities could take place within the Woodyard for construction of the Carbon Dioxide Delivery Terminal Compound and as a Construction Laydown Area. The Habitat Provision Area and Carr Dyke may form functionally-linked land that is used occasionally by International Site and National Site qualifying interests. The Habitat Provision Area and Carr Dyke could be used by some of the bird qualifying interests associated with the SPA and Ramsar Sites including SSSIs, as listed in **8.9.4**. Species of note forming part of the qualifying interests include curlew, lapwing, bewick swan, teal, snipe and golden plover.

8.9.9. Carr Dyke also supports suitable habitat for commuting and foraging otters. Otters using Carr Dyke could form part of the qualifying interest populations of River Derwent SAC and Lower Derwent Valley SAC (including River Derwent SSSI).

8.9.10. Dust deposition onto the Habitat Provision Area and Carr Dyke within 50 m of the Woodyard could lead to significant adverse effects on habitats. Deposition of dust onto aquatic and terrestrial habitats can lead to soiling of plant surfaces, affecting photosynthesis and ecological functioning. Effects are more pronounced during periods of drought when dust can build up on vegetation and plants are stressed by other factors. For demolition and construction activities lasting for less than a year, vegetation usually recovers within a year of the activity ceasing (Holman. C., 2014).

8.9.11. Construction and decommissioning activities would last for more than a year and qualifying bird populations of the relevant SPAs (listed in **8.9.8**) and otter populations

associated with Lower Derwent Valley SAC and River Derwent SAC (including River Derwent SSSI) may occasionally use habitats within 50 m of these activities. The assessment for River Derwent SSSI is the same as for River Derwent SAC, as the SSSI does not support any features which are more sensitive to the impacts of the Proposed Scheme than the International Site.

8.9.12. In the absence of mitigation, dust emissions could lead to significant adverse effects on these sites.

Increased Risk of Pollution from Increased Sediment Load

8.9.13. As set out in **Chapter 12 (Water Environment)** in Volume 1 of the ES, Carr Dyke may be at risk of increased sediment loading during construction and decommissioning in the absence of mitigation. The risk is associated with construction activities within the Woodyard, particularly for the Carbon Dioxide Delivery Compound.

8.9.14. Increased sediment loading of Carr Dyke during construction and decommissioning could temporarily reduce the suitability of aquatic habitat for foraging otter, causing the reduction in the availability of prey species. Any otters using the Carr Dyke may also be part of the qualifying interest populations of the River Derwent SAC and Lower Derwent Valley SAC.

8.9.15. Carr Dyke may also be used on occasion by low numbers of wintering birds that are associated with SPA and Ramsar Sites including Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar (and their underpinning SSSI). A number of the wintering birds are also qualifying interests of Eskamhorn Meadows SSSI and Thorne, Crowle and Goole Moors SSSI which include teal, lapwing and curlew.

8.9.16. In the absence of mitigation, increased sediment loading could lead to significant adverse effects on these sites.

Accidental Release of Water Borne Pollutants

8.9.17. As set out in **Section 12.9** of **Chapter 12 (Water Environment)** in Volume 1 of the ES, Carr Dyke may be at increased risk of pollution from accidental spillages of hazardous substances including oils and hydrocarbons during construction and decommissioning.

8.9.18. **Chapter 12 (Water Environment)** also states that the River Ouse, approximately 1.4 km downstream of the Carbon Dioxide Delivery Compound could be at risk of being subjected to pollution events. The River Ouse could potentially receive pollutants via drainage pathways via Carr Dyke, which discharges into the River Ouse. Additionally, drainage from the Site is also discharged into the River Ouse via a piped drainage system. Pollution events would be associated with construction activities for the proposed Carbon Dioxide Delivery Compound and the Drax Power Station Site Construction Laydown Areas and could lead to significant adverse effects in the absence of mitigation.

8.9.19. In the event of a pollution event, aquatic vegetation and fish populations could be impacted within Carr Dyke and subsequently the River Ouse. This could lead to a reduction in the suitability of Carr Dyke for foraging otter in the short to medium term. Any otters using Carr Dyke and / or the River Ouse may also be part of the qualifying interest populations of the River Derwent SAC and Lower Derwent Valley SAC (including River Derwent SSSI).

8.9.20. Moreover, the River Ouse is a migratory route for river and sea lamprey including those moving between the Humber Estuary and the River Derwent. Sea and river lamprey using the River Ouse are also likely to be part of the qualifying interest populations for which the River Derwent SAC and Humber Estuary SAC and Ramsar have been designated. Carr Dyke and River Ouse may also be used by wintering birds that are associated with SPA and Ramsar Sites, particularly Lower Derwent Valley and Humber Estuary Eskamhorn Meadows and Thorne, Crowle and Goole Moors SSSI.

8.9.21. In the absence of mitigation, accidental release of water-borne pollutants could lead to significant adverse effects on these sites.

Disturbance from Noise and Vibration

8.9.22. Increased levels of noise and vibration relative to the baseline situation are anticipated during construction and decommissioning. Data on noise and vibration are provided in **Chapter 7 (Noise and Vibration)** of Volume 1 of the ES (document reference 6.1.7).

8.9.23. There are no International Sites within 0.5 km of the Proposed Scheme. The closest part of the Proposed Scheme to an International Site is the Habitat Provision Area, which is approximately 0.7 km from the River Derwent SAC. Habitats such as ditches in proximity to the Habitat Provision Area provides functionally-linked land for qualifying features of the River Derwent SAC, primarily otter. The Habitat Provision Area exists solely for the implementation of ecological mitigation and compensation measures.

8.9.24. Activities in the Habitat Provision Area include tree and hedgerow planting and pond and wetland creation (see **Figure 2** of the **Outline Landscape and Biodiversity Strategy** (document reference 6.6.2)). This would be a low impact activity, that would be of a short duration (days or weeks) and would generate equivalent or less noise than baseline agricultural activities in the Habitat Provision Area, and in addition be screened from the River Derwent by flood defence embankments on the southern bank of the River Ouse.

8.9.25. The Drax Power Station Site and East Construction Laydown Area, where the majority of construction activities would occur, are located more than 1 km from any International Site. The study area for the construction and decommissioning noise and vibration assessment is set at 1 km from the Order Limits (refer to **Section 7** of **Chapter 7 (Noise and Vibration)** of Volume 1 of the ES).

8.9.26. Given that activities within the Habitat Provision Area would be limited to hedgerow and tree planting and small-scale habitat creation, construction and demolition activities would not take place within 1 km of any International Site. As such, there is no prospect of noise and vibration from the Proposed Scheme affecting land inside the boundary of any International or National Site. As per **Chapter 7 (Noise and Vibration),** this is due to predicted noise and vibration levels during construction remaining below baseline noise levels in proximity to the Order Limits. Moreover, modelled noise levels dissipate with distance from the source.

8.9.27. Noise and vibration could affect qualifying interests of statutory designated sites using habitats outside the boundaries of those sites within functionally-linked land. Agricultural habitats within the Habitat Provision Area, Off-Site Habitat Provision Area, and the East Construction Laydown Area could be used on occasion by some of the bird species which are qualifying interests of the Lower Derwent Valley and Humber Estuary (SPA and Ramsar) designated sites. Carr Dyke and areas within and adjacent to the Habitat Provision Area could be used by otter, which is a qualifying interest of the River Derwent and Lower Derwent Valley SACs.

8.9.28. The assessment of noise and vibration presented in the ES considered several Biodiversity Receptors. The locations of these are shown on **Figure 7.2** of **Chapter 7 (Noise and Vibration)** of the ES (document reference 6.2.7.2). The results of the construction and operational noise modelling for Biodiversity Receptors are set out in **Table 1** of **Appendix 7.6** (Biodiversity Receptors) of **Chapter 7 (Noise and Vibration)** of the ES (document reference 6.3.7.6). Several Biodiversity Receptors (BR 2 – BR6) are located to the north of Drax Power Station Site, within the Habitat Provision Area. These locations were selected to assess potential noise impacts from construction and decommissioning activities. The maximum predicted noise levels are 39 LAeq,T dB. Noise levels under 40dB are equivalent or quieter than ‘a quiet office’. In addition, research collated to inform assessments of waterbird disturbance identifies that SPA bird species are unlikely to be displaced by noise levels under 55 dB.

8.9.29. Agricultural habitats within the Habitat Provision Area, Off-site Habitat Provision Area, and the East Construction Laydown Area could be used on occasion by some of the bird species which are qualifying interests of the SPA.

8.9.30. The Off-Site Habitat Provision Area includes 4 hectares of scrub and former arable farmland habitats that could potentially be of some limited value to wintering SPA bird species for foraging and roosting. The woodland in the north of the Off-Site Habitat Provision Area does not provide suitable habitat for SPA/SSSI bird species. The Off-site Habitat Provision Area would not be subject to construction activities, rather the habitat present would be enhanced to deliver ecological mitigation and compensation and support the delivery of Biodiversity Net Gain (see the **Outline Landscape and Biodiversity Strategy**).

8.9.31. Part of the East Construction Laydown Area and habitats to the east of it were included in wintering bird surveys completed between October 2020 and March 2021

(see **Appendix 8.3** (**Wintering Bird Survey Report**) including **Figure 8.3** of that report). No SPA / SSSI bird species were recorded in the vicinity of the East Construction Laydown Area. As such, the East Construction Laydown Area is not considered to be of importance for SPA / SSSI bird species and is not considered to be functionally-linked land. In addition, the East Construction Laydown Area would be returned to its existing land-use post-construction. The East Construction Laydown Area has therefore not been considered further in relation to noise disturbance of functionally-linked land.

8.9.32. Noise and vibration from habitat creation and management activities in the Habitat Provision Area and Off-Site Habitat Provision Area could potentially disturb low numbers of SPA / SSSI bird species, should any be present at the time that habitat creation activities occurred. If any SPA / SSSI birds were displaced, it is likely that these would be displaced to other suitable habitat in the surrounding landscape. It should be noted that the Off-Site Habitat Provision Area is bisected by a public footpath, and as such is already subject to a degree of regular disturbance from human activity such as dog-walking.

8.9.33. Initial habitat creation activities in this area would likely take less than six months to complete, with occasional follow-up visits to complete habitat management and check on how vegetation is developing. Such visits would be equivalent to ongoing agricultural activities in the wider landscape and are not considered to trigger significant effects.

8.9.34. Given the relatively small size of the off-site Habitat Provision Area, its distance from the River Ouse, the nature of the existing habitats and the short duration and low intensity of habitat creation, noise and vibration disturbance would be unlikely to affect more than a very small proportion (significantly less than 1% of any qualifying interest population) of SPA / SSSI bird species.

8.9.35. In the event that low numbers of SPA / SSSI bird species were displaced, there is extensive alternative habitat available in the local area that they could occupy instead. As such, any displacement of SPA bird species that did occur is not expected to materially affect their condition or ability to persist in the environment.

