Lighthouse Green Fuels Development Consent Order

Preliminary Environmental Information Report

Chapter 10: Terrestrial Ecology

Planning Inspectorate Reference: EN0110025

2nd December 2025

Contents

Tables

1. Introduction

1.1 Background

1.1.1 This Chapter reports the preliminary assessment of likely significant effects of the Proposed Development on terrestrial ecology during construction and operation. It sets out the methodology and scope for the terrestrial ecology assessment, based on currently available information. Where necessary, this chapter identifies where further assessment will be required in the Environmental Statement (ES).

1.1.2 Based on the scoping exercise undertaken, and surveys and assessment completed to date, this Chapter considers all possible terrestrial ecology receptors for the various Study Areas defined for the Proposed Development. The receptors identified include statutory and non-statutory designated sites, other habitats of conservation importance, and a range of protected and notable species (including invasive non-native species (INNS)).

1.1.3 This Chapter is intended to be read as part of this wider Preliminary Environmental Information Report (PEIR), with particular reference to the following (PEIR Volume 1):

- Chapter 3: Site and Proposed Development Description;
- Chapter 8: Air Quality;
- Chapter 9: Noise and Vibration;
- Chapter 11: Freshwater and Marine Ecology;
- Chapter 12: Water Environment and Flood Risk; and
- Chapter 13: Landscape and Visual Impact Assessment.

1.1.4 The ecology assessments for the Proposed Development have been split into two distinct and separate parts: Terrestrial Ecology, and Marine and Freshwater Ecology. This assessment does not duplicate information set out in Chapter 11: Marine and Freshwater Ecology (PEIR, Volume 1).

1.1.5 There is overlap between this Chapter and Noise and Vibration due to the potential effects of noise and vibration on ecological receptors. Chapter 9: Noise and Vibration (PEIR Volume 1) presents the baseline noise survey methodology and results in relation to ecological receptors. The methodology for the assessment of potential likely significant effects on terrestrial ecology associated with noise and vibration, including proposed mitigation measures are presented in this Chapter in relevant sections below.

1.1.6 There is overlap between this Chapter and Water Environment and Flood

Risk due to the interface between the water environment and ecological receptors. Chapter 12: Water Environment and Flood Risk (PEIR Volume 1) presents the baseline survey methodology and results in relation to ecological receptors. The methodology for the assessment of potential likely significant effects on terrestrial ecology associated with the water environment, including proposed mitigation measures are presented in this Chapter in relevant sections below.

1.1.7 There is overlap between this Chapter and Air Quality due to the potential effects of air quality on ecological receptors. Chapter 8: Air Quality (PEIR Volume 1) presents the baseline air quality methodology and results in relation to ecological receptors. The methodology for the assessment of potential likely significant effects on terrestrial ecology associated with air quality including proposed mitigation measures are presented in this Chapter in relevant sections below.

1.1.8 There is overlap between this Chapter and Landscape and Visual Impact Assessment due to the potential visual effects of the Proposed Development on ecological receptors. Chapter 13: Landscape and Visual Impact Assessment (PIER, Volume 1) presents the baseline assessment methodology. The methodology for the assessment of potential likely significant effects on terrestrial ecology associated with visual impacts including proposed mitigation measures are presented in this Chapter in relevant sections below.

1.2 Consultation

1.2.1 The following consultations have been carried out regarding the Proposed Development:

1.2.2 Natural England – Meeting held on 27/10/25 to discuss EIA Scoping Report and baseline survey requirements.

1.2.3 Natural England – Written consultation regarding the EIA Scoping Report received on 30/10/25.

1.2.4 Further technical engagement and consultation will be carried out with statutory and non-statutory bodies and other organisations as advised by the EIA Scoping Opinion. Relevant stakeholders will be contacted regarding the Proposed Development design and any considered avoidance and/or mitigation strategies, including:

- Natural England;
- Royal Society for the Protection of Birds (RSPB);
- Environment Agency (EA);
- Stockton-on-Tees Borough Council (STBC);

- Redcar and Cleveland Borough Council (RCBC); and
- Other relevant nature conservation bodies, as necessary.

1.2.5 The scoping opinion was received on 11/11/25 from the Planning Inspectorate. The table below details the relevant items from the scoping opinion and how they will be addressed as part of the DCO process.

Scoping Opinion ID	Description	Project Response
222	Assessment of designated site habitats across ecology chapters	Intertidal habitats will be considered within the Terrestrial Ecology chapter. Furthermore, all impacts on international designated sites will be considered with the shadow Habitat Regulations Assessment
225	Assessment of light emissions	The Landscape and Visual Impact Assessment will provide an estimate of the expected light emissions, and the Terrestrial Ecology chapter will assess the impacts on ecological receptors
3.3.1	Reptiles	Habitats within the main site have been deemed unsuitable for reptiles. He connection corridors will be surveyed as part of the full Preliminary Ecological Appraisal (PEA).
3.3.2	Study Area	Study areas have been standardized across the Terrestrial Ecology and Marine and Freshwater Ecology chapters.
3.3.3	Field Survey	Field surveys are still on-going, and full reports will be provided upon completion of each receptor.
3.3.4	Preliminary Ecological Appraisal (PEA)	A PEA will be carried out for the whole site
3.3.5	Assessment Methodology	The ES assessment will be carried out in line with the CIEEM guidelines
3.3.6	Site Improvement Plan for Castle Eden Dene SAC	Castle Eden Dene SAC will be considered within the ES and HRA in relation to nitrogen impacts.
3.3.7	Functionally Linked Land	The ES will consider the loss of functionally linked land and its effect on designated sites/ecological receptors
3.3.8	Confidential Annexes	Any reports or data relating to vulnerable species/receptors (such as badgers) will not be placed into the public domain

1.3 Guidance

1.3.1 The following guidance has been used in the production of this chapter:

- Guidelines for Ecological Impact Assessment in the UK and Ireland. CIEEM, 2018; and
- BS42020:2013 Biodiversity – Code of Practice for Planning and Development.

2. Legislation and Planning Policy Context

2.1 Overview

2.1.1 A summary of the international, national and local legislation, planning policy and guidance relevant to the terrestrial ecology assessment for the Proposed Development is set out in Table 2.1.

Table 2.1 Summary of Key Policy, Legislation and Guidance

Policy/Legislation/Guidance	Summary
Policy	
Overarching National Policy Statement (NPS) for Energy (EN-1) 2024 (Ref 1)	NPS EN-1 contains a number of policy statements of key relevance for the purpose of the assessment of environmental impacts on ecological features. Key policies relate to: Although achieving biodiversity net gain is not currently an obligation on applicants, Schedule 15 of the Environment Act 2021 contains provisions which, when commenced, mean the Secretary of State may not grant an application for a Development Consent Order unless satisfied that a biodiversity gain objective is met in relation to the onshore development in England to which the application relates (Paragraph 4.6.1). Consideration of whether a project may have a significant effect on a European site, or any site afforded the same protection, such as Ramsar sites (Paragraphs 5.4.4 to 5.4.6). Avoiding granting planning consent in the first instance where a Proposed Development is likely to have an adverse effect of a Site of Special Scientific Interest (SSSI), either alone or in combination with other developments. An exception should only be made where the benefits (including need) of the development clearly outweigh any adverse effects (Paragraph 5.4.7 and 5.4.8). The important role played by sites of regional and local biodiversity value, including Local Nature Reserves (LNRs) and Local Wildlife Sites (LWS), in meeting overall national biodiversity targets (Paragraph 5.4.12). Avoidance of the loss of ancient woodland and veteran trees (Paragraph 5.4.15). The use of planning obligations to ensure that other species and habitats of principal conservation importance are protected from the adverse effects of development (Paragraph 5.4.16).
The National Planning Policy Framework (NPPF) 2024 (Ref 2)	The NPPF sets out the Government's planning policies for England and Wales and how these are expected to be applied. The Framework acts as guidance for local planning authorities and decision-makers, both in drawing up plans and making decisions about planning applications. Section 15 of the framework 'Conserving and enhancing the natural environment' incorporates policies requiring that development impacts on both terrestrial and marine biodiversity are minimised.

Policy/Legislation/Guidance	Summary
	Section 15, Paragraph 187 states that planning policies and decisions should: Planning policies and decisions should contribute to and enhance the natural and local environment by: • protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); • recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; • maintaining the character of the undeveloped coast, while improving public access to it where appropriate; • minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures and incorporating features which support priority or threatened species such as swifts, bats and hedgehogs; • preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and • remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate. Section 15, Paragraph 193 states that local planning authorities should apply the following principles when determining planning applications: if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and

Policy/Legislation/Guidance	Summary
	development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.
Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System 2005 (Ref 3)	This circular provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England. It complements the NPPF and defines statutory nature conservation sites and protected species as a material consideration in the planning process.
Stockton-on-Tees Borough Council – Local Plan – Adopted January 2019 (Ref 5)	The Local Plan sets out the Council's policies and proposals to guide planning decisions and establishes the framework for the sustainable economic growth and development of the Borough by 2032. Policy EN5 - Preserve, Protect and Enhance Ecological Networks, Biodiversity and Geodiversity states that: 1. The Council will protect and enhance the biodiversity and geological resources within the Borough. Development proposals will be supported where they enhance nature conservation and management, preserve the character of the natural environment and maximise opportunities for biodiversity and geological conservation particularly in or adjacent to Biodiversity Opportunity Areas in the River Tees Corridor, Teesmouth and Central Farmland Landscape Areas. 2. The Council will preserve, restore and re-create priority habitats alongside the protection and recovery of priority species. 3. Ecological networks and wildlife corridors will be protected, enhanced and extended. A principal aim will be to link sites of biodiversity importance by avoiding or repairing the fragmentation and isolation of natural habitats. 4. Sites designated for nature or geological conservation will be protected and, where appropriate enhanced, taking into account the following hierarchy and considerations: Internationally designated sites – Development that is not directly connected with or necessary to the management of the site, but which is likely to have a significant effect on any internationally designated site, irrespective of its location and when considered both alone and in combination with other plans and projects, will be subject to an Appropriate Assessment. Development requiring Appropriate Assessment will only be allowed where: • It can be determined through Appropriate Assessment, taking into account mitigation, the proposal would not result in adverse effects on the site's integrity, either alone or in combination with other plans or projects; or as a last resort, where, in light of negative Appropriate Assessment there are no alternatives and the development is of overriding

Policy/Legislation/Guidance	Summary
	public interest, appropriate compensatory measures must be secured. Nationally designated sites - Development that is likely to have an adverse effect on a site, including broader impacts on the national network of Sites of Special Scientific Interest (SSSI) and combined effects with other development, will not normally be allowed. Where an adverse effect on the site's notified interest features is likely, a development will only be allowed where: • the benefits of the development, at this site, clearly outweigh both any adverse impact on the sites notified interest features, and any broader impacts on the national network of SSSI's; • no reasonable alternatives are available; and • mitigation, or where necessary compensation, is provided for the impact. Locally designated sites: Development that would have an adverse effect on a site(s) will not be permitted unless the benefits of the development clearly outweigh the harm to the conservation interest of the site and no reasonable alternatives are available. All options should be explored for retaining the most valuable parts of the sites interest as part of the development proposal with particular consideration given to conserving irreplaceable features or habitats, and those that cannot readily be recreated within a reasonably short timescale. 5. Development proposals should seek to achieve net gains in biodiversity wherever possible. It will be important for biodiversity and geodiversity to be considered at an early stage in the design process so that harm can be avoided and wherever possible enhancement achieved. Detrimental impacts of development on biodiversity and geodiversity, whether individual or cumulative should be avoided. Where this is not possible, mitigation and lastly compensation must be provided as appropriate. The Council will consider the potential for a strategic approach to biodiversity offsetting in conjunction with the Tees Valley Local Nature Partnership and in line with the above hierarchy. 6. When proposing habitat creation it will be important to consider existing habitats and species as well as opportunities identified in the relevant Biodiversity Opportunity Areas. This will assist in ensuring proposals accord with the 'landscape scale' approach and support ecological networks. 7. Existing trees, woodlands and hedgerows which are important to the character and appearance of the local area or are of nature conservation value will be protected wherever possible. Where loss is unavoidable, replacement of appropriate scale and species will be sought on site, where practicable.