8.9.36. Otters that form part of the River Derwent and Lower Derwent Valley SAC and associated SSSI populations could potentially be subject to noise disturbance during construction. No other qualifying interests of this SAC are expected to be subject to noise disturbance during construction, as they are not expected to occur in the 1 km study area for construction noise. Given the low level of predicted noise at Biodiversity Receptors, construction and decommissioning noise is not likely to lead to any changes in behaviour by otters, in the event they were using the Carr Dyke or other habitats within or adjacent to the Habitat Provision Area.

8.9.37. In light of the above, the magnitude of no adverse effects as a result of noise or vibration disturbance are predicted to arise.

Visual Disturbance from Plant and Personnel

8.9.38. Increased levels of human activity is anticipated during construction and decommissioning, primarily within the Woodyard and other Construction Laydown Area. It is estimated that 1,000 workers are required to construct the Proposed Scheme. Large machinery such as excavators and piling rigs would also be present on the Drax Power Station Site. Given the possible use of functionally linked land outside of the Order Limits, visual disturbance could lead to significant adverse effects on International Site qualifying interest species, such activities would include use of Construction Laydown Areas for laydown of plant, equipment and materials, light fabrication, storage of topsoil and use for the movement of vehicles.

8.9.39. Construction of the Carbon Dioxide Delivery Compound within the Woodyard could also disturb qualifying interest species using habitats to the north within Carr Dyke and the Habitat Provision Area. This includes qualifying bird interests of the Lower Derwent Valley SPA and Ramsar and Humber Estuary SPA and Ramsar. Qualifying bird interests of National Sites include Eskamhorn Meadows SSSI and Thorne, Crowle and Goole SSSI. Species of note include curlew, bewick swan, teal, lapwing and golden plover. Otter populations using functionally linked land to the north of the Order Limits could also be disturbed. Otters are qualifying interests of River Derwent SAC (including River Derwent SSSI) and Lower Derwent Valley SAC. Additionally, disturbance may also arise as a result of the presence of additional personnel and light vehicles during tree and hedgerow planting and habitat creation measures within the Habitat Provision Area and Off-Site Habitat Provision Area.

8.9.40. In the absence of mitigation, visual disturbance could lead to significant adverse effects on these sites.

Summary of Impacts on Statutory Designated Sites

8.9.41. In the absence of mitigation, construction and decommissioning of the Proposed Scheme is predicted to lead to at most, a **minor adverse** effect that is long term, reversible and **significant at International and National geographical scales**.

Habitats

Order Limits

8.9.42. Construction of the Proposed Scheme and associated site and vegetation clearance work is expected to lead to both temporary and permanent removal of a proportion of habitats within the Drax Power Station Site and East Construction Laydown Area.

8.9.43. This includes both common and widespread habitats and HPIs. Habitats to be lost within the Drax Power Station Site include broadleaved woodland, scattered trees, scrub, amenity grassland and ornamental planting. Habitats anticipated to be lost within the East Construction Laydown Area includes arable land and hedgerows. Habitats located within the footprint of proposed new infrastructure within the Drax Power Station Site are expected to be lost permanently.

8.9.44. Habitat is expected to be lost temporarily within areas required to be cleared for movement of machinery within the East Construction Laydown Area for the duration of construction, between 2024 and 2029.

8.9.45. Proposed Scheme habitat loss is listed in **Table 8.8** below. It should be noted that these areas are approximate areas of loss and based on a worst-case scenario of the Proposed Scheme. This is based on certain areas being cleared within each Works Plan area in the absence of detailed information. Hardstanding and urban features such as buildings, roads and power station infrastructure have not been included in the table. The predicted extent of habitat change at this stage can be seen in **Figure 1** of the **Biodiversity Net Gain Assessment** (document reference 6.10.1). It is assumed that habitats that are to be lost temporarily within the Power Station and East Construction Laydown Area would be reinstated to their former habitat and condition. This includes landscaped habitats, habitats within construction laydown areas and habitats within the electrical connection area.

Table 8.8 Worst-Case Habitat Losses Within Drax Power Station

Habitat Change	Habitat Type	Total Loss (ha)
Permanent Loss	Broadleaved Woodland Semi-improved, neutral grassland Amenity grassland Bare ground Scrub Introduced Shrub	9.72
Temporary Loss	Broadleaved Woodland Semi-improved, neutral grassland Amenity grassland Bare ground Scrub Introduced Shrub	6.83

Table 8.9 Worst-Case Habitat Losses Within the East Construction Laydown Area

Habitat Change	Habitat Type	Total Loss (ha)
Temporary Loss	Arable land Native hedgerow	6.37

8.9.46. Although most of the habitats within the Drax Power Station Site are common and widespread at all geographical scales, they provide a mosaic of supporting habitat for a range of protected and notable species and some limited extents of HPI are present. Habitat loss and disturbance represents a minor adverse, partially reversible impact, leading to an effect **significant at a Local geographical scale**.

Off-Site Habitat Provision Area

8.9.47. Habitat removal including disturbance is also anticipated within the Off-Site Habitat Provision Area in relation to habitat mitigation, creation and enhancement measures. for the Proposed Scheme as outlined in the **Outline Landscape and Biodiversity Strategy.** Works in this area would result in the loss of arable land and alteration of existing grassland. The disturbance as part of the works could cause disturbance to species that may utilise these habitats for breeding, foraging and commuting. It is anticipated that habitat loss and disturbance to these areas would be relatively short term given the nature of activities, and in the long term the use of this area for ecological mitigation and enhancement would increase its suitability for, and use by, terrestrial invertebrates, reptiles, breeding and wintering birds, and foraging / commuting bats. Species-specific assessments are presented in subsequent sections of this report.

Bats

Habitat Loss and Disruption

8.9.48. The construction of the Proposed Scheme including site and vegetation clearance would result in the removal of a proportion of the habitats within the Drax Power Station Site and East Construction Laydown Area. The approximate extent of habitats to be lost as a result of construction of the Proposed Scheme is detailed in **Table 8.8 and 8.9.** It is predicted that these habitats would be lost or subject to a substantial level of disturbance during the construction of the Proposed Scheme. Of the habitats lost, broadleaved woodland, scattered trees, hedgerows and scrub represent the majority of suitable habitat for commuting and foraging bats.

8.9.49. Some habitat loss would be permanent, associated with the footprint of new infrastructure and lasting for at least the duration of the operational period. Other habitat loss would be temporary in nature; this includes clearance and use of the East Construction Laydown Area, which would be subject to clearance and use between approximately 2024 and 2029.

8.9.50. Removal of areas of woodland, scattered trees, scrub and hedgerow would reduce the availability of foraging habitats within the local landscape. This habitat removal may also sever commuting routes used by bats to commute between their roosting sites and other habitats in the wider landscape. The habitats that would be removed are widely represented in the wider local landscape, with suitable foraging and commuting habitat widespread within 5 km of the Drax Power Station Site and an extensive mosaic of woodland to the west. No key commuting routes are expected to be removed as there are existing gaps between affected vegetation as a result of existing roads, areas of hard-standing and lighting within the Power Station Site. Additionally, it is anticipated that there would be no removal of bat roosts as a result of construction as no suitable buildings or trees are present within areas to be cleared or demolished. Common pipistrelle bats were recorded most frequently during transect surveys for the Drax Repower project (WSP, 2018a), with low levels of activity recorded across all surveys.

8.9.51. Habitat loss and disturbance is anticipated to take place within the Off-Site Habitat Provision Area for the purposes of habitat mitigation, compensation and enhancement, although this is primarily associated with ecological enhancement of arable land and grassland habitats. Habitats providing good conditions for commuting and foraging would not be removed but would be disturbed through creation and enhancement works and ultimately would be enhanced. This is not expected to lead to significant effects on foraging or commuting bats.

Disturbance of Individual Bats and their Roosts

8.9.52. Obtrusive lighting from the construction phase could deter bats from using areas of habitat that have previously been unlit. The Drax Power Station Site and East Construction Laydown Area comprise suitable commuting and foraging habitat for bats. Lighting during the construction phase would be designed to satisfy the requirements of the Institute of Lighting Professional's Guidance Note 01/21 'The Reduction of Obtrusive Light' (Insitute of Lighting Professionals, 2021), which would limit potential disturbance effects. Construction would also be carried out primarily during daylight hours (during periods where bats are largely inactive), with working hours restricted to 0700 – 1900 under most circumstances.

8.9.53. Biodiversity Receptor (BR) sites were set up for the purposes of modelling the noise levels at areas where habitats were suitable for supporting important ecological features. The BR sites can be seen on **Figure 7.2** (document reference 6.2.7.2) in Volume 2 of the ES. Noise modelling information in **Chapter 7 (Noise and Vibration)** shows that the highest levels of noise during construction would be 61 and 55 dB, which are located at the Main Stack and BR1 respectively. All other BR would experience noise levels at or below 40 dB. With the exception of BR1, all noise levels are below the modelled baseline ambient sound levels for each location or area and are unlikely to disturb commuting and foraging bats. The closest baseline ambient noise level for BR1 is at location LT8 (west of the Proposed Scheme), which is 48 dB (at its quietest). The modelled noise level for BR1 during construction is 55 dB.

Although slightly higher than the baseline ambient noise level, 55 dB is still considered to be a relatively quiet noise level in the context of the location.

8.9.54. Furthermore, bats are nocturnal animals and are largely active between the hours of sunset and just after sunrise, whereas recorded noise levels at BR1 were greater during the day than overnight. Bats also significantly reduce their activity over the winter period, when days are shortest. Given that construction activities are expected to start at 07:00 and stop at or before 19:00 each day, construction noise levels are unlikely to lead to significant disturbance to commuting and foraging bats.

8.9.55. Construction of the Proposed Scheme is predicted to lead to a minor adverse impact on foraging and commuting bats that is reversible and **significant at a Local geographical scale**.

Badger

8.9.56. Details of the assessment in relation to badgers are presented in a confidential appendix (**Appendix 8.5 (Badger Summary Report)** (document reference 6.3.6.5)) due to the sensitivity of records of this species. This confidential appendix has been provided to PINS, as part of the DCO Application; it is expected that it will be distributed to Natural England, North Yorkshire County Council Ecology Service, and other Statutory and Non-Statutory Consultees as PINS deems appropriate.

8.9.57. In summary, in the absence of mitigation the Proposed Scheme has the potential to lead to the infringement of the legislation protecting badgers and their setts (Protection of Badgers Act (1992), although this is not certain. It may be possible to avoid any such infringements subject to detailed design and the status of badger populations in the vicinity of the Order Limits immediately in advance of construction (which would determine if a licence under the Protection of Badgers Act 1992 is required).

8.9.58. In any event, badger populations associated with the Site are not deemed to be an Important Ecological Feature; hence **no significant effects** are predicted. Mitigation measures may however be required to ensure legal compliance and are referenced briefly in the mitigation section below and described in detail in the Confidential Badger appendix.

Otter

8.9.59. The construction of the Proposed Scheme including site and vegetation clearance would result in the removal of a proportion of the habitats within the Drax Power Station Site. No evidence of otters has been recorded within these areas during previous survey work at the Power Station Site (WSP, 2018d) and no aquatic habitat suitable for otters is present. The Drax Power Station Site is also subject to existing high levels of disturbance. Waterbodies outside the Drax Power Station Site to the north have been found to support otter for the purposes of commuting and foraging. These include Carr Dyke, which is in proximity to the Habitat Provision Area.

8.9.60. No resting places or natal dens were identified, though spraints were recorded on a footbridge over Carr Dyke which indicates likely use by foraging and commuting

otters. Habitat loss within the Power Station Site during construction is not therefore expected to lead to any perceptible impacts on suitable habitat, however noise and visual disturbance could disturb otters from using both terrestrial and aquatic habitat outside the Power Station Site. Disturbance would also be a factor as part of the habitat creation proposals in proximity to Carr Dyke (further outlined in **Section 8.10** below). Visual disturbance from creating new hedgerows could deter otters from commuting and foraging along suitable aquatic habitat, although any such disturbance would take place during day time (otters are typically most active around dusk and dawn and overnight) and be relatively short-lived given the minimal duration required for hedgerow planting activities.

8.9.61. There is abundant alternative habitat for otters present along the River Ouse and associated watercourses both upstream and downstream of the Site. Otters have large home ranges as identified in Ecology of the European Otter (Chanin, 2003) with individual otters commonly having home ranges covering 25 – 50 km of river channel. As a result, otters aren't likely to be frequently using the habitats in proximity to the Drax Power Station Site and are likely to divide their time between habitats that offer greater benefits for resting, breeding and foraging elsewhere.

8.9.62. Construction noise levels modelled in **Chapter 7 (Noise and Vibration)**, specifically **Table 7.16** (baseline noise levels) and **Tables 7.19 to 7.20** (construction noise modelling) shows that construction noise does not increase beyond ambient noise levels in areas of suitable habitat for otter (BR2 and BR3) which otters are likely acclimatised to. As a result, it is anticipated that construction noise would not lead to disturbance to commuting and foraging otters. Construction activities within the Woodyard could however cause visual disturbances to otters through plant, machinery and personnel movement and additional lighting.

8.9.63. Water draining from the Drax Power Station Site could also enter watercourses via Carr Dyke and other drainage pathways (further details are provided in **Chapter 12 (Water Environment).** This could provide an impact pathway affecting the local otter population, for example via the transport of water-borne pollution following a pollution incident or increased silt run-off.

8.9.64. Impacts on otter populations are predicted to be minor and largely reversible with the effect **significant up to a County geographical scale**.

Breeding and wintering birds

8.9.65. Site and vegetation clearance during construction works would result in the removal of a proportion of the habitats within the Drax Power Station Site and the East Construction Laydown Area. The approximate extent of habitats lost (permanently and temporarily) as a result of the Proposed Scheme is provided in **Table 8.8 and Table 8.9,** it is expected that some habitats would be subject to a substantial level of disturbance during construction. A number of these habitats including woodland, grassland, scrub and hedgerows are suitable for a range of breeding and wintering birds. Protected and notable bird species recorded during previous wintering bird surveys are listed in full in **Appendix 8.3 (Wintering Bird Survey Report)**. Some

habitat loss within the Power Station Site would be permanent, which is associated with the built footprint of new infrastructure and lasting for at least the duration of the operation period. Other habitat loss would be temporary in nature, particularly arable land and hedgerows associated with the East Construction Laydown Area which would be subject to clearance and use between approximately 2024 and 2029. Removal and disturbance of habitats would reduce the availability of habitat used by a range of bird species including some species of conservation concern.

8.9.66. As set out in **paragraph 6.8.2** of **Chapter 6 (Air Quality)**, emissions of dust from construction activities could be relevant to ecological receptors up to 50 m from construction activities. Dust deposition could have effects on habitats suitable for supporting breeding and wintering birds, limiting breeding success and reducing foraging opportunities, although such effects are unlikely to materially affect breeding success of populations around the Proposed Scheme.

8.9.67. Construction noise levels modelled in **Appendix 7.2** of **Chapter 7 (Noise and Vibration)** shows that construction noise does not increase beyond ambient noise levels in areas of suitable habitat for breeding birds with the exception of BR1. The closest baseline ambient noise level for BR1 is at location LT8 (west of the Proposed Scheme), which is 48 dB (at its quietest). The modelled noise level for BR1 during construction is 55 dB. Although slightly higher than the baseline ambient noise level, 55 dB is still considered to be a relatively quiet noise level. Although this level of noise may cause some disturbance it is unlikely to cause significant disturbance that would be a detriment to breeding success.

8.9.68. The noise level produced as part of the modelling at the Main Stack (BRS) during construction is 61 dB at a height of 239 m. Noise modelling at the Main Stack was undertaken to ascertain potential disturbance on nesting and roosting peregrine falcon only. This is the highest noise level of all modelled BR locations, likely a result of being proximal to the main areas of construction but given the nesting characteristics of peregrine falcon, this level of noise is unlikely to lead to significant effects on the species. Furthermore, 61 dB it is the predicted output if all construction activities take place simultaneously which is unlikely to be the case throughout construction. Construction activities are likely to be mostly sequential.

8.9.69. Peregrine falcons are known for nesting in urban environments within towns and cities atop tall structures and are habituated to higher-than-normal noise levels (as reported in (Roby, D., Murphy, S, M., Ritchie, R, J., Smith, M, D., and Palmer, A, G., 2002)). A study testing the effects of aircraft noise (aircraft noise levels being typically above 75 dB) on breeding success of peregrine falcon pairs in North America found that responses to noises at or below 75 dB were not pronounced (Roby, D., Murphy, S, M., Ritchie, R, J., Smith, M, D., and Palmer, A, G., 2002) and breeding was not impacted on. Reactive behaviour and aggressive responses in breeding peregrine falcon were identified at noise levels above 85 dB. As a result, noise levels during construction of the Proposed Scheme are unlikely to lead to significant effects on peregrine falcon.

8.9.70. Associated impacts on the use of these areas by breeding birds (excluding peregrine falcon, for which effects are considered to be neutral and not significant) are predicted to be of moderate magnitude, medium-term and fully reversible, and **significant at a District geographical scale**.

Reptiles

8.9.71. Site and vegetation clearance associated with the construction of the Proposed Scheme would result in the removal of a proportion of the habitats within the Drax Power Station Site and East Construction Laydown Area. Suitable habitat for reptiles with connectivity to the wider countryside is limited to the northern part of the Drax Power Station Site or is in the Habitat Provision Area where no construction will take place. Other habitats within the Drax Power Station Site and the East Construction Laydown Area are not suitable for reptiles or are fragmented from other suitable habitat by extents of hard-standing and buildings.

8.9.72. As such only the northern part of the Existing Drax Power Station Site within the Order Limits may be used by reptiles. it is expected that these habitats would be lost or subject to a substantial level of disturbance during the construction of the Proposed Scheme, which would include construction of new infrastructure, movement of machinery and vegetation clearance.

8.9.73. Some loss of habitat suitable for reptiles would be permanent, associated with the built footprint of new infrastructure and lasting for at least the duration of the operational period. Other habitat loss in areas that may be used by reptiles would be temporary in nature. Much of the most suitable reptile habitat is located within the Woodyard in the north of the Existing Drax Power Station Complex, part of which would be permanently removed.

8.9.74. Removal and disturbance of habitats would reduce the availability of suitable reptile habitat within the local landscape. The habitats that would be removed are widely represented in the wider local landscape, with similar habitat types, suitable for reptiles, widespread albeit localised within 5 km of the Order Limits

8.9.75. In addition to habitat loss, any reptiles present within or in proximity to areas of construction would also be at risk of injury or being killed during site and vegetation clearance operations.

8.9.76. Similar effects to those included above would also arise during the habitat creation and enhancement proposals within the Off-Site Habitat Provision Area. Disturbance to grassland and field edges and removal of habitat within this area could prevent reptiles from utilising these areas for basking and use as refuge areas. This would only be in the short term given the nature of these proposals, and following habitat creation and enhancement works, suitability of this area for reptiles would increase.

8.9.77. The predicted extent and duration of habitat loss, associated habitat disturbance and the risk of killing or injuring any reptiles present therefore represents a minor magnitude, partially reversible impact, which is considered to be **significant at up to a Local geographical scale**.

Amphibians

8.9.78. Site and vegetation clearance associated with the construction of the Proposed Scheme would result in the removal of a proportion of the habitats within the Drax Power Station Site and East Construction Laydown Area. The approximate extent of habitats lost as a result of the Proposed Scheme is provided in **Table 8.8** and **8.9** it is expected that these habitats would be lost or subject to a substantial level of disturbance during the construction of the Proposed Scheme, which would include construction of new infrastructure, movement of machinery and vegetation clearance.

8.9.79. Suitable terrestrial habitat for amphibians is primarily located within the Power Station Site, to the north and located within and in proximity to the Woodyard, primarily limited to scrub and grassland. No suitable aquatic habitat has been identified within the Power Station Site.

8.9.80. Population size class assessments for great crested newt were undertaken on five ponds (as displayed on **Figure 8.4**). The surveys identified a small population of great crested newts using two ponds with great crested newt also identified in a further pond following eDNA sampling. Given the connectivity of suitable terrestrial habitat between the Drax Power Station Site and the ponds that support great crested newt (and other amphibians), individual great crested newts and other amphibians could use terrestrial habitats that are to be cleared or disturbed for construction of the Proposed Scheme. This could also result in the killing and / or injury of individual amphibians, including great crested newts.

8.9.81. The predicted extent and duration of habitat loss, associated habitat disturbance and the risk of killing or injuring any great crested newt present represents a minor magnitude, partially reversible impact, which is considered to be **significant at up to a Local geographical scale**.

Terrestrial Invertebrates

8.9.82. The approximate extent of habitats lost within the Order Limits as a result of the Proposed Scheme (based on a worst case scenario) is provided in **Table 8.8** and **8.9** resulting from site and vegetation clearance and placement of new, permanent infrastructure. It is expected that these habitats would be lost or subject to a substantial level of disturbance during the construction of the Proposed Scheme.

8.9.83. Suitable habitat for terrestrial invertebrates is located primarily within the northern limits of Drax Power Station Site, within and in proximity to the Woodyard. Habitats within this area will be subject to clearance and use throughout the construction phase, between approximately 2024 and 2029 and permanently lost for at least the duration of operation.