Policy/Legislation/Guidance	Summary
Redcar and Cleveland Borough Council - Local Plan - Adopted May 2018 (Ref 4)	The Local Plan sets out the RCBC' policies and proposals to guide planning decisions and establishes the framework for sustainable economic growth and development of the Borough by 2032. Policy N 4 - Biodiversity and Geological Conservation states that: Internationally Important Sites - Priority will be given to protecting our internationally important sites, including the Teesmouth and Cleveland Coast Special Protection Area/Ramsar and European Marine Site, and the North York Moors Special Protection Area and Special Area of Conservation. Development that is not directly related to the management of the site, but which is likely to have a significant effect on any internationally designated site, irrespective of its location and when considered both alone and in combination with other plans and projects, will be subject to an Appropriate Assessment. Nationally Important Sites - Development that is likely to have an adverse impact on nationally important SSSI sites, including broader impacts on the national network and combined effects with other development, will not normally be allowed. Where an adverse effect on the site's notified interest features is likely, an exception will only be made where: the benefits of the development, at this site, clearly outweigh both any adverse impact on the features of the site that makes it of special scientific interest, and any broader impacts on the network of SSSIs; no reasonable alternatives are available; and mitigation, or where necessary compensation, is provided for the impact. Locally Important Sites - Development that is likely to have an adverse impact on Local Sites (Local Wildlife Sites and Local Geological Sites) or Local Nature Reserves will only be approved where: the benefits clearly outweigh any adverse impact on the site; no reasonable alternatives are available; and mitigation, or where necessary compensation, is provided for the impact. Wildlife corridors and other habitat networks will be protected and enhanced, particularly hedgerows, watercourses and linking habitat features. Opportunities to deculvert watercourses will be encouraged.
Tees Valley Biodiversity Action Plan (BAP) (2012) (Ref 6)	The Tees Valley Nature Partnership is a collection of organisations and individuals working together to conserve, enhance and promote biodiversity in the Tees Valley region. The current Tees Valley BAP has been in place since January 2012 and covers the local authority areas of Hartlepool, Stockton, Middlesbrough, Redcar, and Cleveland. The aim of the TVBAP is to identify sub-regional priorities for nature conservation and propose actions to conserve/maintain/enhance/increase locally important species and habitats.
Legislation	

Policy/Legislation/Guidance	Summary
The Wildlife and Countryside Act 1981 (as amended) (WCA) (Ref 7)	This is the primary legislation for the protection of animals, plants and habitats in the UK. This legislation covers three main areas: • wildlife protection, including protection of wild birds, their eggs and nests, protection of other animal and protection of plants; • nature conservation, countryside and National Parks; and • public rights of way (PRoW).
The Countryside and Rights of Way (CRoW) Act (Ref 8)	The CRoW Act has amended the WCA in England and Wales, strengthening the protection afforded to SSSIs and the legal protection for threatened species. It adds the word 'reckless' to the wording of the offences listed under Section 9(4) of the WCA. This alteration makes it an offence to recklessly commit an offence, where previously an offence had to be intentional to result in a breach of legislation.
The Natural Environment and Rural Communities (NERC) Act 2006 (Ref 9)	Designed to help achieve a rich and diverse natural environment and thriving rural communities through modernised and simplified arrangements for delivering Government policy. The NERC Act established a new independent body (Natural England) responsible for conserving, enhancing, and managing England's natural environment for the benefit of current and future generations, thereby contributing to sustainable development. The NERC Act made amendments to both the WCA and the CRoW Act. Section 40 of the NERC Act imposes a duty on public authorities to "in exercising (their) functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". Section 41 of the NERC Act requires the Secretary of State (SoS) to: "publish a list of the living organisms and types of habitat which in the Secretary of State's opinion are of principal importance for the purpose of conserving biodiversity". These are referred to as Habitats/Species of Principal Importance (HoPI/SoPI).
The Conservation of Habitats and Species Regulations 2017 (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) ('the Habitats Regulations') (Ref 10)	The Conservation of Habitats and Species Regulations 2017 (as amended) (the 'Habitats Regulations') consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Habitats Regulations transpose The Habitats Directive (EC Directive 92/43/EEC) into national law. They also transpose elements of The Birds Directive in England and Wales. All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS). Under Regulation 42 of the Habitats Regulations, it is unlawful to: • deliberately kill, capture or disturb; • deliberately take or destroy the eggs of; and

Policy/Legislation/Guidance	Summary
	• damage or destroy the breeding site/resting place of any species protected under this legislation. If it is determined that impacts to an EPS during a development are unavoidable then the works may need to be carried out under a site-specific mitigation licence from the Statutory Nature Conservation Organisation, in this case Natural England. Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation (SACs). In addition, all bird species listed under Annex I of the Birds Directive are rare or vulnerable and afforded protection by the classification of Special Protection Areas (SPAs). This means that 'Annex II species' under the Habitats Directive and Annex I bird species under the Birds Directive are a relevant consideration in a Habitats Regulations Assessment (HRA). Following the UK's exit from the EU, the Habitats Regulations were amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. The changes made were only those necessary to ensure that they remain operable now that the UK has left the EU.
The Ramsar Convention	The UK is a signatory to the Ramsar Convention. The Convention has three main 'pillars' of activity: the designation of wetlands of international importance as Ramsar sites, the promotion of the wise use of all wetlands in the territory of each country, and international co-operation with other countries. The UK has chosen to underpin the designation of its Ramsar sites through prior notification of these areas as SSSIs in England. Accordingly, these receive statutory protection under the WCA 1981 (as amended) (see above). The UK Government has also issued policy statements relating to the special status of Ramsar sites. This extends the same protection at a policy level to listed Ramsar sites in respect of new development as that afforded to SACs and SPAs.
The Environment Act 2021 (Ref 11)	The Environment Act 2021 has two main functions: • To give a legal framework for environmental governance in the UK; and • To bring in measures for improvement of the environment in relation to waste, resource efficiency, air quality, water, nature and biodiversity, and conservation. The Act includes provisions to strengthen and improve the existing duty on public bodies to conserve and enhance biodiversity, including mandating BNG through the planning system. Schedule 14 of the Act makes provision for BNG to be a condition of planning permission in England. Schedule 14 specifies that biodiversity gains are to be assessed using the metric published by the SoS and a 10% gain will be mandatory. The Act includes this requirement for NSIPs, being secured under Section 99 and Schedule 15. It is expected that the

Policy/Legislation/Guidance	Summary
	mandatory requirement for a 10% gain for NSIPs will come into force in 2025. The vast majority of this Act does not make any immediate changes for organisations other than regulators. Changes to duties for businesses and other organisations are expected in subsequent legislation made under this Act.
Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024	UK statutory instrument that supports the implementation of BNG under the Environment Act 2021, specifically in relation to irreplaceable habitats. Irreplaceable habitats are those that are: • Very difficult or impossible to recreate once lost; and/or • Often have high ecological value, due to their age, uniqueness, or biodiversity. Examples include: • Ancient woodland; • Veteran trees; • Blanket bog; • Limestone pavements • Coastal sand dunes; and • Saltmarshes and lowland fens.
Protection of Badgers Act 1992 (Ref 12)	The Protection of Badgers Act makes it illegal to willfully take, kill, injure, possess or ill-treat a badger. Under the Act, badger setts are also protected against intentional or reckless interference. Sett interference includes damaging or destroying a sett, obstructing access to any part of the 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 that are not occupied but that show signs of recent use by badgers. If impacts to badgers or their setts are unavoidable during a development then authorised sett disturbance requires a mitigation licence, issued by Natural England.
Council Directive (92/43/EEC) on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive) 1992 (Ref 10)	The Habitats Directive provides legal protection for habitats and species of European importance. This Directive was transposed into UK law by the Conservation of Habitats and Species Regulations 2017.
Council Directive (2009/147/EC) on the Conservation of Wild Birds (Birds Directive) 2009 (Ref 13)	The European Union meets its obligations for bird species under the Bern Convention and Bonn Convention and more generally by means of Directive 2009/147/EC (Birds Directive) on the conservation of wild birds. In the UK, the provisions of the Birds Directive are implemented through the WCA 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as well as other legislation related to land and sea). The main provisions of the Directive include: the maintenance of populations of all wild bird species across their natural range; the establishment of a general scheme of protection for all wild

Policy/Legislation/Guidance	Summary
	birds; requirements to ensure that introduction of non-native birds do not threaten other biodiversity; and the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex I of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance (Article 4). Together with Special Area of Conservation (SACs) designated under the Habitats Directive, SPAs form a network of European protected areas known as Natura 2000.
Invasive Alien Species (Enforcement and Permitting) Order 2019 (Ref 14)	The Invasive Alien Species Order (IASO) 2019 transposes EU legislation (Regulation (EU) No 1143/2014), which was introduced into UK law on 01 December 2019. Listed in the Order are species of concern that are banned from being imported, transported, sold, used, kept, bred/grown, or released into the environment or allowed to reproduce. Signal crayfish, amongst other invasive non-native crayfish species, are included in the Order. Transport of live invasive crayfish species from any site is illegal under the legislation. Management, development, maintenance, or other works at sites which have invasive crayfish species present therefore require practical and legal consideration that may have associated cost implications. These also extend to conservation actions surrounding the eradication of invasive crayfish species present at site. Regarding crayfish, the legislation superseded the 'The Prohibition of Keeping of Live Fish (Crayfish) Order 1996.' Regulation of the legislation is enforced by Natural England in England. Eight plant species are identified within IASO (2019) as being widely spread in England and Wales and therefore require management. This includes, but is not limited to Nuttall's waterweed, Himalayan balsam, curly waterweed, and floating pennywort. This has implications for works at any site where such invasive plant species are present, and appropriate management controls are required.
Guidance	
Chartered Institute of Ecology and Environmental Management (CIEEM) (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Ref 16)	The terrestrial ecology assessment has been undertaken using the approach detailed in the CIEEM Guidelines for Ecological Impact Assessment (EcIA), hereafter referred to as 'the CIEEM EcIA guidelines'. These guidelines represent the current best practice for assessing the ecological impacts of development projects. These guidelines have been amended in September 2019, April 2022 and September 2024.
CIEEM (2017). Guidelines for Preliminary Ecological Appraisal (PEA) (Ref 17)	The terrestrial ecology assessment has been undertaken with consideration of CIEEM guidance for PEAs. The purpose of this guidance is to set out the appropriate approach to undertaking PEAs and the appropriate application of such assessments within the planning process.

Policy/Legislation/Guidance	Summary
CIEEM (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK (Ref 18).	These guidelines have been developed by UK biodiversity data specialists and are aimed at those who are using biodiversity data to support the development planning process (e.g. local planning authorities (LPAs) and ecological consultants). The guidelines provide guidance on when and where it is advisable to source and use biodiversity data, particularly in relation to developments.
Guidance on Nationally Significant Infrastructure Projects: Advice on Habitat Regulations Assessments (HRA) (Ref 19)	The terrestrial ecology assessment has been undertaken with consideration of the Planning Inspectorate's guidance which summarises the applicant and decision maker obligations under the Habitats Regulations in the context of Nationally Significant Infrastructure Projects (NSIPs).
Air emissions risk assessment for your environmental permit (Ref 20)	The terrestrial ecology assessment has been undertaken with consideration of the Environment Agency and Department for Environment, Food & Rural Affairs guidance regarding the impact of emissions on protected conservation areas.
BS 42020: 2013 Biodiversity — Code of practice for planning and development (Ref 21)	BS 42020: 2013 provides recommendations for making sure that decisions taken at each step of the planning process are informed by appropriate ecological information.
BS 5837:2012 – Trees in relation to design, demolition and construction – Recommendations (Ref 22)	BS 5837:2012 gives recommendations and guidance on the relationship between trees and the design, demolition and construction process. It sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures.
Natural England/Forestry Commission (2022). Ancient woodland, ancient trees and veteran trees: advice for making planning decisions (Ref 23)	This best practice guidance provides principles to adopt with specific reference to protection measures for ancient/veteran trees.

3. Assessment Methodology and Significance Criteria

3.1 Introduction

3.1.1 The terrestrial ecology assessment for the Proposed Development has been undertaken in line with the legislation, policy and guidance outlined in Legislation and Planning Policy Context.

3.2 Study Area

3.2.1 The Proposed Development covers a total area of 218 ha, which includes the Main Site as well as associated utility corridors access routes, temporary compounds and working areas required to undertake the Proposed Development.

3.2.2 The Study Area for the Proposed Development, with regard to terrestrial ecology, is defined as the area in which impacts arising from construction operation and/or decommissioning could lead to significant effects for ecological receptors. For the purpose of this assessment, it is necessary to apply Study Areas of varying sizes depending on the ecological receptor/feature under assessment and, in most cases, these will extend beyond the Proposed Development. These will hereafter be referred to as 'Zones of Influence' (ZoI) for each receptor.

3.2.3 ZoI have been defined based on current best practice guidelines and currently available project information. In some cases, ZoI have been defined on a precautionary basis using professional judgement alongside current guidance and available project information. This is to ensure a sufficient geographical area has been assessed to allow all reasonably foreseeable impacts to be taken into account. As the terrestrial ecology assessment progresses and further information becomes available, both in terms of survey results and project details/design, it is considered that one or more of the ZoI may be subject to refinement later in the project lifecycle.

Table 3.1 Terrestrial Biodiversity Zones of Influence.