8.9.84. More than 75 species of terrestrial invertebrate were identified during terrestrial invertebrate surveys of suitable habitat in the north of the Drax Power Station Site in 2021 (WSP, 2021a) including six species identified as protected and / or notable as described in the baseline section. These species include SPI and RDB species that are otherwise scarce in the Selby area.

8.9.85. The loss of suitable habitat would decrease the availability of foodplants for terrestrial invertebrate populations, especially as the mosaic of habitats in the Woodyard are uncommon in the context of the local landscape. Site clearance could also result in the incidental mortality of individual invertebrates present. This could lead to the decline in important populations of terrestrial invertebrates from within this area, ultimately effecting their conservation status within Selby.

8.9.86. Habitat loss and associated disturbance is predicted to be of major magnitude, partially reversible and considered to be **significant at up to a District geographical scale**.

Vascular Plants

8.9.87. It is anticipated that the construction phase of the Proposed Scheme would remove habitat that supports green-winged orchid.

8.9.88. Green-winged orchid populations have been identified within the Woodyard, in the north of Drax Power Station Site during surveys in 2021 (WSP, 2021b). This species has not been identified anywhere else within the Order Limits.

8.9.89. Permanent placement of Proposed Scheme infrastructure within the Woodyard as part of the Proposed Scheme would lead to permanent removal of habitat, other construction activities such as soil stripping, site clearance and movement of machinery could lead to removal of habitat including the removal of all habitat supporting green-winged orchids.

8.9.90. Given the scarcity of green-winged orchid within North Yorkshire, including being classified as Near Threatened on the Vascular Plant Red Data List for Great Britain, construction of the Proposed Scheme would give rise to an adverse impact that is of major magnitude, irreversible and considered to be **significant at a County scale**.

Invasive Non-Native Species

8.9.91. Construction activities within the Drax Power Station Site could potentially result in the spread of Himalayan balsam and *Cotoneaster* sp. into areas they do not currently occupy. This could be via movement of spoil as part of earthworks operations, or via plant and personnel if clothing and equipment is not suitably cleaned following work in areas supporting invasive non-native plant species.

8.9.92. Himalayan balsam was identified in the north of the Power Station Site as identified at Target note 14 in the **PEA**, in **Appendix 8.1 (Preliminary Ecological Appraisal Report)** *Cotoneaster* sp. was also recorded within this area.

8.9.93. Whilst not an IEF, the accidental spread of INNS could result in a breach of legislation pertaining to preventing the spread of INNS, including Section 14 of the Wildlife and Countryside Act (1981, as amended). As such, measures to support legal compliance and prevent the incidental spread of invasive species have been included in the Mitigation section of this chapter.

OPERATIONAL PHASE

8.9.94. The likely significant effects for Ecology associated with the operational phase are set out below.

Statutory Designated Sites of International and National Importance

European Sites

8.9.95. A **Habitats Regulations Assessment Report** (HRA Report) (document reference 6.8.1) has been compiled to provide information on the assessment of effects on European Sites (Special Areas of Conservation; Special Protection Areas; Ramsar Sites). These matters are assessed in the HRA report. A summary of the pre-mitigation effects of the Proposed Scheme is provided below.

8.9.96. In the absence of mitigation measures, the HRA Report identifies potential Likely Significant Effects on European Sites, arising from the following impact pathways, during operation:

a. Operational emissions to air, including their effects on concentrations of nitrous oxide (NOx), ammonia (NH3), and Sulphur dioxide (SO2), and their contribution to nitrogen and acid deposition; and

b. Accidental releases of water-borne pollutants.

8.9.97. Air quality modelling for the operation of the Proposed Scheme (pre-mitigation) is presented in full in **Section 3.5** of the **HRA Report** (document reference 6.8.1) and **Chapter 6** (Air Quality) (document reference 6.1.6). Oxides of nitrogen (NO_x), ammonia (NH_3) and sulphur dioxide (SO_2) would be emitted as part of the Proposed Scheme's operational phase. This could lead to nitrogen and acid deposition on habitats within statutory designated sites of international and national importance. This could contribute to increased nutrient nitrogen levels and acidification of habitats within statutory designated sites which could result in changes to the structure, composition and function of the habitats.

8.9.98. Modelling of emissions has been undertaken as part of **Chapter 6 (Air Quality**) (document reference 6.1.6). The modelling has been used to assess whether the 1% significance screening criterion[4] in relation to impacts on statutory designated sites have been exceeded both alone and in combination with other projects (Environment Agency, 2021).

8.9.99. The air quality modelling for all designated sites is located in **Appendix 6.5 Operational Phase Results: Ecological Receptors** of the Air Quality Chapter, (document reference 6.3.6.5). The air quality assessment identified that significant effects at habitats sensitive to acid deposition could not be screened out at Lower

[4] A critical level is the concentration of a pollutant in air, below which that pollutant is not expected to lead to harm to a designated site or habitat. A critical load is the rate of deposition of a pollutant onto a surface (typically vegetation and soil), below which that pollutant is not expected to lead to harm to a designated site or habitat. Where the impact of a plan or project is less than 1% of the relevant critical level or critical load, the impact may be regarded as insignificant on numerical grounds.

Derwent Valley SAC and Ramsar and Thorne Moor SAC in the “With Proposed Scheme” scenario (see **Section 6.5** of **Chapter 6** (Air Quality) of Volume 1 of the ES (document reference 6.1.6). Air quality modelling in respect of acid deposition for these sites is located in **Table 6.16** in **Chapter 6** (Air Quality**)** of Volume 1 of the ES.

8.9.100. The maximum impact in the With Proposed Scheme scenario on acid deposition onto Lower Derwent Valley SAC and Ramsar is 2.0% of the Critical Load. The maximum impact of the Proposed Scheme on acid deposition onto Thorne Moor SAC is 1.3% of Critical Load. There are no exceedances of the 1% screening criterion for any other pollutants for Thorne Moor SAC and Lower Derwent Valley SAC. Impacts on all other European Sites and for all other pollutants are less than 1% of the relevant screening criterion. This is considered in more detail between **paragraphs 3.6.1** to **3.6.5** of the **HRA** Report (document reference 6.8.1).

8.9.101. The level of acid deposition arising in the With Proposed Scheme scenario is unlikely to lead to perceptible ecological change to the habitats within Thorne Moor SAC or Lower Derwent Valley SAC. It does nevertheless exceed the 1% screening criterion and cannot therefore be considered insignificant on purely numerical grounds. This impact also arises from operation in the With Proposed Scheme scenario alone, without taking into account potential impacts from other plans and projects (these are considered in **Chapter 18** (**Cumulative Effects)** of this ES).

8.9.102. **Section 12.9** of **Chapter 12 (Water Environment)** in Volume 1 of the ES identifies the risk of accidental pollution from the leakage of amine, chemicals and oil, entering the Carr Dyke and River Ouse. This could lead to a deterioration in water quality of these watercourses, in the absence of mitigation. The Carr Dyke and River Ouse are used by otters. Otters using the River Ouse and Carr Dyke may be associated with the populations for which the River Derwent SAC and the Lower Derwent Valley SAC have been designated. The River Ouse is also a migratory route for River and Sea Lamprey, used by populations associated with the Humber Estuary SAC and the River Derwent SAC. It is also possible that low numbers of birds that are qualifying interests of the Lower Derwent Valley SPA and Ramsar, and Humber Estuary SPA and Ramsar could make use of habitats within the River Ouse and Carr Dyke. As such, these qualifying interest features could be affected by any reductions in water quality in these watercourses, in the event of an accidental release of water-borne pollutants. This is considered in **Section 3.6** of the **HRA Report** (document reference 6.8.1).

8.9.103. Given the nature and scale of the modelled air quality impacts and potential hydrological impacts, these are predicted to lead to impacts that are of minor magnitude, long-term, reversible, and are considered to be **significant at up to an international geographical scale**.

8.9.104. The Habitat Provision Area and Off-site Habitat Provision Area may be used by low numbers of SPA / Ramsar bird species, and in the case of the Habitat Provision Area and the adjacent Carr Dyke, by otter. Otter is a qualifying interest of the nearby River Derwent SAC and Lower Derwent Valley SAC.

8.9.105. Given the nature of the proposed habitat maintenance and management requirements, with activities equivalent to ongoing baseline agricultural activities, these are not predicted to lead to significant disturbance of European Site qualifying interests using functionally-linked land. As such, no likely significant effects are predicted to arise

8.9.106. During operation, a workforce of 50 full time staff would be required for operation and maintenance activities (see **Section 2.4** of **Chapter 2 (Site and Project Description)** of Volume 1 of the ES. The workforce would typically be working on the Carbon Capture Plant, which would be located within the Existing Drax Power Station Site, in areas that are currently dominated by hard-standing and existing structures. The Carbon Capture Plant would also be located in excess of 200 m from functionally-linked land to the north of the existing Power Station Site (Carr Dyke and Habitat Provision Area) that may be used by qualifying interests (otters and waterfowl) of European Sites.

8.9.107. Although the exact location of the Carbon Dioxide Delivery Terminal Compound is to be confirmed, some maintenance and monitoring may also be needed within the Woodyard as part of the Proposed Scheme. The approximate location is likely to be approximately 25 m from the downstream end of the culverted section of Carr Dyke and a similar distance from the Habitat Provision Area. These areas could be used by low numbers of SPA / Ramsar Site bird species. Carr Dyke and the Habitat Provision Area are also likely to be used on occasion by otters, which are a qualifying interest of the River Derwent and Lower Derwent Valley SACs.

8.9.108. A relatively low number of personnel would be involved in maintenance during the operational stage of the Proposed Scheme and the majority of their time would be spent in the vicinity of the Carbon Capture Plant.

8.9.109. The majority of any new lighting is likely to be required in the vicinity of the Carbon Capture Plant. This would be located amongst existing buildings and other infrastructure where there is existing lighting, away from the periphery of the existing Power Station Site. As such, any new lighting required for the Carbon Capture Plant is unlikely to introduce significant illumination into functionally-linked land that could be used by SPA / Ramsar bird species or otters. The Carbon Dioxide Delivery Terminal Compound (if delivered as part of the Proposed Scheme) would have minimal lighting requirements (see **paragraph 2.2.43** of **Chapter 2 (Site and Project Description)** of Volume 1 of the ES.

8.9.110. The maximum noise level at Biodiversity Receptors considered to provide functionally linked habitat (BR 5) is 28 dB. These levels are equivalent to a ‘quiet library’ (Health and Safety Executive, 2022). Given the very low levels of noise that would arise from operation of the Carbon Capture Plant, no disturbance of any European Site qualifying interests is predicted to arise.

8.9.111. It is predicted that effects as a result of visual, noise and lighting disturbance on qualifying interests using functionally-linked land adjacent to the Proposed Scheme

would be negligible and therefore **not significant**. No other impact pathways which could lead to effects on statutory designated sites have been identified.

Nationally Designated Sites (SSSI)

8.9.112. The Air quality impacts described above for European Sites are also relevant to some SSSI within 15 km of the Main Stack. The air quality modelling for all designated sites is located in **Appendix 6.5 Operational Phase Results: Ecological Receptors** of **Chapter 6 (Air Quality)** (document reference 6.3.6.5). The air quality assessment identified that significant effects in relation to acid deposition could not be screened out at Breighton Meadows SSSI, Derwent Ings SSSI, Barn Hill Meadows SSSI, and Thorne and Goole Moor SSSI. Air quality modelling in respect of acid deposition for these sites is located in **Table 6.16** in **Chapter 6 (Air Quality)** of Volume 1 of the ES (document reference 6.1.6).

8.9.113. The maximum impact in the With Proposed Scheme scenario on acid deposition onto Thorne Moor SSSI is 1.3% of Critical Load. The impact on Breighton Meadows SSSI is 2.0% of Critical Load. The impact on Derwent Ings SSSI and Barn Hill Meadows SSSI is 1.6% of Critical Load. Impacts on all other European Sites and for all other pollutants are less than 1% of the relevant screening criterion.

8.9.114. **Section 12.9** of **Chapter 12 (Water Environment)** in Volume 1 of the ES identifies the risk of accidental pollution from the leakage of amine, chemicals and oil, entering the Carr Dyke and River Ouse. This could lead to a deterioration in water quality of these watercourses, in the absence of mitigation. The Carr Dyke and River Ouse are used by otters. Otters using the River Ouse and Carr Dyke may be associated with the populations referenced in the SSSI citation for the River Derwent SSSI. The River Ouse is also a migratory route for River and Sea Lamprey, used by populations associated with the River Derwent SSSI and the Humber Estuary SSSI. It is also possible that low numbers of birds that are referenced in the citations for Breighton Meadows SSSI, Derwent Ings SSSI, and Humber Estuary SSSI could make use of habitats within the River Ouse and Carr Dyke. As such, these qualifying interest features could be affected by any reductions in water quality in these watercourses, in the event of an accidental release of water-borne pollutants.

8.9.115. Given the nature and scale of the modelled air quality impacts and potential hydrological impacts, these are predicted to lead to impacts that are of minor magnitude, long-term, reversible, and are considered to be **significant at up to a National geographical scale**.

Non-Statutory Designated Sites

8.9.116. **Appendix 6.5 Operational Phase Results: Ecological Receptors** lists the air quality modelling for all non-statutory designated sites within the Study Area. Data on acid deposition critical loads is not available for non-statutory designated sites, as such it is not possible to compare the acid deposition impacts of the Proposed Scheme against a relevant screening criterion. The air quality modelling does however demonstrate that the Proposed Scheme has comparable impacts in terms

of the quantum of acid deposition onto non-statutory designated sites, to that experienced at more sensitive habitats within statutory designated sites. The air quality modelling also identifies that impacts on locally designated sites are less than 1% of the relevant screening criterion for other modelled pollutants, for all sites.

8.9.117. No other impact pathways which could lead to effects on locally designated sites have been identified. As such, impacts are predicted to be negligible, and effects of the Proposed Scheme are predicted **not significant**.

Bats

8.9.118. No additional habitat loss beyond the habitats cleared during construction, fragmentation, or disruption would take place during the operational phase. As such, there would be no effects on bats relating to direct impacts on habitats.

8.9.119. Artificial lighting associated with operation of the Proposed Scheme could deter light-sensitive species of bat from using habitats that are newly illuminated including those habitats that are adjacent to newly illuminated areas. Bat activity transects carried out in 2018 (WSP, 2018a) recorded low levels of bat activity within the Drax Power Station Site, likely a result of the limited extent of suitable habitat present. impacts in the absence of secondary mitigation are therefore predicted to be minor, long term, reversible and effects would be **significant at a Local geographical scale**.

Otter

8.9.120. Operation of the Proposed Scheme would take place within areas that do not support suitable habitat for otters, with the nearest suitable habitat located within the Habitat Provision Area, outside of the Drax Power Station Site. The closest suitable habitat is Carr Dyke, which is adjacent to the north-eastern boundary of the Power Station Site.

8.9.121. Noise levels within areas of suitable habitat are predicted to be below 35 dB during operation (refer to **Chapter 7 (Noise and Vibration)**). This is of particular relevance at Biodiversity Receptor (BR) 2, BR3 and BR6 which are in proximity to suitable habitat for otter (refer to **Figure 7.2** (document reference 6.2.7.2) for locations). At these locations, to the north of Drax Power Station Site, the baseline ambient sound fluctuates between 48 and 55 dB. Otters are unlikely to be disturbed at or in proximity to these receptor sites given that the operational noise does not exceed that of the ambient sound levels. Otters are likely to be acclimatised to the baseline ambient sound levels. It is therefore anticipated that noise levels during operation would not give rise to significant negative effects on otters. Visual disturbance is anticipated to be minimal and is not expected to have a material effect on otters, as potential sources for this would be limited to operation and maintenance of the Carbon Dioxide Delivery Compound.

8.9.122. As a result, impacts on otters during the operational phase are predicted to be negligible and therefore effects would therefore be **not significant**.

Breeding and Wintering Birds

8.9.123. Following completion of construction and during operation, habitats within the East Construction Laydown Area and the Drax Power Station Site Construction Laydown Areas will be reinstated to their former condition.

8.9.124. It is anticipated that noise levels during operation would not give rise to significant negative effects on breeding and wintering birds. This is due to mitigated noise levels at all receptor locations being below 40 dB (with the exception of BRS located at the Main Stack within the Power Station Site) during operation, as reported in **Chapter 7 (Noise and Vibration)**. The baseline ambient sound levels within the Power Station Site fluctuates between 35 and 50 dB in suitable habitat (such as scrub, grassland and woodland).

8.9.125. Additional noise modelling undertaken as part of **Chapter 7 (Noise and Vibration)** for the purposes of nesting peregrine falcon was carried out. The height parameters were increased from 1 m to 239 m, as peregrine falcon have been confirmed as nesting at this height on top of the Main Stack. Results indicate that with primary mitigation detailed in **Chapter 2** (**Site and Project Description**), the noise level at 239 m is 31.8 dB. Peregrine falcon are demonstrably acclimatised to the ambient noise levels within the power station. Noise levels from the Proposed Scheme during operation would be below the ambient levels.

8.9.126. Given that there would be no increase in noise levels above the ambient sound levels and the acclimatisation of the local bird population within these areas, operational noise is not predicted to lead to a significant negative effect on breeding and wintering birds.

8.9.127. No other impacts from the operational phase are expected to lead to an effect on breeding and wintering birds.

8.9.128. Impacts are therefore predicted to be negligible and therefore **not significant**.

Reptiles

8.9.129. No additional habitat loss, fragmentation, or disruption would take place during the operational phase. As such, there would be no, and therefore **not significant** effects on reptiles relating to direct impacts on habitats during the operational phase.

Fish

8.9.130. As stated in **Chapter 2 (Site and Project Description),** it is anticipated that there would be no change in the existing water abstraction from the River Ouse as part of the Proposed Scheme during operation. The only modification would be through a change in the existing cooling water pumps. Furthermore, as stated in **Chapter 12 (Water Environment)** there is anticipated to be no change in the rate or volume of surface water run off reaching the River Ouse. This is due to the process of surface water collection remaining as per the current method of collection across site by a network of surface water sewers, with the only change being a new sump and pump arrangement.

8.9.131. Some areas of the Proposed Scheme have potential for increased risk of accidental pollution from the leakage of amine, chemicals and oil which could be transported via the surface water drainage systems into the Carr Dyke and the River Ouse where this system currently discharges to. Should an accidental spill affect water quality in these watercourses, local fish populations could be affected via incidental mortality and reductions in habitat suitability.

8.9.132. Given the nature and scale of the potential hydrological impacts, these are predicted to lead to impacts that are of minor magnitude, long-term, reversible, and effects that are considered to be **significant at up to an International geographical scale.**

8.10. DESIGN, MITIGATION AND ENHANCEMENT MEASURES

8.10.1. This section sets out the design, mitigation and enhancement measures which are likely to be required to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment.

DESIGN

8.10.2. No additional measures over and above the primary mitigation measures outlined in **Chapter 2 (Site and Project Description)** of Volume 1 of the ES would be required.

MITIGATION

8.10.3. A **Register of Environmental Actions and Commitments (REAC)** has been produced for the Proposed Scheme (document reference 6.5). The **REAC** sets out how the actions and commitments set out within it (and described in this section) are secured and includes within it a requirement for a Construction Environmental Management (CEMP) to be produced for the Proposed Scheme. Measures applicable to each of the Important Ecological Features are described below.

Statutory Designated Sites of International and National Importance

Construction and Decommissioning: Visual Disturbance of European Site Qualifying Features

8.10.4. The Construction Environment Management Plan (CEMP) and Decommissioning Environmental Management Plan (DEMP) (as included in the **REAC**) would include measures to avoid or minimise potential visual disturbance effects.

8.10.5. Certain construction compounds (such as the proposed compound for the Carbon Dioxide Delivery Compound) and laydown and demolition areas would be surrounded by hoardings to reduce visual effects due to the presence of construction traffic, plant and equipment, as well as demolition of existing and construction of built form. The hoardings would be a minimum of 2.4 m high and would be maintained in good condition for the duration of the relevant construction/decommissioning activity. Solid hoardings would be provided on the eastern, northern, and southern boundaries of the East Construction Laydown Area. They would also be provided around the western, northern, and eastern boundaries of the Woodyard in the Drax Power Station Site Construction Laydown Area.

8.10.6. If constructed as part of the Proposed Scheme, the construction footprint for the Carbon Dioxide Delivery Compound would also be fenced using minimum 2.4 m high hoarding, if visual screening of this would not be achieved by the proposed hoarding around the Woodyard Drax Power Station Site Construction Laydown Area. The requirement for hoarding is secured via the CEMP and DEMP, as per **Requirement 14 and 18** of the **draft DCO** (document reference 3.1)**.**

8.10.7. The measures set out in relation to otters in **paragraphs 8.10.27 to 8.10.28** are also relevant. This is because otters using land adjacent to or within the Proposed Scheme may also form part of the population associated with the River Derwent SAC and Lower Derwent Valley SAC.

Construction and Decommissioning: Sediment-loading and Water-borne Pollution

8.10.8. A series of measures to address potential impacts on water quality during construction and decommissioning have been identified. These are detailed between paragraphs **12.10.12 and 12.10.21** of **Chapter 12** (Water Environment) in Volume 1 of the ES (document reference 6.1.12).

Operational Emissions to Air

8.10.9. Emissions of treated flue gas to air are relevant in terms of potential effects on the concentrations and deposition rates of pollutants onto Designated Sites, as set out in **Section 8.4**. The relevant pollutants are concentrations of NH_3, nitrogen deposition, and acid deposition.