Receptor	Zone of Influence (Inclusive of the Proposed Development)
Statutory designated sites of international importance.	Within 15km of the Proposed Development (Extending to 30km where bats are a qualifying feature of the designated site).
Statutory designated sites of national and local importance.	Within 10km of the Proposed Development (SSSI). Within 5km of the Proposed Development (NNR).
Non-statutory designated sites.	Within 2km of the Proposed Development.
Habitats of Principal Importance (HPI) and woodland listed on the Ancient Woodland Index (AWI).	Within 2km of the Proposed Development.
Historic European Protected Species (EPS) licences granted.	Within 2km of the Proposed Development.
Mapped waterbodies and watercourses.	Within 250m of the Proposed Development.
Habitats (all).	Within 25m of the Proposed Development.
Protected and notable species.	Various

3.2.4 Following consultation with Natural England, the ZoI for SSSI's was increased to 20km to account for air quality impacts on qualifying features.

3.2.5 The assessment methodology is common across all elements of the Proposed Development both during construction and operation and will be undertaken in accordance with the CIEEM EcIA guidelines. These guidelines represent the current best practice for assessing the ecological impact of development projects.

3.2.6 Consideration will also be given to standard EIA terminology, where the significance level attributed to each effect has been assessed based on the sensitivity of the affected Important Ecological Feature (IEF) and the magnitude of change arising from the Proposed Development. The sensitivity of the affected receptor is assessed on a scale of very high, high, medium, low, and negligible and the magnitude of change is assessed on a scale of large, medium, small, negligible and no change.

3.2.7 The assessment of likely significant environmental effects as a result of the Proposed Development will consider the construction, operation and decommissioning phases.

3.2.8 The impact process involves:

a. identifying and characterising impacts and their effects;
b. incorporating measures to avoid and mitigate adverse effects;
c. assessing the significance of any residual effects after embedded mitigation;

d. identifying appropriate additional mitigation measures and any compensation measures to offset significant residual effects; and
e. identifying opportunities for ecological enhancement.

3.2.9 The assessment includes potential impacts on each receptor identified as an IEF (discussed further under 'Determining Importance', below), identifying potential impacts and effects during the construction and operational phases of the project, with impacts and effects characterised in accordance with the following criteria:

a. **Positive or negative** – whether the impact/effect will improve or reduce the quality of the baseline habitat present;
b. **Extent** – the spatial or geographical area over which the impact/effect may occur,
c. **Magnitude** – the size, amount, intensity or volume of the impact/effect, defined on a quantifiable basis, such as an area or percentage of habitat to be lost;
d. **Duration** – the length of time an impact/effect is expected to last, relative to the particular timeframe for the species/habitat being considered and defined as short, medium or long-term and permanent or temporary. Short- term is considered to be up to one year; medium-term is considered to be between one and 10 years and long-term is considered to be greater than 10 years;
e. **Frequency and timing** – the frequency of a particular activity may change its impact/effect, e.g., one-off or infrequent disturbance is less likely significantly affect a particular species present within a habitat, whereas regular disturbance is more likely to have a significant effect. Similarly, the impact/effect of a particular activity may change significantly depending on its timing, e.g., tree felling outside of bird nesting season is highly unlikely to directly impact nesting birds, whereas carrying out the same work within nesting season is more likely to have impacts; and
f. **Reversibility** – an irreversible (permanent) effect is one from which recovery is not possible within a reasonable timescale or there is no reasonable chance of action being taken to reverse it. A reversible (temporary) effect is one from which spontaneous recovery is possible or which may be counteracted by mitigation.

Determining Importance

3.2.10 A number of characteristics contribute to the importance of ecological features. These include, for example (but not exclusively):

a. the rarity of a species or habitat;
b. legal protection/conservation status;
c. ability to resist or recover form environmental change;
d. whether the species population size is notable in a wider context;
e. the richness of assemblages of plants and animals; and
f. the presence of species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change.

3.2.11 The CIEEM guidelines state that ecological features should be considered within a 'defined geographical context' (i.e. spatial scale), with International importance being the highest level, followed by International and European; National; Regional; Metropolitan, County, vice-county or other local authority-wide areas; River Basin District; Estuarine system/Coastal cell; and Local importance representing the lowest level.

3.2.12 Assigning importance to ecological features is based on professional judgement informed by available guidance and information and expert advice.

Significance of Effect Criteria

3.2.13 In determining the significance of a potential effect, the magnitude of change arising from the Proposed Development is correlated with the value/sensitivity of the particular environmental receptor or process under consideration. The sensitivity of effect criteria will align with CIEEM's Guidelines on Ecological Impact Assessment.

3.2.14 Effects will be defined as either 'Significant' or 'Not Significant'. Effects that are classified as moderate or above are 'Significant'. Effects classified as below moderate are considered 'not significant'.

3.3 Desk Study

3.3.1 A preliminary desk study has been completed for the Proposed Development and wider ZoI following best practice guidelines. The desk study has included a review of publicly available resources and databases to determine the presence of protected sites, HPI (as defined by the NERC Act 2006), ancient/veteran trees listed on the Ancient Tree Inventory (ATI), and woodland listed on the Ancient Woodland Inventory (AWI). The search radii are outlined in Table 3.1, above.

3.4 Field Survey

3.4.1 Table 3.2 below, details relevant survey buffers (ZoI) from the Proposed Development for the ecological receptors (habitats, species and species groups) mentioned above, along with relevant current good practice guidelines that have been used to determine the ZoI.

Table 3.2 Receptor, Survey Buffer and Survey Methodology

Ecological Feature	Survey Buffer (ZoI) Beyond the Proposed Development	Survey Methodology
Habitats	25m	A UK Habitat (UKHab) survey will be carried out within the Proposed Development to identify and map all the habitats present.
Badger	50m	A dedicated survey to identify badger setts and any evidence of their presence will be undertaken within the the Proposed Development and up to a 50m buffer area around the the Proposed Development. All suitable areas of habitat within 50m of the the Proposed Development will be searched for badger signs including setts, latrines, feeding areas, tracks, and push-through points. All recorded signs will be georeferenced. Where setts are encountered, notes will be made on the location and number of sett entrances, and they will be classified according to best practice guidelines.
Bats	30m	Ground Level Tree Assessment (GLTA) to be undertaken, in accordance with the Bat Conservation Trust (BCT) 4th edition Guidelines, to identify features that bats could use for roosting (Potential Roost Features (PRF)) which are due to be impacted by the proposed works. The survey will classify the trees as having no suitability for bats (none) or features that offer PRF. Where possible, PRF will be categorised as suitable for individual/low numbers of roosting bats (PRF-I) or suitable for multiple bats (e.g. a maternity roost) (PRF-M) based on the condition of the trees, the presence of potential features suitable for use by bats, and any field signs recorded. Where PRF-M features are present, three surveys within the bat active season are required. In some cases, it may not be possible to classify a feature with confidence. In this scenario trees further assessment will be required (FAR). Automated static bat detectors will be deployed for five consecutive nights per month (April to October) in suitable weather conditions. Bat activity will be recorded remotely, and analysed to provide a measure of species richness, relative abundance, and importance of different landscape features to bats. To supplement the static detector deployment, one Night-time Bat Walkover (NBW) survey visit will be undertaken per season (spring – April/May, summer - June/July/August, autumn – September/October). Numbers of bat species and behavior will be recorded, with the use of Night Vision Aids (NVAs) where required to aid vision. The results of these surveys will be used to provide an indication as to use of the Proposed Development by bats.

Ecological Feature	Survey Buffer (ZoI) Beyond the Proposed Development	Survey Methodology
Birds – breeding and non-breeding	250m (as agreed with Natural England)	A suite of seven breeding bird survey visits between March and July 2025 have been undertaken following the current best practice standards set out by the Bird Survey Guidelines and the British Trust for Ornithology's (BTO) Common Bird Census (CBC) methodology. Records of birds in the field were plotted onto maps and territory mapping was used to estimate the number and distribution of breeding bird territories across the Proposed Development. A suite of wintering bird surveys is being undertaken between September 2025 and March 2026. The surveys involve bi-monthly, diurnal visits at high and low tide each month. Surveys are conducted during the two-hour window either side of the peak tide. During the surveys the species, location, number and behaviour of birds in recorded. The surveys have been designed with reference to the Bird Survey Guidelines for assessing ecological impacts and the BTO's Wetland Bird Survey (WeBS) methodology.
Otter	100m	All open watercourses within the Proposed Development and 100m upstream and downstream of the Proposed Development will be searched for signs of otter (e.g. spraints, food remains, footprints or paths, shelters (holts or couches)).
Water Vole	100m	Two dedicated surveys to confirm the presence, or inform the likely absence, of water vole, will be undertaken. Any evidence of water vole will be recorded within the Proposed Development and within a 100m buffer upstream and downstream of the Proposed Development. Survey methodology is to follow that set out in Dean et. al (2016). Areas of suitable habitat will be searched for water vole signs to include latrines, feeding stations, burrows, and footprints.
Terrestrial Invertebrates	Proposed Development	Invertebrate surveys will be undertaken in accordance with best practice guidance to appraise the key habitats and/or features of the Proposed Development through the recording of invertebrates. The purpose of these surveys is to assess the value to invertebrates of those habitats or features in order to evaluate the Proposed Development for its importance as an invertebrate resource. The best time to undertake these surveys is from mid-April to August to coincide with peak activity and abundance, this will involve six survey visits

3.4.2 Field surveys for protected species will continue to be carried out in 2025 and 2026 to inform the Environmental Statement. Information and results from field surveys carried out in 2023 and 2024 have been used to inform this PEIR.

3.5 Potentially Significant Effects

3.5.1 As identified within the Environmental Scoping Report, the following effects

are considered to be potentially significant and have been considered further in this assessment:

Construction Phase

- Habitat loss or fragmentation;
- Killing or injury of protected and/or notable species;
- Disturbance from artificial lighting;
- Noise disturbance;
- Vibration disturbance;
- Air pollution; and
- Water pollution.

Operational Phase

- Disturbance from artificial lighting;
- Noise disturbance;
- Vibration disturbance;
- Visual disturbance;
- Air pollution; and
- Water pollution.

3.6 Sensitive Receptors

3.6.1 As detailed in the Environmental Scoping Report, the following sensitive ecological receptors will be considered as part of the terrestrial ecology assessment.

Designated Sites

Statutory Designated Sites

- Teesmouth and Cleveland Coast Ramsar site;
- Teesmouth and Cleveland Coast Special Protection Area (SPA);
- North York Moors SPA;
- Northumbria Coast SPA;
- North York Moors Special Area of Conservation (SAC);
- Durham Coast SAC;
- Teesmouth and Cleveland Coast Site of Special Scientific Interest (SSSI);
- Briarcroft Pasture SSSI;
- North York Moors SSSI;

- Whitton Bridge Pasture SSSI;
- Durham Coast SSSI;
- Hart Bog SSSI;
- Pike Whin Bog SSSI;
- Hulam Fen SSSI;
- Castle Eden Dene SSSI;
- Pinkney and Gerrick SSSI;
- Fishburn Grassland SSSI;
- Charity Land SSSI;
- Newton Ketton Meadow SSSI;
- Lovell Hill Pond SSSI;
- Saltburn Gill SSSI;
- Roseberry Topping SSSI;
- Langbaugh Ridge SSSI;
- Cliff Ridge SSSI;
- Kildale Hall SSSI;
- Boulby Quarries SSSI;
- Teesmouth National Nature Reserve (NNR); and
- Durham Coast NNR.

Non-Statutory Designated Sites

- Coatham Marsh Local Wildlife Site (LWS);
- Eston Pumping Station LWS;
- Greenabella Marsh LWS;
- Zinc Works Bird Field LWS;
- Greatham Creek North Bank Saltmarsh LWS; and
- Saltern Saltmarsh LWS.

Habitats

Habitats of Principal Importance

- Open Mosaic Habitat (OMH) on Previously Developed Land;
- Coastal and Floodplain Grazing Marsh;
- Mudflats;
- Deciduous Woodland;
- Saline Lagoons;
- Lowland Fens; and
- ‘No main habitat but additional habitats present’.

Other Habitats

- Ancient woodland; and
- Habitats recorded within the Proposed Development during the UKHab survey.

Protected and Notable Species

- Badger *Meles meles*;
- Bird species – breeding and overwintering;
- Otter *Lutra lutra;*
- Water vole *Arvicola amphibius;*
- Amphibians;
- Reptiles;
- Other notable terrestrial mammal species (hedgehog *Erinaceus europaeus* and brown hare *Lepus europaeus*);
- Terrestrial invertebrates; and
- Invasive non-native species (INNS).

4. Baseline Conditions

4.1 Overview

4.1.1 The baseline conditions for the terrestrial ecology assessment are to be defined through a full desk study, PEA and a series of field surveys. The data sources referred to in Section 3.3 will be consulted to inform the baseline review.

4.1.2 A PEA has been partially completed for the majority of the Main Site in April 2025. The remainder of the Proposed Development will be subject to a PEA in Winter 2025.

4.1.3 Based on the findings from the PEA and the desk study, a series of habitat and species-specific surveys will be undertaken in advance of the ES report. These surveys will be focussed upon important ecological receptors and will take place within their respective ZoIs as stated in Table 3.1.