8.10.10. Mitigation measures have been identified to reduce the impact of Main Stack emissions to air in the with Proposed Scheme operational scenario. These mitigation measures primarily bring benefits in reducing acidification effects, but also have minor beneficial effects in terms of the With Proposed Scheme scenario's contribution to nitrogen deposition and NH_3 concentrations.

8.10.11. The following operational changes to the Main Stack emissions parameters have been applied relative to the unmitigated impacts in the with Proposed Scheme scenario:

a. Reduce SO2 emissions by 40%, applied to the two BECCS Biomass Units; and

b. Increase exit temperature of flue gases from the BECCS Units from 80ºC to 103ºC.

8.10.12. The purpose of these measures is to increase buoyancy in the flue gases leaving the Main Stack, thereby improving dispersion of all pollutants, and to reduce the concentration of SO_2 being emitted, thus reducing the With Proposed Scheme scenario's Main Stack emissions contribution to acid deposition and to a lesser extent NH_3 concentrations and nitrogen deposition at the identified sensitive habitats.

Operation: Accidental Releases of Water-borne Pollution

8.10.13. **Requirement 10 (Surface Water Drainage)** of the **draft DCO** requires that the detailed drainage design be substantially in accordance with the **Surface Water**

Drainage Strategy (SWDS) which is documented in **Appendix 12.3** (document reference 6.3.12.3). The measures identified in **Appendix 12.3** would mitigate the potential impact of water-borne pollutants being released into Carr Dyke and River Ouse during operation.

Non-Statutory Designated Sites

8.10.14. The mitigation measures in relation to operational emissions to air for statutory designated sites (see **paragraph 8.10.11**) are also relevant to non-statutory designated sites.

Habitats

8.10.15. As set out in the impact assessment section above, construction of the Proposed Scheme will lead to temporary and permanent habitat loss. Some temporary habitat loss will be short term (primarily site and vegetation clearance within Construction Laydown Areas) with existing habitats reinstated once construction works are complete. Within the Off-Site Habitat Provision Area, habitats are to be lost in favour of better quality and higher condition habitats as part of habitat mitigation, creation and enhancement proposals.

8.10.16. Areas have therefore been proposed for the provision of compensatory habitat. These include areas within the Habitat Provision Area (within the Order Limits) and within the Off-site Habitat Provision Areas (outside the Order Limits). Indicative landscaping and habitat creation and enhancement proposals for these areas are provided in the **Outline Landscape and Biodiversity Strategy** as displayed on **Figures 1 and 2** of that documents (document references 6.6.1 and 6.6.2). A detailed Landscape and Biodiversity Strategy (Landscape and Biodiversity Strategy) would be brought forward at detailed design stage in accordance with the outline strategy, which is secured by a DCO requirement. Proposals for habitat compensation have been designed with regard to the impacts on HPI, primarily hedgerows. Grassland, woodland and wetland habitat creation has also been proposed.

8.10.17. The location and proposals for compensatory habitats and enhancement measures have also been informed by use of the Natural England Biodiversity Metric 3.0 as part of a Biodiversity Net Gain assessment. This metric assigns relative values to habitats depending on a range of factors such as distinctiveness, condition, and scarcity. The metric then combines these factors with the area of each habitat impacted, to provide a score for the number of Biodiversity Units lost. The results of the **Biodiversity Net Gain Assessment** are provided in a separate report.

8.10.18. All new landscape / habitat creation would be subject to a long term (30 year) management and maintenance plan (forming part of the Landscape and Biodiversity Strategy brought forward in accordance with the **Outline Landscape and Biodiversity Strategy)**. The management plan would prescribe the maintenance regimes for all different landscape / habitats considering the aims, objectives and functions of each area of planting / habitat. The management plan would also set out

proposals for monitoring the condition of landscape and habitat creation areas, to assess how these develop post-construction.

8.10.19. The mitigation measures for habitats are secured through **Requirement 7** of the **Draft DCO (Provision of Landscape and Biodiversity Mitigation)** (document reference 3.1) which provides for the bringing forward of a detailed strategy in accordance with the Outline strategy and are also included in the **REAC** (document reference 6.5).

Bats

8.10.20. The proposals for reinstatement, enhancement and compensatory habitat as set out in the **Outline Landscape and Biodiversity Strategy** (Ref 6.6), would provide replacement and enhanced habitats for bats which include:

- **a.** Additional trees and hedgerows within the East Construction Laydown Area,
- **b.** Provision of scrub, waterbodies and other suitable habitats for foraging and commuting bats within the Habitat Provision Area
- **c.** Reinstatement and strengthening of potential bat commuting routes through the local landscape including within the Habitat Provision Area and border habitats within the East Construction Laydown Area.
- **d.** Provision of new woodland, scrub, grassland and hedgerows within the Habitat Provision Area.

8.10.21. A five-metre offset along the eastern hedgerow and southern woodland parcel within the East Construction Laydown Area will protect commuting and foraging habitats within this area. A **Draft Lighting Strategy** (document reference 6.7) has been produced which includes measures to ensure that operational lighting design would minimise impacts from lighting habitats that are currently unlit. A detailed lighting strategy, in accordance with this draft will be approved by the local planning authority pursuant to a DCO requirement.

8.10.22. The mitigation measures for bats are secured through **Requirement 7** of the **Draft DCO** (Provision of Landscape and Biodiversity Mitigation) (document reference 6.6). It is not anticipated that European Protected Species Mitigation Licences would be required as the Proposed Scheme is not impacting on any known bat roosts.

Badger

8.10.23. The information pertaining to badgers is included within confidential **Appendix 8.5** (**Badger Summary Report**) and has been provided to PINS as part of the DCO submission; it is expected it will be provided to Natural England, North Yorkshire County Council and other stakeholders by PINS, as appropriate. The following generic measures are to be implemented for badger:

- **a.** A pre-construction badger survey would be carried out at least three months in advance of site clearance in areas of potential badger habitat commencing to ensure any new information is obtained.

b. A further survey would be completed within one week prior to site clearance commencing. These surveys would reconfirm levels of badger activity in advance of site clearance commencing. This would allow identification of any additional mitigation required, in the unlikely event levels of activity had increased or locations had changed in the three months prior to site work commencing.

Otter

8.10.24. Precautionary measures would be included in the Construction Environment Management Plan (CEMP) and Decommissioning Environmental Management Plan (DEMP) for the Proposed Scheme (as described in the **Register of Environmental Actions and Commitments (REAC)** (document reference 6.5). These are secured by **Requirement 14** (Construction environmental Management Plan) and **Requirement 18** (Decommissioning environmental management plan) of the **draft DCO** (document reference 3.1)) and would include measures to avoid or minimise potential visual disturbance effects.

8.10.25. Certain construction compounds for and laydown and demolition areas would be surrounded by hoardings to reduce visual effects due to the presence of construction traffic, plant and equipment, as well as demolition of existing and construction of built form. The hoardings would be a minimum of 2.4 m high and would be maintained in good condition for the duration of the relevant construction/decommissioning activity. Solid hoardings will be provided on the eastern, northern, and southern boundaries of the East Construction Laydown Area. They would also be provided around the western, northern, and eastern boundaries of the Woodyard Drax Power Station Site Construction Laydown Area.

8.10.26. If constructed as part of the Proposed Scheme, the construction footprint for the Carbon Dioxide Delivery Compound would also be fenced using a minimum 2.4 m high hoarding, if visual screening of this would not be achieved by the proposed hoarding around the Woodyard Drax Power Station Site Construction Laydown Area. The requirement for hoarding is secured via the CEMP and DEMP, compliance with which is secured by **Requirements 14 and 18** of the **draft DCO** (document reference 3.1).

8.10.27. Measures to prevent visual disturbances to otter include provision of hoarding as identified above. Pollution prevention guidelines outlined in the **REAC** (document reference 6.5) that would be included within the CEMP would prevent water-borne pollution impacts to suitable aquatic habitat during construction.

8.10.28. In addition, the following measures would be completed specifically in relation to otter:

a. Pre-construction surveys to reconfirm the status of otter habitat usage of the Site and surrounding watercourses up to 250 m from the Proposed Scheme;

b. Avoidance of any obstructions to established otter paths and access to open water;

c. The marking of, and adherence to, 30 m exclusion zones around any holts and shelters identified as a result of updated survey prior to site clearance and construction activities occurring. If otters are known or suspected to be breeding, the exclusion zone could be extended to a 200 m radius. However, it could be reduced to 100 m depending on the nature of the works, topography and natural screening. This would require judgement from an experienced ecologist; and

d. If breeding was confirmed and exclusion zones of the size set out above were not possible, works would be undertaken in accordance with a European Protected Species (EPS) Mitigation Licence to derogate the legislation protecting otter (except during periods of active breeding). As part of the licence, appropriate compensation would be provided to ensure that alternative habitat is provided in advance of the impact occurring. This would ensure no net loss in available habitat that may be considered to provide functional linkage for the SAC.

8.10.29. A **Draft Lighting Strategy** (document reference 6.7) has been produced which includes measures to ensure that operational lighting design would minimise impacts from lighting habitats that are currently unlit. A detailed lighting strategy, in accordance with this draft would be approved by the local planning authority pursuant to a DCO requirement.

Breeding and Wintering Birds

8.10.30. If carried out during the breeding season, vegetation and site clearance could cause the destruction or damage of active nests and any eggs or live young present. The following measures would therefore be implemented:

a. Vegetation and site clearance would take place between September and February inclusive, i.e., outside the main bird breeding season, wherever practicable. Should it be necessary to remove habitats suitable for breeding birds during the nesting season, these would be subject to a pre-clearance check by an ecologist; and

b. In the event any active nests were found, clearance works would be halted within a minimum distance of 5 m from the nest. This buffer distance would be varied on the advice of the ecologist, dependent on the nature of affected habitats and the species of bird involved. Clearance works would not recommence until any young had fledged and left the nest, with a re-inspection by an ecologist to confirm the absence of active nests.

8.10.31. The measures described above are included in the **REAC** (document reference 6.5) and are secured via the CEMP and DEMP, compliance with which is secured by **Requirements 14 and 18** of the **draft DCO**.

8.10.32. The proposals for reinstatement, enhancement and compensatory habitat as set out in the **Outline Landscape and Biodiversity Strategy** would provide replacement habitat for breeding and wintering birds. This would include:

a. New woodland planting within the farmland area to the north of the East Construction Laydown;

b. New and enhanced hedgerows within the Habitat Provision Area and border habitats of the East Construction Laydown Area;

c. Provision of scrub, wetland habitat within the Habitat Provision Area and reinstated farmland habitats within the East Construction Laydown Area; and

d. Provision of new woodland, scrub and species-rich grasslands within the Off-Site Habitat Provision Area.