4.1.4 The Proposed Development and surrounding areas consist of various former and current industrial facilities and associated access roads as well as various semi-natural habitats, including grasslands, wetlands, broadleaved woodlands, sparsely vegetated land, scrub and open mosaic habitat. These habitats have been assessed to be of low to high ecological value. This is based on a review of available imagery using Google Earth, the PEA and professional judgement. The habitat types present, typically offer limited biodiversity value due to them being regularly disturbed, however, those undisturbed areas can offer opportunities for protected and notable UK wildlife to shelter, forage or breed. This assessment will be verified or modified as necessary, during field surveys being undertaken.

4.1.5 As mentioned in Section 1.1, this assessment does not duplicate information set out in Chapter 11: Freshwater and Marine Ecology (PEIR, Volume 1) which includes baseline information for that assessment .

Future Baseline

4.1.6 Climate change and flood risk (described in detail in Chapter 15: Climate Change Resilience (PEIR, Volume 1) and Chapter 12: Water Environment (PEIR, Volume 1)), natural succession of habitats, the introduction of new receptors into an area and the continued operation of existing developments can all influence the future baseline. This may result in a change of habitat type over time.

4.1.7 Areas more likely to flood, including designated sites, may change to habitats typical of wetter environments such as wetlands and marshes. Habitats may also alter as a result of increased occurrence of droughts,

milder winters and an increase in major storm events.

4.1.8 Invasive species can colonise quickly where previously absent.

4.1.9 Water quality is expected to improve due to legislation requirements and interventions such as Nutrient Neutrality Policy and Water Framework Directive (WFD) targets, positively supporting terrestrial ecology.

4.1.10 In the absence of the Proposed Development, it is predicted that the habitat context and management of the Proposed Development would see natural succession of semi-natural habitats except where other new development schemes have the potential to change the future baseline. As no substantive changes in habitat context and condition are predicted, the species value of the Proposed Development and adjacent land is likely to remain consistent with the current baseline. Minor changes (upwards or downwards) in the distribution of some species, e.g. nesting birds, terrestrial invertebrates and bats, may occur in line with small-scale changes in habitat structure as a result of ecological succession or other natural processes. Any such changes are likely to be within the range of normal inter-annual variation in the distribution and abundance of species populations. In addition, potentially relevant protected species could establish in new locations where they would impose new working constraints, due to legislation protecting these species.

4.2 Current Baseline

4.2.1 A full desk study has been carried out as part of the PEA. The results are summarised below.

Designated Sites

International Statutory Designated Sites

4.2.2 International statutory designated sites in the vicinity of the Proposed Development are shown on Figure 10.1 and are listed in Table 4.1.

Table 4.1 Internationally Statutory Designated Sites within 15km of the Proposed Development.

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
Teesmouth and Cleveland Coast SPA	Within Proposed Development (0.124km^2, 0.10% of designation)	The site qualifies under Article 4 of the Birds Directive for the following reasons: The site regularly supports more than 1% of the Great Britain populations of five species listed in Annex I of the Birds Directive: • Pied avocet (Recurvirostra avosetta);

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
		• Sandwich tern (Thalasseus sandvicensis); • Common tern (Sterna hirundo); • Little tern (Sternula albifrons); and • Ruff (Calidris pugnax). The site regularly supports more than 1% of the biogeographic population of two regularly occurring migratory species not listed in Annex I of the Birds Directive; • Red knot (*Calidris canutus*); and • Common redshank (*Tringa totanus*). The site qualifies under Article 4 of the Birds Directive as it used regularly by over 20,000 waterfowl (waterfowl as defined by the Ramsar Convention) or 20,000 seabirds in any season.
Teesmouth and Cleveland Coast Ramsar	Adjacent to Proposed Development	Teesmouth and Cleveland Coast Ramsar site is designated as a wetland of international importance because: The site qualifies under Ramsar criterion 5 as it is regularly used by over 20,000 waterbirds in any season; The site qualifies under criterion 6 as it is regularly used by 1% or more of the biogeographic populations of the following bird species in any season: • Red knot; and • Common redshank.
North York Moors SPA	10.10km south-east	The site qualifies under article 4.1 of the Birds Directive as it is used regularly by 1% or more of the Great Britain population of two species listed in Annex I of the Birds Directive in any season: • Merlin (Falco columbarius); and • European golden plover (Pluvialis apricaria).
North York Moors SAC	10.10km south-east	The site is designated under article 4(4) of the Habitats Directive as it hosts the following habitats listed in Annex I of the Habitats Directive: • Blanket bogs* • European dry heaths • Northern Atlantic wet heaths with Erica tetralix. (Wet heathland with cross-leaved heath)
Northumbria Coast SPA	13.45km north-west	The site qualifies under Article 4 of the Birds Directive for the following reasons: The site regularly supports more than 1% of the GB populations of two species listed in Annex I of the Birds Directive:

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
		• Arctic tern (Sterna paradisaea); and • Little tern The site regularly supports more than 1% of the biogeographical population of two regularly occurring migratory species not listed in Annex I of the Birds Directive: • Turnstone (Arenaria interpres); and • Purple sandpiper (Calidris maritima)
Northumbria Coast Ramsar	13.45km north-west	The site supports internationally important wintering populations of turnstone and purple sandpiper.
Durham Coast SAC	13.45km north-west	The site is designated under article 4(4) of the Habitats Directive as it hosts the following habitats listed in Annex I of the Habitats Directive: • Vegetated sea cliffs of the Atlantic and Baltic coasts

4.2.3 There are no proposed Ramsar Sites or potential SPAs within 15km of the Proposed Development.

4.2.4 There are no international designated sites with bats as a qualifying feature within 30km of the Proposed Development.

4.2.5 Due to their proximity to the Proposed Development, Teesmouth and Cleveland Coast SPA and Ramsar are ***scoped in*** to this assessment for both construction and operation.

4.2.6 All other international sites are ***scoped in*** to this assessment for operation only.

National Statutory Designated Sites

4.2.7 All national statutory designated sites are displayed on Figure 10.2 and are listed in Table 4.2.

Table 4.2 National Statutory Designated Sites within 20km of the Proposed Development.

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
Teesmouth and Cleveland Coast SSSI	Within Proposed Development (0.124km^2, 0.42% of designation)	The Teesmouth and Cleveland Coast SSSI is of special interest for the following nationally important features that occur within and are supported by the wider mosaic of coastal and freshwater habitats: • Jurassic geology; • Quaternary geology; • Sand dunes; • Saltmarshes; • Breeding harbour seals (*Phoca vitulina*); • Breeding pied avocet, little tern and common tern; • A diverse assemblage of breeding birds of sand dunes, saltmarsh and lowland open waters and their margins; • Non-breeding shelduck (*Tadorna tadorna*), shoveler (*Spatula clypeata*), gadwall (*Mareca strepera*), ringed plover (*Charadrius hiaticula*), red knot, ruff, sanderling (*Calidris alba*), purple sandpiper, common redshank and sandwich tern; • An assemblage of more than 20,000 waterbirds during the non-breeding season; and • A diverse assemblage of invertebrates associated with sand dunes.
Teesmouth NNR	580m north	The Teesmouth NNR is designated for: • >20,000 waterbird assemblage; • Pied avocet (breeding); • BAP breeding birds; including waders, grey partridge (*Perdix perdix*), skylark (*Alauda arvensis*), linnet (*Linaria cannabina*), and reed bunting (*Emberiza schoeniclus*); • Harbour seal; • Invertebrate assemblages; • Red knot (non-breeding); • Little tern (breeding); • Lyme grass moth (*Photedes elymi*); • Common redshank (non-breeding); • Saltmarsh plant assemblages; • Sand dune plant assemblages; • Sanderling (non-breeding); • Sandwich tern (post-breeding);

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
		• Shelduck (winter); and • Tees Lowlands JCA feature.
Lovell Hill Pond SSSI	5.30km south-east	Lovell Hill Pools is set within an undulating, well-wooded agricultural landscape to the north of the North York Moors. The site supports an outstanding assemblage of dragonflies and damselflies as well as populations of both great crested newt (*Triturus cristatus*) and smooth newt (*Lissotriton vulgaris*).
Saltburn Gill SSSI	9.66km east	Saltburn Gill is a steep sided coastal dene, incised into glacial clays, shales and sandstones of the Lower Jurassic period. The site comprises the eastern slopes of the gill which are of particular importance in supporting one of the few relatively undisturbed areas of mixed deciduous woodland in Cleveland.
Braincroft pasture SSSI	12.60km south-west	Baircroft pasture is nationally important for its area of species rich unimproved neutral grassland. The relatively level site sits adjacent to a stream and overlays glacial tills and sands resulting in majority of the grassland to be characterised by a more acidic *Danthonia decumbens*, heath-grass, sub-community. The species-rich grassland exists in a mosaic with moist tussocky stands of the Holcus lanatus - , Yorkshire fog - tufted hair-grass community. This site is one of two remaining examples of this habitat in the Natural Area.
Roseberry Topping SSSI	11.50km south-east	Roseberry Topping is a nationally important palaeobotanical site. The site is known for its middle Jurassic plant bed dating back 170 million years ago, which has yielded fossils from seventy plant species.
North York Moors SSSI	11.71km south-east	The North York Moors contain the largest continuous tract of heather moorland in England and as such hold national importance for its mire and heather moorland vegetation communities. The site also holds international importance for its breeding bird populations, particularly merlin and golden plover. The vegetation displays a transition between blanket bog and dry heath land and supports diverse and extensive upland plant communities. The site supports a nationally important assemblage of moorland breeding birds including • merlin *Falco columbarius*; • golden plover *Pluvialis fulva*; • snipe *Gallinago gallinago*;

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
		• Curlew *Numenius arquata*; • Redshank *Tringa tetanus*; • Whinchat *Saxicola rubetra*; • ring ouzel *Turdus torquatus*; • hen harrier *Circus cyaneus*; • peregrine *Falco peregrinus*; and • short-eared owl *Asio flammeus*.
Whitton Bridge Pasture SSSI	12.77km west	Whitton Bridge Pasture is nationally important for its areas of species-rich unimproved neutral grassland. The gently sloping site sits adhacent to a stream and is situated on glacial tills and sands, contributing to most of the grassland to be characterised as the more acidic *Danthonia decumbens*, heath-grass, sub-community. The species-rich grasslands occupy a continuous belt which grades into a community dominated by coarser false oat-grass *Arrhenatherum elatius* swards on alluvial soils on the northern edge.
Langbaurgh Ridge SSSI	11.23km south	Langbaurgh ridge is identified as of national importance in the Geological Conservation Review only. Scoped out.
Cliff Ridge SSSI	12.32km south	Cliff Ridge is identified as of national importance in the Geological Conservation Review. Through small exposures in the upper quarries of Cliff Ridge a full cross-section of Cleveland Dyke can be seen, showing where the dyke encounters thermally altered metamorphosed sediments.
Durham Coast SSSI	12.38km north	The Durham Coast is of considerable biological, geological and physiographic interest. The site contains most of the paramaritime Magnesian Limestone vegetation in Britain, as well as supporting a species-rich dune system, and nationally important numbers of wintering shore birds and breeding little terns which contribute to the internationally important populations of the north-east coast. The paramaritime Magnesian Limestone vegetation consists of a mix of plants unique from the other lowland areas of the Magnesian Limestone grassland found in County Durham. The site supports nationally important numbers of wintering birds including; • Purple sandpiper *Calidris maritima* • Sanderling *Calidris alba,* • Knot *Calidris canutus*

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
		• Turnstone *Arenaria interpres* In addition to Marsden bay having an established seabird colony of kittiwake *Rissa* sp., fulmar *Fulmarus* sp.and cormorant *Phalacrocorax carbo*. The coast is also entomologically rich, supporting colonies of the Durham Argus butterfly Aricia *artaxerxes salmacis* and the least minor moth *Photedes captiuncula.*
Hart Bog SSSI	13.17km north-west	Hart Bog is of particular botanical, invertebrate and palaeobotanical interest. The site consists of a small topogenous mire sitting within a steep-sided hollow cut into glacial clays of a morainic mound. There is no inflow or outflow to the mire and whilst its core is relatively dry, composed of consolidated peat, the surrounding mire edge 'lagg' of semi-floating vegetation is exceedingly wet and 'quakes' in places. Four distinct types of plant community are identifiable; a bog mosses, species-poor fen, species-rich fen and scrub. The Bog is of invertebrate interest and supports one nationally rare species of water beetle and three locally rare species of harvestmen.
Pike Whin Bog SSSI	13.86km north-west	Pike Whin Bog is one of the few surviving wetlands in the lowlands of East Durham. The bog lies in a natural basin, in which the water level is at or above the ground surface for most of the year. Over majority of the site species-poor sedge fen has developed however among the sedge there is a small area dominated by great willow-herb *Epilobium hirsutum* and a stand of grey willow *Salix cinerea* srub. Grassland dominated by tufted hair grass sits at the margin of the site. Due to the scarcity of wetland sites in East Durham, many of the species which occur are now very local, but of note are greater spearwort *Ranunculus lingua*, slender tufted sedge *Carex acuta*, marsh stitchwort *Stellaria palustris* and a small population of bog bean *Menyanthes trifoliata*.
Kildale Hall SSSI	15.58km south-east	Kildale Hall is listed as of national importance in the Geological Conservation Review, due to its sequence of minerogenic and organic deposits in filling a former kettlehole. Of geological interest only. Scoped out.

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
Hulam Fen SSSI	15.62km north-west	Hulam Fen is a small site which supports a range of wetland and grassland vegetation developed over and around a hydrostatic spring-head, fed from the underlying Magnesian Limestone aquifer in an otherwise arable landscape. The fen consists of base-rich soligenous mire (comprising of a small sedge fen developed over peat), tall fen, marshy grassland and semi-improved neutral grassland. Within the mire a large population of the rare bird's-eye primrose *Primula farinosa* is particularly noteworthy. Soligenous mire, tall fen and marshy grassland are all rare habitats in East Durham due to agricultural intensification and urban development.
Castle Eden Dene SSSI	17.15km north-west	Castle Eden Dene is the largest and biologically the richest of a series of steep-sided wooded denes, formed as deep ravines in the Magnesian Limestone and boulder clay of the Durham Coast. Due to difficult terrain large parts of the woodland remain free from human disturbance. Majority of the woodland on base-rich soils with ash *Fraxinus excelsior* and wych elm *Ulmus glabra* as the main canopy species. The boulder clay slopes of the dene are unstable and prone to land slipes which become colonised with a wide range of ruderal and wetland plants with giant horsetail *Equisetum telmateia* often abundant, however in time willow *Salix* sp. scrub becomes established. At the western end of the dene is a small grassland containing species such as blue moor-grass *Sesleria albicans*, rock rose *Helianthemum nummularium* and fragrant orchid *Gymnadenia conopsea*. The site is rich in insects with a large population of nationally and regionally rare species including the elm feeding moth, Blomer's rivulet *Discoloxia blomeri*.
Pinkney And Gerrick SSSI	18.98km south-east	Pinkney and Gerrick Woods is an area of deciduous woodland on the steep slopes of Kilton Beck. It is of importance as one of the few ancient woodland sites in Cleveland which remains in a largely semi-natural condition. The woodland canopy consists mainly of oak *Quercus petraea type*, ash *Fraxinus excelsior* and downy birch *Betula pubescens* whilst damp soils support Alder *Alnus glutinosa*. The ground flora comprises of a mosaic of plant communities which reflect local variations in soil conditions. On

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
		well-drained slopes creeping soft-grass *Holcus mollis* and bramble Rubus fruticosus are dominant, more base-rich soils support dog's mercury *Mercurialis nerennis* and bluebell *Hyacinthoides non-scripta* whilst wet areas beneath alder are dominated by tufted hair-grass *Deschampsia cespitosa*. Within the wood there are areas of flushes where great horsetail *Equisetum telmateia* and hempagrimony *Eupatorium cannabinum* are present, as well as several small streams where opposite-leaved golden-saxifrage *Chrysosplenium oppositifolium* and large bitter-cress *Cardamine amara* can be seen in abundance on the banks.
Fishburn Grassland SSSI	17.63km north-west	Fishburn Grassland comprises of nationally rare species-rich calcareous grassland developed over magnesian limestone. On site the grassland is composed of two distinct communities, the first occurs exclusively in East Durham and is dominated by blue moor-grass *Sesleria albicans* and small scabious *Scabiosa columbaria* and the second is dominated by upright brome *Bromus erectus.* Scrub communities form the remainder of the site.
Charity Land SSSI	17.64km north-west	Charity Land is nationally important for its species-rich unimproved neutral grassland which remains one of the few unfragmented examples on the plateau of eastern Durham. The fields also support wetland and marshy grassland. Parts of the site have a rigg-and-furrow structure with plants characteristic of less well-drained soils such as meadowsweet *Filipendula ulmaria*, tufted hair-grass *Deschampsia cespitosa* and lady's smock *Cardamine pratensis* prominent in the furrows. Flooding of the River Skerne has led to the development of open water with species-poor swamps of reedmace *Typha latifolia*, branched bur-reed *Sparganium erectum* and floating sweet-grass *Glyceria fluitans*. In areas where seasonal flooding occurs there is a well-marked zone of inundation grassland with an abundance of common sedge Carex nigra and autumn hawkbit amongst other species. There are two small fields on the eastern margin that support species-poor marsh vegetation and derelict hedgerows through and around the periphery of the site.

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
Newton Ketton Meadow SSSI	19.26km west	Newton Ketton Meadow is nationally important as it is one of very few surviving unimproved hay meadows in the coastal plain between the Rivers Tyne and Tees. The dominant feature of this meadow is the characteristic abundance of great burnet *Sanguisorba officinalis*. The meadow is rich in grasses and herbs but of particular note are the variety of sedges within the sward including, glaucous sedge *Carex flacca*, hairy sedge *C. hirta*, tawny sedge *C. hostiana*, carnation sedge *C. panicea* and flea sedge *C. pulicaris*. On the northern edge of the site a small patch of fen vegetation merges gradually into the meadow.
Boulby Quarries SSSI	20.04km east	Boulby Quarries is identified as being of national importance in the Geological Conservation Review. The site provides a series of highly important cliff-top exposures which cut through the base of the mid-Jurassic Ravenscar Group into Upper Lias deposits of the Lower Jurassic Period. Great stratigraphic importance is attached to the unusually thick and complex Dogger Formation, at the base of the middle Jurassic beds which includes the only coastal section of *murchisonae* shale, named after the fossil ammonite *Ludwigia murchisonae*. The main Toarcian (Upper Lias) interest is in the extensive beds of Alum Shales which are exposed within vast areas of commercial workings dating back to the 17th century. The site is well known for its unique reptile fossil fauna.

4.2.8 Due to the proximity to the Proposed Development and the reasons for designation, Teesmouth and Cleveland Coast SSSI and Teesmouth NNR are **scoped in** to this assessment for both construction and operation.

4.2.9 As Lovell Hill Pond SSSI is located over 5km from the Proposed Development and is not designated for species that are likely to utilise the Proposed Development, it is ***scoped out*** of this assessment.

4.2.10 As Saltburn Gill SSSI is located over 9km from the Proposed Development and is designated for deciduous woodland (a habitat type that is resilient to air quality impacts) only, it is ***scoped out*** of this assessment.

4.2.11 As Briarcroft Pasture SSSI is designated for species rich, unimproved neutral grassland (a habitat type that is susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.12 As Roseberry Topping SSSI is designated for geological interest, it is ***scoped out*** of this assessment.

4.2.13 As North York Moors SSSI is designated for mire, dry heath, blanket bog and heather moorland (habitat types that may be susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.14 As Whitton Bridge Pasture SSSI is designated for species rich, unimproved neutral grassland (a habitat type that is susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.15 As Cliffe Ridge SSSI is designated for geological interest, it is ***scoped out*** of this assessment.

4.2.16 As Durham Coast SSSI is designated for paramaritime magnesium limestone vegetation and species-rich dune systems (habitat types that may be susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.17 As Hart Bog SSSI is designated for mire, bog mosses, species-poor fen, species-rich fen and scrub (habitat/vegetation types that may be susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.18 As Pike Whin Bog SSSI is designated for bog (a habitat type that is susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.19 As Kildale Hall SSSI is designated for geological interest, it is ***scoped out*** of this assessment.

4.2.20 As Hulam Fen SSSI is designated for fen, mire, marshy grassland and semi-improved neutral grassland (habitat/vegetation types that may be susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.21 As Castle Eden Dene SSSI is designated for woodland situated on base-rich soils, it is ***scoped in*** to this assessment for operation only.

4.2.22 As Pinkney and Gerrick SSSI is designated for ancient woodland situated on base-rich soils, it is ***scoped in*** to this assessment for operation only.

4.2.23 As Fishburn Grassland SSSI is designated for bog (a habitat type that is susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.24 As Charity Land SSSI is designated for species rich, unimproved neutral grassland (a habitat type that is susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.25 As Newton Ketton Meadow SSSI is designated for species rich, unimproved neutral grassland (a habitat type that is susceptible to air quality impacts), it is ***scoped in*** to this assessment for operation only.

4.2.26 As Boulby Quarries SSSI is designated for geological interest, it is ***scoped***

out of this assessment.

Local Statutory Designated Sites

4.2.27 All local statutory designated sites within 2km of the Proposed Development are displayed on Figure 10.3 and are listed in Table 4.3.

Table 4.3 Local Designated Sites within 2km of the Proposed Development.

Designated Site	Distance and Direction from the Proposed Development	Reason for Designation
Eston Pumping Station LWS	Within Proposed Development	No citation provided
Coatham Marsh LWS	820m east	C1 Saltmarsh, C2 Coastal grasslands, E1 flushes, seepages, springs etc. G1 Neutral grasslands, U1 Urban grasslands, V2 Vascular Plants
Greatham Creek North Bank Saltmarsh LWS	1.21km north	Small area of saltmarsh vegetation. Some ornithological interest but not sufficient to merit LWS status on its own. Vegetation is dominated by saltmarsh grass *Puccinellia* sp with a narrow fringe of glasswort *Salicornia* sp. C1 Saltmarsh.
Greenabella Marsh LWS	1.37km north	Rough grassland with wetland areas. Water vole *Arvicola amphibius*. Slow worm *Anguis fragilis* & common lizard *Zootoca vivipara*. Significant bird populations. High numbers of amphibians. Dingy skipper *Erynnis tages* & grayling *Hipparchia semele*. Possibly O3,A4,I2 & I6.
Saltern Saltmarsh LWS	1.72km north-west	Remnants of saltmarsh vegetation in tidal creeks, notably *Puccinellia distans*, *Salicornia* sp, *Spergularia marina*, *Glaux maritima*. The area supports c3.7% of total SPA bird numbers and important site for breeding lapwing *Vanellus vanellus*.C1 Saltmarsh
Zinc Works Bird Field LWS	1.81km north	An area of reclaimed land. Closely grazed grassland on the coastal migration flyway. Good numbers of wintering and migratory waterbirds & very important for migratory passerines. >0.5% of the national population of passage ring ousels *Turdus torquatus* recorded.
Teessaurus Park LWS	2.00km west	Located on south bank of River Tees and was part of a major reclamation scheme. There are areas of mown amenity grassland and areas of varied grass and herb mix. The herb species include kidney vetch *Anthyllis vulneraria*, vipers bugloss *Echium vulgare*, great lettuces *Lactuca virosa* and tansy *Tanaceteum annuum*.

4.2.28 Due to its proximity to the Proposed Development, Eston Pumping Station LWS is ***scoped in*** to this assessment for both construction and operation.

4.2.29 All other local designated sites are ***scoped out*** due to a lack of impact pathways.

Habitats and Flora

Habitats of Principal Importance

Desk Study

4.2.30 The following habitats of principal importance were identified within 2km of the Proposed Development during the desk study:

- Open Mosaic Habitat;
- Deciduous woodland;
- Lowland fen;
- Coastal and floodplain grazing marsh;
- Mudflats;
- Reedbeds;
- Saline lagoons;
- Coastal sand dunes; and
- Coastal saltmarsh.

Field Survey – 2023 Survey Season

4.2.31 In the 2023 survey season, the following habitats of principal importance were recorded within the Proposed Development:

- Open Mosaic Habitat;
- Rivers;
- Intertidal mudflats; and
- Reedbeds.

Field Survey – 2025 Survey Season

4.2.32 In the 2025 survey season, the following habitat of principal importance were recorded within the Proposed Development:

- Open Mosaic Habitat; and
- Reedbeds

4.2.33 Due to their importance and proximity to the Proposed Development, all habitats of principal importance have been ***scoped in*** to this assessment for construction and operation.

UK Habitat Classification

Field Survey – 2023 Survey Season

4.2.34 In the 2023 survey season, the following habitats were recorded within the Proposed Development:

- Other neutral grassland;
- Modified grassland;
- Mixed scrub;
- Artificial unvegetated, unsealed land;
- Developed land; sealed surface;
- Built linear features;
- Buildings;
- Other woodland; broadleaved; and
- Ditches.

Field Survey – 2025 Survey Season

4.2.35 In the 2025 survey season, the following habitats were recorded within the Proposed Development:

- Developed land; sealed surface;
- Artificial unvegetated, unsealed land;
- Sparsely vegetated land (vacant/derelict land);
- Sparsely vegetated land (Open Mosaic Habitat);
- Other wetlands;
- Bramble scrub;
- Willow scrub;
- Birch woodland; and
- Other neutral grassland.

4.2.36 All habitats within the Proposed Development are ***scoped in*** to this assessment for construction and operation.