8.10.33. The habitat measures for breeding and wintering birds are secured through **Requirement 7** of the **Draft DCO (Provision of Landscape and Biodiversity Mitigation**).

8.10.34. Mitigation in relation to dust emissions includes the following relevant mitigation:

a. Dust management measures during preparation and maintenance of the Site;

b. Daily on-site and off-site inspections, including for evidence of dust soiling and dust deposition;

c. Measures to minimise dust generation from operating vehicles and machinery;

d. Measures to minimise and / or supress dust generation from demolition, fabrication, and construction activities; and

e. Specific measures to address dust generation from earthworks impacts.

8.10.35. Section 1.3 of **Appendix 6.2** (**Construction Phase Dust Assessment**) of Volume 3 of the ES (document reference 6.3.6.2) comprises additional information regarding these measures. Dust mitigation measures are secured via the CEMP and DEMP, compliance with which is secured by **Requirements 14 and 18** of the **draft DCO** (document reference 3.1).

Reptiles

8.10.36. Vegetation clearance in areas that may support reptiles would be carried out under a PMoW, to minimise the risk of individual reptiles being killed or injured. These measures are secured via the CEMP and DEMP, compliance with which is secured by **Requirements 14 and 18** of the **draft DCO** (document reference 3.1).

8.10.37. The proposals for reinstatement, enhancement and compensatory habitat as set out in the **Outline Landscape and Biodiversity Strategy** (document reference 6.6), would provide replacement habitat for local reptile populations (if required), which would include:

a. Enhancement of field margins around the East Construction Laydown Area;

b. Creation of a waterbody, species rich grassland, woodland and scrub within the Habitat Provision Area; and

c. Provision of new and enhanced scrub, woodland and species-rich grasslands within the Off-Site Habitat Provision Area.

Amphibians

8.10.38. Vegetation clearance in areas that may support amphibians would be carried out under a PMoW, to minimise the risk of individual amphibians being killed or injured. This would be implemented by the Main Contractor during implementation of the Proposed Scheme. These measures are secured via the CEMP and DEMP, compliance with which is secured by **Requirements 14 and 18** of the **draft DCO**.

8.10.39. Use of the SDC District Level Licence (DLL) would be secured through an application to Natural England. The DLL implements strategic mitigation for great crested newt within Selby and more widely within North Yorkshire and would therefore provide an appropriate mechanism to mitigate the effects of the Proposed Scheme on great crested newts. This would address the effects of the Proposed Scheme on GCN habitat. An application to use the DLL scheme is being submitted to Natural England, with the initial stages of the DLL process expected to be complete prior to Examination of the Proposed Scheme commencing.

Terrestrial Invertebrates

8.10.40. Suitable habitat within the Woodyard could be lost permanently for at least the duration of operation (based on worst case habitat losses). The following measures would be implemented to mitigate impacts on terrestrial invertebrates and are documented in full in the **Outline Landscape and Biodiversity Strategy**:

a. Habitat creation in the Off-Site Habitat Provision Area would include suitable habitat features for a range of terrestrial invertebrate species, including those recorded during the terrestrial invertebrate surveys of the Woodyard; and

b. Habitat compensation for terrestrial invertebrates using habitat features from the existing Woodyard would be used to create new habitat within the Order Limits in the Habitat Provision Area and the Off-Site Habitat Provision Area.

8.10.41. The mitigation measures for terrestrial invertebrates are secured through **Requirement 7** of the **Draft DCO (Provision of Landscape and Biodiversity Mitigation)** and are also included in the **REAC**.

Vascular Plants

8.10.42. Green-winged orchids would be removed as part of the site and vegetation clearance within the Woodyard. Although some of this area is expected to regenerate following construction, natural regeneration and re-colonisation of green-winged orchids may not occur due to disturbed soils including removal of the symbiotic fungi required for this species to grow.

8.10.43. A mitigation strategy for green-winged orchids is included in the **Outline Landscape and Biodiversity Strategy**. This includes:

a. The translocation of individual orchids to a receptor site which is located within Fallow Land within the Off-site Habitat Provision Area to the west of Drax Power Station Site (see **Figure 1** in the **Outline Landscape and Biodiversity Strategy** (document reference 6.6.1);

b. The receptor site would be prepared with translocated soils from the Woodyard; and

c. Individual orchids carefully removed from the existing site and replanted at the receptor site.

8.10.44. The mitigation measures for green-winged orchids are secured through **Requirement 7** of the **Draft DCO (Provision of Landscape and Biodiversity Mitigation)** and are also included in the **REAC**.

Invasive Non-Native Species

8.10.45. To address the risk of spreading invasive non-native plant species (Indian balsam and *Cotoneaster* species) an invasive species strategy would be produced by the Contractor implementing the Proposed Scheme.

8.10.46. A pre-construction ecological walkover survey would be completed in the active growing season (approximately April to August inclusive) prior to vegetation and site clearance commencing in any part of the Site.

8.10.47. The mitigation measures in relation to invasive non-native plant species would be included in the CEMP and DEMP and are included in the **REAC**. Production of and compliance with a detailed CEMP and DEMP is secured by **Requirements 14 and 18** of the **draft DCO**.

8.11. ASSESSMENT OF LIKELY SIGNIFICANT EFFECTS

8.11.1. This section details the assessment of significant effects taking account of the secondary mitigation detailed in **Section 8.10** above. Given that decommissioning would largely take place within the Existing Drax Power Station Site, it is assumed that construction and decommissioning would be similar in their effects.

CONSTRUCTION AND DECOMMISSIONING PHASES

Statutory Designated Sites of International and National Importance

8.11.2. Following implementation of the mitigation measures set out in **Section 8.10**, effects on statutory designated sites are predicted to be **not significant** during construction and decommissioning.

Non-Statutory Designated Sites

8.11.3. Following implementation of the mitigation measures set out in **Section 8.10**, effects on non-statutory designated sites are predicted to remain **not significant** during construction and decommissioning.

Habitats

8.11.4. Following implementation of the mitigation measures set out in **Section 8.10**, it is predicted that the impacts of habitat loss would remain as a minor adverse with effects predicted to be **significant adverse** in the short term **at a Local scale** whilst planting matures and establishes during this period. On the basis that

decommissioning activities are expected, in the main to be no more extensive or carrying any greater risk of environmental impacts than construction, and would take place at least partly in areas of the Site that were cleared for construction, impacts during decommissioning are likely to be negligible and therefore **not significant**. Any dust or disturbance impacts arising from demolition activities would be managed pursuant to standard best practice measures which would be secured through the Decommissioning Environmental Management Plan (secured via **Requirement 18** of the **draft DCO**), with mitigated impacts expected to be no greater than those associated with construction.

Bats

8.11.5. Following implementation of the mitigation measures set out in **Section 8.10**, impacts on bats are expected to be minor adverse, and hence **significant adverse at a Local scale** in the short term until compensation measures have reached their target condition.

Otter

8.11.6. Following implementation of the mitigation measures set out in **Section 8.10**, effects on otters are predicted to be **not significant** upon completion of construction and decommissioning.

Breeding and Wintering Birds

8.11.7. Given the clearance of habitats during construction, there would be a loss in suitable nesting habitat for breeding birds including foraging and roosting habitat for wintering birds. Impacts on breeding and wintering birds are therefore predicted to remain moderate adverse with effects predicted to be **significant adverse at a District scale** in the short term until compensation measures have reached their target condition.

Reptiles

8.11.8. Following implementation of the mitigation measures set out in **Section 8.10** effects on reptiles are predicted to be **not significant**.

Amphibians

8.11.9. Following securing of strategic mitigation measures via DLL and site-specific mitigation measures as set out in **Section 8.10** it is predicted that effects on great crested newts would be **not significant**.

Terrestrial Invertebrates

8.11.10. Following implementation of the mitigation measures set out in **Section 8.10** impacts on terrestrial invertebrates are predicted to be minor adverse with effects predicted to be **significant adverse at a Local scale** in the short term prior to compensation measures reaching their target condition.

Vascular Plants

8.11.11. Following implementation of the mitigation measures set out in **Section 8.10** impacts on vascular plants are predicted to reduce to minor magnitude, with effects predicted to be **adverse, significant at a County scale** in the short term until successful establishment of the green-winged orchid receptor site is complete.

OPERATIONAL PHASE

Statutory Designated Sites of International and National Importance

8.11.12. Following implementation of the mitigation measures set out in **Section 8.10**, impacts on statutory designated sites are predicted to be negligible with effects predicted to be **not significant** in the With Proposed Scheme scenario. The proposed operational emission control measures set out in **Section 8.10**, would reduce the rate of acid deposition and to a lesser extent the rate of nitrogen deposition and concentrations of pollutants reaching statutory designated sites. With implementation of these mitigation measures, there are no exceedances of the 1% screening criterion for any pollutant at any designated site, with the exception of Lower Derwent Valley SAC and Ramsar Site, Breighton Meadows SSSI, and Barn Hill Meadows SSSI. For these sites, a maximum annual impact equivalent to 1.1% of critical load for acid deposition has been modelled, post-mitigation. This is summarised in **Table 8.10,** below.

Table 8.10 Modelled Maximum Operational Phase Impacts at Ecological Receptors for Annual Acid Deposition (Without versus With Mitigation Applied)

Designated Site	Critical Load (keq/ha/yr)	Max PC (Impact) – No Mitigation (keq/ha/yr)	Max PC (Impact) – With Mitigation (keq/ha/yr)	Max PC as % of CL – No Mitigation	Max PC as % of CL – With Mitigation
Lower Derwent Valley SAC	0.643	0.01	0.01	2.0%	1.1%
Lower Derwent Valley Ramsar	0.643	0.01	0.01	2.0%	1.1%
Breighton Meadows SSSI	0.643	0.01	0.01	2.0%	1.1%
Barn Hill Meadows SSSI	0.633	0.010	0.007	1.6%	1.1%
Thorne Moor SAC	0.462	1.74	1.74	1.3%	0.7%
Thorne Moor SSSI	0.462	1.74	1.74	1.3%	0.7%
Derwent Ings SSSI	0.643	2.41	2.42	1.6%	0.9%

8.11.13. Different critical loads are available on the APIS website for the qualifying interest grassland habitats of these sites, depending on whether the 'acid grassland' or 'calcareous grassland' acidity class is used. On a precautionary basis, the air quality modelling has been based on the 'acid grassland' acidity class, as this is more sensitive to acidification effects than the 'calcareous grassland' acidity class (Air Pollution Information System, 2022).

8.11.14. In order to ensure it represents a realistic worst-case scenario, the air quality modelling is based on several conservative assumptions. These are described in detail between paragraphs **6.5.15** and **6.5.36** of **Chapter 6 (Air Quality)** of Volume 1 of the ES. They comprise the following in relation to the modelling of the Proposed Scheme alone (i.e., without consideration of other plans and projects):

a. Modelling has been completed using meteorological data from each of five years (2016 – 2020), with the results from the maximum (i.e., worst) year presented; and

b. The modelling of the Proposed Scheme assumes that the two BECCS Biomass Units would both operate at continuous full load (8,760 hrs per year), which in reality would be unlikely to occur;

c. Assessment of maximum impacts anywhere in a designated site, irrespective of area represented by the maximum; and

d. Assessment against the lower threshold of the recommended critical loads.