Invasive Non-Native Species

Desk Study

4.2.37 The following invasive species were identified within 2km of the Proposed Development during the desk study:

- American mink *Neovison vison;*
- Canada goose *Branta canadensis;*
- Mandarin duck *Aix galericulata;*
- Egyptian goose *Alopochen aegyptiaca;*

- Black rat *Rattus rattus;*
- Japanese rose *Rosa rugosa;* and
- Himalayan cotoneaster *Cotoneaster simonsii*.

Field Survey – 2023 Survey Season

4.2.38 The following invasive species were recorded within the Proposed Development during the 2023 survey season:

- Japanese knotweed *Reynoutria japonica;*
- Japanese rose;
- Giant hogweed *Heracleum mantegazzianum;*
- Montbretia *Crocosmia x crocosmiiflora;*
- Wall cotoneaster *Cotoneaster horizontalis;*
- Himalayan cotoneaster; and
- Unknown cotoneaster species *Cotoneaster* sp.

Field Survey – 2025 Survey Season

4.2.39 The following invasive species was recorded within the Proposed Development during the 2025 survey season:

- Wall cotoneaster.

4.2.40 As invasive species have been consistently recorded within the Proposed Development, invasive species are ***scoped in*** to this assessment for construction only.

Ancient and Veteran Trees

4.2.41 No records of ancient or veteran trees were identified during the desk study, and no ancient or veteran trees were recorded during the field survey.

4.2.42 As no records of ancient or veteran trees were identified and no veteran trees were recorded within the Proposed Development during the field survey, ancient and veteran trees are ***scoped out*** of this assessment.

4.3 Fauna

4.3.1 The baseline for faunal species is informed by the desk study and the results of the Preliminary Ecological Appraisal (PEA). Species surveys undertaken in 2023/2024 have been utilised to provide further context but will not be relied upon for the assessment. A full suite of species surveys will be carried out in 2025-2026 and will be used to inform the ES assessment.

Amphibians

Desk Study

4.3.2 27 records of amphibians were returned in the desk study, comprising of: great crested newt *Triturus cristatus*, common toad *Bufo bufo*, smooth newt *Lissotriton vulgaris*, common frog *Rana temporaria* and an unidentified newt species *Lissotriton* sp.

4.3.3 No EPS licences for great crested newts were identified within the Proposed Development.

Field Survey – 2023/2024 Survey Season

4.3.4 27 waterbodies/watercourses within 250m of the Proposed Development were subject to HSI assessments in 2023/2024, of these 7 were considered to have suitability for GCN with a HSI score of 0.5 or higher.

4.3.5 Suitable terrestrial habitat was also identified within the Proposed Development, providing shelter and foraging habitat for amphibians but it was noted that these habitats are disconnected from each other by industrial sites and urban interventions (e.g. roads, walls etc).

Field Survey – 2025 Survey Season

4.3.6 Two waterbodies within the Main Site and one waterbody within 250m were subject to HSI assessments in 2025, all of which scored between '0.51 and 0.52 which is below average'.

4.3.7 Further HSI assessments and assessment of suitable terrestrial habitat will be undertaken to support the Environmental Statement.

4.3.8 At the time of writing, sufficient information is not available to make an assessment of the level of importance of amphibians in relation to the study area. As such, they are ***scoped in*** to this assessment on a precautionary basis for construction and operation.

Badger

Desk Study

4.3.9 Two records of badger *Meles meles* were returned in the desk study; however it should be noted that no location was provided for these due to confidentiality reasons.

Field Survey – 2023/2024 Survey Season

4.3.10 No field surveys for badger were carried out in 2023 or 2024.

Field Survey – 2025 Survey Season

4.3.11 The habitats surveyed within the Proposed Development in the PEA were deemed unsuitable for badger and were disconnected from the wider environment (when considering badger movements). Therefore, badger are ***scoped out*** of this assessment.

Bats

Desk Study

4.3.12 19 records of bats were returned in the desk study, comprising of: noctule *Nyctalus noctula*, common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaeus*, and an unknown pipistrelle species *Pipistrellus spp.*

4.3.13 No EPS licences for bats were identified within the Proposed Development.

Field Survey – 2023/2024 Survey Season

4.3.14 Emergence surveys were carried out on structures and trees within the Main Site and the utility connection corridors in 2024. No bats were recorded roosting in the features, but commuting and foraging activity was recorded during the surveys.

Field Survey – 2025 Survey Season

4.3.15 Night-time bat walkovers have been carried out within the Main Site. Only two bats were recorded during the transects – common pipistrelle and noctule. Statics detectors were also deployed in this area in spring, summer and autumn 2025, only one bat was recorded during the static deployment – a noctule bat. This is believed to be the same noctule that was recorded during the transect.

4.3.16 As bats have been consistently recorded within the Proposed Development, bats are ***scoped in*** to this assessment for construction and operation.

Breeding Birds

Desk Study

4.3.17 Over 53,000 records of birds were identified during the desk study consisting of 257 species.

Field Survey – 2023/2024 Survey Season

4.3.18 Breeding bird surveys were undertaken within and adjacent to the utility

connection corridors and adjacent to the Main Site in 2023 and 2024. SPA designated species, Schedule 1 species and other locally notable species were recorded during these surveys. However, it was noted that impacts on these species would be limited (based on previous scheme design/layout).

Field Survey – 2025 Survey Season

4.3.19 Breeding bird surveys have been undertaken across the Main Site in 2025.

4.3.20 No species that are qualifying features of the nearby designated sites were found to be breeding at the Main Site. Marsh harrier and Cetti's warbler which are both Schedule 1 species, were confirmed breeders at the Main Site. Finally, several locally notable species were also confirmed to breed at the Main Site.

4.3.21 Due to the species confirmed to be breeding at the Main Site, breeding birds are ***scoped in*** of this assessment for construction and operation as a precaution.

Reptiles

Desk Study

4.3.22 Eight reptile records were identified within the desk study, consisting of common lizard *Zootoca vivipara*, adder *Vipera berus*, slow-worm *Anguis fragilis*, red-eared terrapin *Trachemys scripta elegans*, and slider terrapin *Trachemys scripta*.

Field Survey – 2023/2024 Survey Season

4.3.23 Reptile surveys were undertaken in 2024. Surveys within a part of the Proposed Development were abandoned after three visits due to vegetation growth and nesting birds. This area was deemed unsuitable for reptiles due to these reasons. The remaining four visits were carried out at the other sites, only one sighting was made during all surveys – an adult toad.

Field Survey – 2025 Survey Season

4.3.24 Habitats within the Main Site were deemed to have a low suitability for reptiles during the PEA walkover. As such, detailed reptile surveys will not be carried out.

4.3.25 As no reptiles were recorded during the previous surveys, relatively few records of reptiles were identified in the desk study and no suitable habitats were identified during the 2025 PEA, reptiles have been ***scoped out*** of this assessment.

Otter

Desk Study

4.3.26 Eight records of otter were identified within the desk study.

Field Survey – 2023/2024 Survey Season

4.3.27 Otter surveys *Lutra lutra* were undertaken in spring 2023 and autumn 2024. No field signs of otter were recorded, but watercourses within and adjacent to the Proposed Development were considered suitable for otter.

Field Survey – 2025 Survey Season

4.3.28 No watercourses were identified within the Main Site during the PEA but the terrestrial habitats were deemed suitable for commuting otter. Watercourses within and adjacent to the utility connection corridors have not been surveyed (at the time of writing) so are presumed to be suitable for otter.

4.3.29 Updated otter surveys will be completed to support the Environmental Statement.

4.3.30 As the outputs of the 2026 surveys are not available, as a precaution, otter are ***scoped in*** to this assessment for construction and operation.

Other Terrestrial Mammals

Desk Study

4.3.31 298 records of other mammals were identified in the desk study, consisting of eight species. Of these, three are considered important within the scope of this assessment: west European hedgehog *Erinaceus europaeus*, brown hare *Lepus europaueus* and harvest mouse *Micromys minutus*.

Field Survey – 2023/2024 Survey Season

4.3.32 None of these species were recorded during the 2023/2024 survey season, but suitable habitat for them was identified through the Proposed Development.

Field Survey – 2025 Survey Season

4.3.33 The PEA identified suitable habitat for all three species within the Main Site and recommended that they are mitigated for during construction.

4.3.34 Due to the potential presence of other terrestrial mammals within the Proposed Development, terrestrial mammals are ***scoped in*** to this assessment for construction and operation.

Terrestrial Invertebrates

Desk Study

4.3.35 600 records of terrestrial invertebrates were identified during the desk study, comprising of 65 species.

Field Survey – 2023/2024 Survey Season

4.3.36 Invertebrate surveys were carried out within and adjacent to the utility connection corridors in 2024. 392 species were recorded within 21 species having a nature conservation status. Overall, the Proposed Development was deemed to have high value for invertebrates supporting nationally important species.

Field Survey – 2025 Survey Season

4.3.37 Lepidoptera surveys were carried out within the Main Site in Summer 2025. No species with statutory protection were recorded, but Tees Valley and UK BAP species were recorded and habitat suitable for statutory species was recorded.

4.3.38 As notable invertebrates have been recorded within the Proposed Development in 2024 and 2025, invertebrates have been ***scoped in*** to this assessment for construction and operation.

Water Vole

Desk Study

4.3.39 27 records of water vole *Arvicola amphibius* were identified within the desk study.

Field Survey – 2023/2024 Survey Season

4.3.40 Water vole surveys were undertaken in spring 2023 and autumn 2024. No confirmed field signs of water vole were recorded, but watercourses within and adjacent to the Proposed Development were considered suitable for water vole. Unknown burrows were recorded during the 20223/2024 surveys, but these were not confirmed to be water vole.

Field Survey – 2025 Survey Season

4.3.41 No suitable habitat for water vole was identified within the Main Site during the PEA, as such water vole are considered to be absent from the Main Site.

4.3.42 Watercourses within and adjacent to the utility connection corridors have

not been surveyed (at the time of writing) so are presumed to be suitable for water vole.

4.3.43 Water vole surveys will be undertaken from April 2026 onwards.

4.3.44 As the outputs of the 2026 riparian mammal surveys are not available, as a precaution, water vole are ***scoped in*** to this assessment for construction and operation.

Wintering Birds

Desk Study

4.3.45 Over 53,000 records of birds were identified during the desk study consisting of 257 species.

Field Survey – 2023/2024 Survey Season

4.3.46 Wintering bird surveys were carried out within and adjacent to the Proposed Development in 2023 and 2024 by walked and driven transects. Two qualifying species of the Tees Ramsar were recorded (Redshank and avocet) during these surveys and all four qualifying species of the Tees Ramsar were present in the WeBS data search conducted at this time.

Field Survey – 2025 Survey Season

4.3.47 A full suite of wintering bird surveys will be undertaken from September 2025 to March 2026.

4.3.48 Due to the previous presence of qualifying species and the survey data for winter 2025/26 not yet being available, wintering birds are ***scoped in*** to this assessment for construction and operation.

Summary

Receptor	Construction	Operation
Teesmouth and Cleveland Coast SPA & Ramsar	Scoped in	Scoped in
North York Moors SPA, North York Moors SAC, Northumbria Coast SPA, Northumbria Coast Ramsar, Durham Coast SAC and Castle Eden Dene SAC	Scoped out	Scoped in
Teesmouth and Cleveland Coast SSSI and Teesmouth NNR	Scoped in	Scoped in
Briarcroft Pasture SSSI, North York Moors SSSI, Whitton Bridge Pasture SSSI, Durham Coast SSSI, Hart Bog SSSI, Pike Whin Bog SSSI, Hulam Fen SSSI, Castle Eden Dene SSSI, Pinkney and Gerrick SSSI, Fishburn	Scoped out	Scoped in

Receptor	Construction	Operation
Grassland SSSI, Charity Land SSSI and Newton Ketton Meadow SSSI		
Lovell Hill Pond SSSI, Saltburn Gill SSSI, Roseberry Topping SSSI, Langbaugh Ridge SSSI, Cliff Ridge SSSI, Kildale Hall SSSI and Boulby Quarries SSSI	Scoped out	Scoped out
Coatham Marsh LWS, Greatham Creek North Bank Saltmarsh LWS, Greenabella Marsh LWS, Saltern Saltmarsh LWS, Zinc Works Bird Field LWS and Teessaurus Park LWS	Scoped out	Scoped out
Habitat of Principle importance	Scoped in	Scoped in
Habitats	Scoped in	Scoped in
Invasive species	Scoped in	Scoped out
Ancient or veteran trees	Scoped out	Scoped out
Amphibians	Scoped in	Scoped in
Badger	Scoped out	Scoped out
Bats	Scoped in	Scoped in
Breeding birds	Scoped in	Scoped in
Reptiles	Scoped out	Scoped out
Other mammals	Scoped in	Scoped in
Otter	Scoped in	Scoped in
Terrestrial invertebrates	Scoped in	Scoped in
Water vole	Scoped in	Scoped in
Wintering birds	Scoped in	Scoped in

4.4 Future Baseline

4.4.1 Climate change and flood risk (described in detail in Chapter 12: Water Environment and Flood Risk (PEIR, Volume 1) and Chapter 15: Climate Change Resilience (PEIR, Volume 1)), natural succession of habitats, the introduction of new receptors into an area and the continued operation of existing developments can all influence future baseline. This may result in a change of habitat type over time.

4.4.2 Areas more likely to flood, including designated sites, may change to habitats typical of wetter environments such as wetlands and marshes. Habitats may also alter as a result of increased occurrence of droughts, milder winters, increase in storm events etc. Invasive species can colonise quickly where previously absent.

4.4.3 Water quality is expected to improve due to legislation requirements and interventions such as Nutrient Neutrality Policy and Water Framework Directive (WFD) targets, positively supporting terrestrial ecology.

4.4.4 In the absence of the Proposed Development, it is predicted that the habitat context and management of the Proposed Development would see natural succession of semi-natural habitats except where other new development schemes have the potential to change the future baseline. As no substantive changes in habitat context and condition are predicted, the

species value of the Proposed Development and adjacent land is likely to remain consistent with the current baseline. Minor changes (upwards or downwards) in the distribution of some species, e.g. nesting birds, terrestrial invertebrates and bats, may occur in line with small-scale changes in habitat structure as a result of ecological succession or other natural processes. Any such changes are likely to be within the range of normal inter-annual variation in the distribution and abundance of species populations. In addition, potentially relevant protected species (e.g. badger) could establish in new locations where they would impose new working constraints, due to legislation protecting these species.

4.4.5 Any remedial works would be expected to be temporary, short term and localised in duration. Furthermore, remedial works would be required to be subject to appropriate mitigation measures, likely including measures outlined in a Noise Management Plan and Dust Management Plan. Therefore, this would limit the potential for significant disturbance impacts to surrounding ecological receptors.

4.5 Evaluation of Importance of Receptors

4.5.1 Due to the absence of survey data from the most recent survey season (i.e. 2025), the relative importance of each receptor is precautionary and will be refined as surveys are carried out in the remainder of 2025 and into the 2026 survey season.

4.5.2 Each receptor and its importance are detailed in Table 4.4.

Table 4.4 Importance of Ecological Receptors.

Receptor	Importance	Rationale
Statutory designated sites – international	International	Potential for damage to a European designated site
Statutory designated sites – national	National	Potential for damage to a nationally designated site
Local designated sites	County	Potential for damage to a locally designated site
Habitats of Principal Importance	National	Potential for damage to nationally designated habitats
Other habitats	Borough	Potential for damage to habitats considered important within the local BAP, or valuable to the local area
Amphibians	Borough	Potential for harm to small populations of amphibians
Bats	Local	Potential for harm to small populations of bats

Receptor	Importance	Rationale
Breeding Birds	County	Potential for harm to birds that have statutory protection.
Otter	Borough	Potential for harm to small populations of otter
Other mammals	Proposed Development (local)	Potential for harm to small populations of statutory protected mammals
Terrestrial invertebrates	Borough	Potential for harm to small populations of terrestrial invertebrates
Water vole	Borough	Potential for harm to small populations of water vole
Wintering birds	International/National/ Borough	Potential for harm to large populations of wintering birds that are nationally/internationally protected and listed within citations of European, national and locally designated sites.

5. Embedded Mitigation

5.1 Overview

5.1.1 The design of the Proposed Development is an iterative process and subject to revision and refinement throughout preparation of this PEIR and the subsequent ES. However, as stated in Chapter 4: Proposed Development (PEIR, Volume 1), embedded mitigation will be included as part of the design.

5.1.2 As a general principle, the mitigation hierarchy the mitigation hierarchy will be applied, having regard to the purpose of this national infrastructure project. Avoidance (in the first instance) and mitigation measures will be developed throughout the design process of the Proposed Development to reduce the impact of adverse effects. This will include creation of habitats to compensate for those lost during construction and enhancement of existing habitats to be retained.

5.1.3 The following represent key principles that will, wherever practicable, be enforced during the design of the Proposed Development:

5.2 Construction Phase

5.2.1 The layout of the SAF Production Facility will be designed, as far as practicable, to minimise potential noise impacts to birds within the Teesmouth and Cleveland Coast SSSI/SPA/Ramsar, whereby construction activities considered to result in high impacts may be sited in locations further from the internationally important site(s) where possible.

5.2.2 The Proposed Scheme will involve pipelines crossing the River Tees, which lies within the Teesmouth and Cleveland Coast SSSI/SPA/Ramsar. It is proposed that the Proposed Development will use existing pipelines under the River Tees, removing the need for additional crossings.

5.2.3 Measures intended to avoid or reduce air and water emission impacts are expected to be embedded into the design of the Proposed Development. This will help to minimise impacts on surrounding habitats, including statutory designated sites. Further details are provided in Chapter 8: Air Quality (PEIR, Volume 1) and Chapter 12: Water Environment and Flood Risk (PEIR, Volume 1).

5.2.4 The Proposed Development will pipe wastewater to the nearby Bran Sands Wastewater Treatment Plant for treatment. Treated wastewater is anticipated to be discharged to Tees Bay via Northumbrian Water Ltd's.' proposed new outfall from Bran Sands Wastewater Treatment Plant which is anticipated to be in use by the time the Proposed Development becomes

operational. If the long sea outfall is not in use when the Proposed Development commences operation treated water will be discharged from Bran Sands to the Dabholm Gut using the existing permitted discharge.

5.2.5 Sensitive timing and programming of construction will aim to avoid/minimise impacts upon protected and/or notable species and habitats. For example, percussive piling works associated with quay construction will be timed, as far as practicable, in order to minimise disturbance to overwintering birds and vegetation clearance will not occur March-September (inclusive) to avoid the breeding bird season. Where certain sensitive periods cannot feasibly be avoided, the use of visual and acoustic screening will be employed during construction to avoid disturbance to nearby bird assemblages.

5.2.6 An invasive species management plan will be developed to prevent the spread of invasive species during construction.

5.2.7 A Construction Environmental Management Plan (CEMP) for the Proposed Development, will be produced to cover works during the construction phase and an Outline CEMP (oCEMP) will be submitted as part of the DCO application. The oCEMP will detail best practice mitigation measures to be incorporated into the Proposed Development during the construction phase. It will form the basis of the full CEMP which will be provided by the appointed contractor prior to works commencing. Such measures may include:

- Habitat clearance being limited to areas needed to facilitate construction works, with areas of existing vegetation around Site margins for example being retained as far as feasible;
- Protective fencing will be used where necessary to demarcate habitats to be retained and prevent access from construction plant and operatives;
- The construction programme being kept to the minimum amount of time needed complete the works, in order to minimise the temporal extent of disturbance to ecological receptors;
- Soft-start techniques for plant and equipment to minimise loud, percussive noises most disturbing to birds, to be secured via a Noise Management Plan (NMP);
- General employment of noise and visual reduction measures on operational plant machinery and equipment, to be secured via an NMP;
- Dust suppression measures, to be secured via a Dust Management Plan (DMP);
- Best practice measures for pollution prevention to minimise impacts on surrounding habitats (including water quality), such as a suitable drainage design and use of silt fences, where necessary; and

- Implementation of a lighting strategy appropriate for the Proposed Development's location.

5.3 Operational Phase

5.3.1 Mitigation measures during the operation phase may include a sensitive lighting scheme to be implemented for any permanent lighting to be installed as part of the Proposed Development.

6. Likely Impacts and Effects of the Proposed Development

6.1 Overview

6.1.1 A preliminary assessment of likely impacts and effects on Terrestrial Ecology is presented within this section, based on the information available at the time of writing (November 2025). This is subject to change and refinement as the baseline is completed through further survey work in 2025 and early 2026 and assessment of the results of those surveys. The design of the Proposed Development will also progress and evolve, informed by this PIER and other assessments.

6.1.2 As such, the preliminary assessment has been undertaken on reasonable assumptions that have been made about likely impacts at this stage. The full assessment will be provided in the Environmental Statement.

6.2 Construction Phase

Teesmouth and Cleveland Coast SPA and Ramsar

Habitat Loss

6.2.1 As shown in Figure 10.1, some parts of the Proposed Development fall within the boundary of the Teesmouth and Cleveland Coast SPA/Ramsar. As the Proposed Development is still under development, it is currently assumed that there is the potential for habitats within these areas to be lost on either a permanent and temporary basis.

6.2.2 Therefore, the effects of the Proposed Development relating to habitat loss on the Teesmouth and Cleveland Coast SPA and Ramsar are considered to be **moderate adverse** in the absence of mitigation at an international level and are significant.

6.2.3 Habitat which may be lost in the marine environment is described in Chapter 11: Marine Ecology.

Loss of functionally linked land

6.2.4 The Proposed Development is located directly adjacent to the Teesmouth and Cleveland Coast SPA/Ramsar, with the proposed quay located within the SPA. During construction, functionally linked land may be permanently or temporarily lost due to habitat loss, loss of sightlines, noise pollution or water pollution.

6.2.5 Based on the results of the 2025 breeding bird surveys it is expected that the Proposed Development will result in the loss of breeding habitat for Schedule 1 and locally notable species.

6.2.6 Wintering bird surveys will take place in winter 2025/2026.

6.2.7 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to the loss of functionally linked land (of the Teesmouth and Cleveland Coast SPA/Ramsar) are considered to be **major adverse** at a county level.

Air Pollution

6.2.8 During the construction phase, local air pollution (NO_2, NH_3, acid deposition, particulates) may be increased by increased road, rail and sea movements associated with the Proposed Development. These movements may cause a temporary or permanent impact on habitats within the designated site, causing habitat degradation.

6.2.9 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as the change in air pollutant deposition is below the 1% critical level.

6.2.10 Ten receptors located within the Teesmouth and Cleveland Coast SPA and Ramsar will see in changes in nitrogen deposition over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.11 Therefore, the effects of the Proposed Development relating to air pollution on the Teesmouth and Cleveland Coast SPA and Ramsar are considered to be **negligible** at an international level and are not significant.

Dust Emissions

6.2.12 Dust emissions will also increase during construction due to the demolition of existing jetties and general construction activities throughout the Proposed Development. This dust may settle on habitats within the designated sites, smothering vegetation and potentially polluting the soil/vegetation if the dust is contaminated. This may lead to a temporary or permanent impact on habitats within the designated site, causing habitat degradation.

6.2.13 Embedded mitigation in the form of a dust management plan will be put in place prior to any construction activities. It is expected that this will include actions such as sheeting loose material within the Proposed Development and the use of water sprayers to damp down loose material.

6.2.14 Therefore, with embedded mitigation, the effects of the Proposed Development relating to dust emissions on the Teesmouth and Cleveland Coast SPA and Ramsar are considered to be ***negligible*** at an international level and are not significant.

Water Pollution

6.2.15 Water pollution may occur during construction as run-off from the Proposed Development into existing watercourses (including the River Tees and those hydrologically connected to it). Pollutants and sediments may be carried within this run-off which may impact the water quality of the waterbodies and those connected to them hydrologically. Without mitigation, this could cause major impacts to the qualifying habitats of the designated site.

6.2.16 Embedded mitigation in the oCEMP is expected to include (but not limited to) a construction drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.17 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on the Teesmouth and Cleveland Coast SPA and Ramsar are considered to be ***negligible*** at an international level and are not significant.

Teesmouth SSSI

Air Quality

6.2.18 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development. These movements may cause a temporary or permanent impact on habitats within the designated site, causing habitat degradation.

6.2.19 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.20 Ten receptors located within the Teesmouth and Cleveland Coast SSSI will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.21 Therefore, the effects of the Proposed Development relating to air pollution on the Teesmouth SSSI are considered to be **negligible** at a national level and are not significant.

Dust Emissions

6.2.22 Dust emissions will also increase during construction due to site clearance, the demolition of existing jetties and general construction activities throughout the Proposed Development. This dust may settle on habitats within the designated sites, smothering vegetation and potentially polluting the soil/vegetation if the dust is contaminated. This may lead to a temporary or permanent impact on habitats within the designated site, causing habitat degradation.

6.2.23 Embedded mitigation in the form of a dust management plan will be put in place prior to any construction activities. It is expected that this will include actions such as sheeting loose material within the Proposed Development and the use of sprayers to damp down loose material.

6.2.24 Therefore, with embedded mitigation, the effects of the Proposed Development relating to dust emissions on the Teesmouth SSSI are considered to be ***negligible*** at a national level and are not significant.

Water Pollution

6.2.25 Water pollution may occur during construction as run-off from the Proposed Development into existing watercourses (including the River Tees and those hydrologically connected to it). Pollutants and sediments may be carried within this run-off which may impact the water quality of the waterbodies and those connected to them hydrologically. Without mitigation, this could cause major impacts to the qualifying habitats of the designated site.