8.11.15. Given these elements of conservatism, the impacts of 1.1% on the statutory designated sites in **Table 8.10** are considered to be analogous with an impact of 1% of the Critical Load i.e., the screening criterion. This is not expected to trigger any perceptible changes in the condition of the lowland hay meadow qualifying interest habitats, and hence impacts on non-statutory designated sites are predicted to be negligible with effects predicted to be **not significant** during operation.

Non-Statutory Designated Sites

8.11.16. Following implementation of the mitigation measures set out in **Section 8.10**, impacts on non-statutory designated sites are predicted to remain negligible with effects predicted to be **not significant** in the With Proposed Scheme scenario.

Habitats

8.11.17. With the establishment of reinstated, created and enhanced habitats on and off-site as per mitigation measures in **Section 8.10**, impacts on habitats are predicted to be neutral with effects predicted to be **not significant** during operation.

Bats

8.11.18. With the implementation of a sensitive lighting strategy during operation including maturation and establishment of reinstated habitats and planting as per the mitigation measures in **Section 8.10**, the operational phase would result in a minor, positive impacts with residual **beneficial** effects **significant at a Local scale** in the long term.

Breeding and Wintering Birds

8.11.19. With the establishment of reinstated and created habitats and maturation of planting as per the mitigation measures in **Section 8.10**, operational effects would result in minor, positive impacts with residual **beneficial** effects **significant at a Local scale** in the long term.

Otter

8.11.20. With the implementation of the mitigation measures set out in **Section 8.10,** impacts on otters are predicted to be neutral and therefore effects are predicted to be **not significant**.

Amphibians

8.11.21. With the implementation of the mitigation measures as set out in **Section 8.10**, including use of the Selby great crested newt District Level Licence (DLL) impacts on great crested newt and other amphibians are predicted to be minor, positive, and effects are predicted to be **significant beneficial at a Local scale** in the long term.

Terrestrial Invertebrates

8.11.22. Upon establishment of planted areas and maturation as per the mitigation measures in **Section 8.10**, operational impacts would be minor, positive with effects predicted to be **significant beneficial at a District scale** in the long term.

Vascular Plants

8.11.23. Providing the management and maintenance of the green-winged orchid receptor site is implemented as per the mitigation measures in **Section 8.10**, impacts on vascular plants are predicted to be neutral and therefore effects are predicted to be **not significant** in the long term.

Fish

8.11.24. Impacts in relation to the fish populations associated with the River Ouse, the River Derwent, and the Humber Estuary are predicted to be neutral and therefore effects are predicted to be **not significant**.

8.12. CUMULATIVE EFFECTS

8.12.1. An assessment of intra-project combined effects and inter-project cumulative effects for the Proposed Scheme in relation to ecology has been carried out and is presented in **Chapter 18 (Cumulative Effects)** of the ES and **Appendix 18.5 (Cumulative Assessment Matrix)** of Volume 3 of the ES (document reference 6.3.18.5).

8.13. IN-COMBINATION CLIMATE CHANGE IMPACTS

8.13.1. The in-combination climate change impact assessment considers the extent to which climate change may alter the effects which have already been identified within this

chapter and the potential change in the ecological baseline as detailed in the Future Baseline section.

8.13.2. The effects that have been considered within this chapter have been assessed against likely climate hazards, as set out within **Chapter 14 (Climate Change Resilience)** (document reference 6.1.14), and the effects identified are not anticipated to change significantly as a result of these hazards. This is due to the low to medium likelihood of these hazards taking place in combination with the mitigation proposals documented in **Chapter 14 (Climate Change Resilience)** and **Outline Landscape and Biodiversity Strategy**. Measures documented in the **Outline Landscape and Biodiversity Strategy** primarily include planting of species that are resilient to increased temperatures and flooding.

8.14. MONITORING

8.14.1. Ecological monitoring surveys would be required to assess the efficacy of the mitigation stated in **Section 8.10** and confirm the findings of this impact assessment. The monitoring would be secured by Requirement 8 of the **Draft DCO (Provision of Landscape and Biodiversity Mitigation Strategy).**

Habitats

8.14.2. A walkover survey of landscape and habitat creation areas including reinstated, created, and enhanced habitats would be completed in years 1, 3, 5, and 10 following completions of the construction phase. This would assess the success of habitat mitigation measures.

Bats

8.14.3. Walkover surveys of reinstated, created and enhanced habitats on and off-site to assess suitability for foraging and commuting bats would be completed. In addition, bat activity transect surveys would be completed to assess any evident changes in bat populations. Surveys would be completed between May and September in years 3 and 10 following completion of the construction phase.

Otter

8.14.4. Targeted otter surveys of watercourses and waterbodies within the Order Limits would be completed in years 1 and 3 following completion of construction. The proposed surveys would ascertain if otters are still inhabiting the features where they have been previously recorded.

Breeding and Wintering Birds

8.14.5. Walkover surveys of reinstated, created and enhanced habitats within on and off-site areas to assess suitability of these for breeding and wintering birds would be completed. Targeted breeding bird surveys of landscape and habitat creation areas would also be completed. These surveys would be completed between April and July in years 3 and 10 following completion of construction.

8.14.6. Targeted wintering bird surveys of habitats in the Habitat Provision Area and East Construction Laydown Area would be completed between September and March of years 3 and 10 following completion of construction. These would confirm the distribution and abundance of wintering bird species and identify whether any changes could be linked to changes arising from the Proposed Scheme.

Terrestrial Invertebrates

8.14.7. Walkover surveys of reinstated, created and enhanced habitats including areas of plug planted and seeded areas to assess suitability and success, would be carried out in years 3 and 10 following completion of habitat creation within the Habitat Provision Area and Off-Site Habitat Provision Areas.

8.14.8. Targeted terrestrial invertebrate surveys would be undertaken in years 3 and 10 following completion of habitat creation to ascertain the level of colonisation of each area by terrestrial invertebrates following completion of construction. In particular, surveys would seek to re-establish the presence of the Red Data Book species identified during surveys carried out to date for the Proposed Scheme.

Vascular Plants

8.14.9. Walkover survey of the green-winged orchid receptor site to assess the success of the mitigation measures for this species. Targeted surveys to assess the presence of green-winged orchid would be completed within the receptor site within the Off-site Habitat Provision Area-. Surveys would be undertaken in years 3 and 10 following completion of construction.

Table 8.11 - Summary of Ecology Effects

Receptor	Potential Effects	Additional Mitigation	Residual Effects
Construction and Decommissioning			
Statutory Designated Sites	Sediment loading and water-borne pollution. Loss and disturbance of functionally-linked land. Visual disturbance of otters and SPA/Ramsar/SSSI bird species using functionally-linked land.	Pollution control measures. Construction Hoarding. Pre-construction surveys and checks for otter.	Not Significant
Habitats of Principal Importance	Removal and disturbance from construction and site clearance	Reinstatement, creation and enhancement of habitats within on and off-site areas as per Outline Landscape and Biodiversity Strategy	Significant adverse at a Local Scale / - / P / D / N/A
Bats	Disturbance from site and vegetation clearance and loss of commuting and foraging habitat	Reinstatement, creation and enhancement of habitats within on and off-site areas as per Outline Landscape and Biodiversity Strategy.	Significant adverse at a Local Scale / - / T / I / ST
Otter	Disturbance from site and vegetation clearance	Construction Hoarding. Pre-construction surveys and checks. Pollution control measures.	Not Significant
Breeding and Wintering Birds	Disturbance from site and vegetation clearance and loss of suitable nesting and foraging habitat	Reinstatement, creation and enhancement of habitats within on and off-site areas as per Outline Landscape and Biodiversity Strategy. Construction hoarding.	Significant Adverse at a District Scale / - / T / I / ST
Reptiles	Disturbance from site and vegetation clearance and killing and injury	Reinstatement, creation and enhancement of habitats within on and off-site areas as per Outline Landscape and Biodiversity Strategy	Not Significant
Amphibians	Disturbance from site and vegetation clearance and killing and injury	Selby District Level Licence for great crested newts	Not Significant
Terrestrial Invertebrates	Disturbance from site and vegetation clearance	Reinstatement, creation and enhancement of habitats within on and off-site areas as per Outline Landscape and Biodiversity Strategy	Significant adverse at a Local Scale / - / T / I / ST
Vascular Plants	Removal of habitat supporting green-winged orchids	Preparation of a receptor site for the translocation of green-winged orchid as per the Outline Landscape and Biodiversity Strategy	Significant adverse at a County Scale / - / T / D / ST
Invasive Non-Native Species	Disturbance from site and vegetation clearance causing the spread of invasive non-native plant species	Measures to control the spread as per the Outline Landscape and Biodiversity Strategy	N/A
Operational			

Receptor	Potential Effects	Additional Mitigation	Residual Effects
Statutory Designated Sites of International and National Importance	Alteration and degradation of Annex 1 habitats via operational emissions to air. Potential for water-borne pollution.	Surface Water Drainage Strategy. Aerial emissions reduction measures.	Not Significant
Non-Statutory Designated Sites	Alteration and degradation of habitats	Aerial emissions reduction measures.	Not Significant
Habitats	Management of habitats as part of mitigation and BNG delivery.	N/A	Not Significant
Bats	Operational lighting illuminating unlit areas which could deter foraging and commuting Reinstatement, creation and enhancement of habitats on and off-site.	Detailed Operational lighting strategy	Significant Beneficial at a Local Scale / + / P / I / LT
Breeding and Wintering Birds	Reinstatement, creation and enhancement of habitats on and off-site.	N/A	Significant Beneficial at a Local Scale / + / P / I / LT
Otter	Reinstatement, creation and enhancement of habitats on and off-site.	Detailed Operational Lighting Strategy	Not Significant
Amphibians	Reinstatement, creation and enhancement of habitats on and off-site. Selby District Level Licence for great crested newts.	N/A	Significant Beneficial at a Local Scale / + / P / I / LT
Terrestrial Invertebrates	Reinstatement, creation and enhancement of habitats on and off-site.	N/A	Significant Beneficial at a District Scale / + / P / I / LT
Vascular Plants	Creation of receptor site and translocation of green-winged orchids	N/A	Not Significant
Fish	Entrainment and mortality through capture by cooling water infrastructure extracting water from River Ouse	N/A	Not Significant

Key to table:

P/T = Permanent or Temporary, D/I = Direct or Indirect, ST/MT/LT = Short Term, Medium Term or Long Term, N/A = Not Applicable

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