6.2.26 Embedded mitigation in the CEMP is expected to include (but not limited to) a drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.27 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on the Teesmouth SSSI are considered to be ***negligible*** at a national level and are not significant.

Teesmouth NNR

Air Quality

6.2.28 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development. These movements may cause a temporary or permanent impact on habitats within the designated site, causing habitat degradation.

6.2.29 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below

the 1% critical level.

6.2.30 Ten receptors located within the Teesmouth and Cleveland Coast NNR will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.31 Therefore, the effects of the Proposed Development relating to air pollution on the Teesmouth NNR are considered to be **negligible** at a national level and are not significant.

Water Pollution

6.2.32 Water pollution may occur during construction as run-off from the Proposed Development into existing watercourses (including the River Tees and those hydrologically connected to it). Pollutants and sediments may be carried within this run-off which may impact the water quality of the waterbodies and those connected to them hydrologically. Without mitigation, this could cause major impacts to the qualifying habitats of the designated site.

6.2.33 Embedded mitigation in the CEMP is expected to include (but not limited to) a construction drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.34 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on the Teesmouth NNR are considered to be ***negligible*** at a national level and are not significant.

Eston Pumping Station LWS

Habitat Loss

6.2.35 As shown in Figure 10.3 (PEIR Volume 2), some parts of the Proposed Development fall within the boundary of the Eston Pumping Station LWS. As the Proposed Development is still under development, it is currently assumed that there is the potential for habitats within these areas to be lost on both a permanent and temporary basis or the Proposed Development boundary to be revised to exclude the LWS. A detailed shapefile of the LWS boundary has been requested from ERIC-NE so that the boundary can be checked using GIS software.

6.2.36 Therefore, the effects of the Proposed Development relating to habitat loss on the Eston Pumping Station LWS are considered to be ***major adverse*** at a county level and are significant on a precautionary basis.

Air Pollution

6.2.37 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development. These movements may cause a temporary or permanent impact on habitats within the designated site, causing habitat degradation.

6.2.38 No habitat information was provided within the desk study for Eston Pumping Station LWS, therefore it is unknown what habitats are present within the designated site. However, most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are predicted to receive negligible impacts as change in air pollutants is below the 1% critical level. This includes the receptors located within Eston Pumping Station LWS.

6.2.39 Therefore, the effects of the Proposed Development relating to air pollution on the Eston Pumping Station LWS are considered to be ***negligible*** at a county level and are not significant.

Dust Emissions

6.2.40 Dust emissions may increase during construction due to the general construction activities throughout the Proposed Development. This dust may settle on habitats within the designated sites, smothering vegetation and potentially polluting the soil/vegetation if the dust is contaminated. This may lead to a temporary or permanent impact on habitats within the designated site, causing habitat degradation.

6.2.41 Embedded mitigation in the form of a dust management plan will be put in place prior to any construction activities. It is expected that this will include actions such as sheeting loose material within the Proposed Development and the use of sprayers to damp down loose material.

6.2.42 Therefore, with embedded mitigation, the effects of the Proposed Development relating to dust emissions on the Eston Pumping Station LWS are considered to be ***negligible*** at a county level and are not significant.

Water Pollution

6.2.43 Water pollution may occur during construction as run-off (accidental and deliberate) from the Proposed Development into existing watercourses. Pollutants and sediments may be carried within this run-off which may impact the water quality of the waterbodies and those connected to them hydrologically. Without mitigation, this could cause major impacts to the qualifying habitats of the designated site.

6.2.44 Embedded mitigation in the CEMP is expected to include (but not limited to) a drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.45 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on the Eston Pumping Station LWS are considered to be ***negligible*** at a county level and are not significant.

Habitats of Principal Importance

Habitat Loss

6.2.46 Habitats of principal importance are located within the Proposed Development. As the Proposed Development is still under development, it is currently assumed that there is the potential for habitats within the Proposed Development to be lost on both a permanent and temporary basis.

6.2.47 Therefore, the effects of the Proposed Development relating to habitat loss of habitats of principal importance are considered to be ***minor adverse*** at a national level and are significant.

Air Pollution

6.2.48 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development. These movements may cause a temporary or permanent impact on habitats of principal importance, causing habitat degradation.

6.2.49 Habitats of principal importance within and adjacent to the Proposed Development are susceptible to air pollution increases (such as lowland fen and coastal sand dunes).

6.2.50 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.51 Ten receptors located within the boundaries of the Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and (where applicable) NNR sites will see changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.52 Therefore, the effects of the Proposed Development relating to air pollution on habitats of principal importance are considered to be **negligible** at a national level and are not significant.

Dust Emissions

6.2.53 Dust emissions will also increase from the existing baseline during construction due general construction activities throughout the Proposed

Development. This dust may settle on habitats within the designated sites, smothering vegetation and potentially polluting the soil/vegetation if the dust is contaminated. This may lead to a temporary or permanent impact on habitats of principal importance, causing habitat degradation.

6.2.54 Embedded mitigation in the form of a dust management plan will be put in place prior to any construction activities. It is expected that this will include actions such as sheeting loose material within the Proposed Development and the use of sprayers to damp down loose material.

6.2.55 Therefore, with embedded mitigation, the effects of the Proposed Development relating to dust emissions on the habitats of principal importance are considered to be ***negligible*** at a national level and are not significant.

Water Pollution

6.2.56 Water pollution may occur during construction as run-off (accidental and deliberate) from the Proposed Development into existing watercourses. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to the habitats of principal importance that are vulnerable to water pollution (causing habitat degradation). These include saline lagoons, mudflats and reedbeds.

6.2.57 Embedded mitigation in the CEMP is expected to include (but not limited to) a drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.58 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on the habitats of principal importance are considered to be ***negligible*** at a national level and are not significant.

Habitats

Habitat Loss

6.2.59 It is currently assumed that there is the potential for all habitats within the Proposed Development to be lost either on a permanent or temporary basis depending on the area of the Site under consideration.

6.2.60 Permanent habitat loss is expected to mainly occur within the Main Site with temporary habitat loss occurring along the connection corridors.

6.2.61 Therefore, the effects of the Proposed Development relating to habitat loss of habitats are considered to be **moderate adverse** at a local level and are

significant.

Air Pollution

6.2.62 During the construction phase, local air pollution may be increased by increased road and sea movements associated with the Proposed Development. These movements may cause a temporary or permanent impact on habitats within and adjacent to the Proposed Development, causing habitat degradation.

6.2.63 Some habitats within the Proposed Development have not yet been surveyed and as such, it is unknown how susceptible they are to air pollution impacts.

6.2.64 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.65 Ten receptors located within the Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and (where applicable) NNR will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.66 Therefore, the effects of the Proposed Development relating to air pollution on habitats are considered to be **negligible** at a local level and are not significant.

Dust Emissions

6.2.67 Dust emissions will also increase during construction due to the demolition of existing structures and general construction activities throughout the Proposed Development. This dust may settle on habitats within the designated sites, smothering vegetation and potentially polluting the soil/vegetation if the dust is contaminated. This may lead to a temporary or permanent impact on habitats, causing habitat degradation.

6.2.68 Embedded mitigation in the form of a dust management plan will be put in place prior to any construction activities. It is expected that this will include actions such as sheeting loose material within the Proposed Development and the use of sprayers to damp down loose material.

6.2.69 Therefore, with embedded mitigation, the effects of the Proposed Development relating to dust emissions on habitats are considered to be ***negligible*** at a local level and are not significant.

Water Pollution

6.2.70 Water pollution may occur during construction as run-off from the Proposed Development into existing watercourses. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.2.71 Embedded mitigation in the CEMP is expected to include (but not limited to) a drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.72 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on habitats of principal importance are considered to be ***negligible*** at a local level and are not significant.

Invasive Species

Habitat Disturbance

6.2.73 Invasive species (including Japanese knotweed and giant hogweed) are present within the Proposed Development.

6.2.74 During construction, there is the possibility that invasive species may be transport within and away from the Proposed Development, potentially leading to further spread of invasive species.

6.2.75 Embedded mitigation within the invasive species management plan will include measures to control the spread of invasive species during construction and reduce their prevalence in the local area.

6.2.76 Therefore, with embedded mitigation, the effects of the Proposed Development relating to the habitat disturbance of invasive species are considered to be **minor beneficial** at a borough level and are not significant in EIA terms.

Amphibians

Habitat Loss and Fragmentation

6.2.77 Suitable terrestrial habitat for amphibians in the form of scrub and grassland has been identified within the Proposed Development and the ZoI. Suitable waterbodies have been identified within the ZoI and adjacent to the Proposed Development.

6.2.78 It is assumed as a worst case at this stage that the Proposed Development will result in the loss of habitats within the Proposed Development leading to direct habitat loss and habitat fragmentation for amphibians if present.

6.2.79 As detailed GCN surveys have not yet taken place, a detailed assessment of impacts on amphibians cannot be made at the time of writing, although standing water on Site was ephemeral and anecdotal information based on other surveys undertaken in the area indicate that GCN are not likely to be present within the Site or immediate surrounds.

6.2.80 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to the habitat loss and fragmentation of amphibians are considered to be ***major adverse*** at a borough level.

Noise and Vibration

6.2.81 Construction activities such as drilling and piling are expected to occur within the Proposed Development and lead to an increase in noise and vibration.

6.2.82 A number of noise monitoring locations have been selected for their importance for ecological receptors and will be used to assess baseline noise levels and the predicted impacts of the Proposed Development. As further ecological baseline information becomes available, these noise locations will be amended as necessary.

6.2.83 As baseline noise surveys and detailed GCN surveys have not yet taken place, a detailed assessment of impacts on amphibians cannot be made at the time of writing.

6.2.84 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to noise and vibration on amphibians are considered to be ***major adverse*** at a borough level.

Air Quality

6.2.85 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development.

6.2.86 Amphibians are not directly sensitive to changes in air pollution but may be indirectly affected by habitat degradation caused by air pollution.

6.2.87 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.88 Ten receptors located within the Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and (where applicable) NNR will see increases over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.89 Therefore, it is assumed that the effects of the Proposed Development relating to air pollution on amphibians are considered to be **negligible** at a borough level and not significant. This will be confirmed within the Environmental Statement following detailed surveys.

Water Pollution

6.2.90 Water pollution may occur during construction as run-off (accidental and deliberate) from the Proposed Development into existing watercourses/waterbodies (including those inhabited by GCN or hydrologically connected to them). Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.2.91 Embedded mitigation in the CEMP is expected to include (but not limited to) a drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.92 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on amphibians are considered to be ***negligible*** at a borough level and are not significant.

Artificial Lighting

6.2.93 Artificial lighting using during construction would be focused on works areas or those used by personnel working on the Proposed Development, but there is the potential that light spill from artificial lighting could affect amphibians.

6.2.94 Artificial lighting may disturb amphibians which may avoid certain habitats, affecting their foraging, commuting, breeding or other activities.

6.2.95 Embedded mitigation will be detailed in the CEMP but is expected to include: sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.

6.2.96 However, the overall construction lighting requirements are not yet known. Furthermore, detailed baseline surveys for GCN have not been undertaken.

6.2.97 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to artificial lighting on amphibians are considered to be **moderate adverse** at a borough level.

Bats

Habitat Loss and Fragmentation

6.2.98 Suitable foraging and commuting habitat for bat in the form of woodland, scrub and grassland has been identified within the Proposed Development and the ZoI. Suitable roosting features have also been identified within the ZoI and adjacent to the Proposed Development.

6.2.99 It is assumed at this stage that the Proposed Development will result in the loss of habitats within the Proposed Development leading to direct habitat loss and habitat fragmentation for bats.

6.2.100 As detailed bat surveys (transect, static and emergence) have not yet taken place, a detailed assessment of impacts on bats cannot be made at the time of writing. However, the majority of acoustic data has been analysed and only one bat has been recorded.

6.2.101 Therefore, it is assumed that the effects of the Proposed Development relating to the habitat loss and fragmentation of bats are considered to be **minor adverse** at a local level.

Noise and Vibration

6.2.102 Construction activities such as drilling and piling are expected to occur within the Proposed Development and lead to an increase in noise and vibration.

6.2.103 A number of noise monitoring locations have been selected for their importance for ecological receptors and will be used to assess baseline noise levels and the predicted impacts of the Proposed Development. As further ecological baseline information becomes available, these noise locations will be amended as necessary.

6.2.104 As baseline noise surveys and detailed bat surveys have not yet taken place, a detailed assessment of noise and vibration impacts on bats cannot be made at the time of writing.

6.2.105 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to noise and vibration on bats are considered to be **minor adverse** at a borough level.

Air Quality

6.2.106 During the construction phase, local air pollution may be increased by increased road and sea movements associated with the Proposed Development.

6.2.107 At this time, the baseline air pollution levels are not known and the frequency or magnitude of these additional vehicle movements is not

known.

6.2.108 Bats are not directly sensitive to changes in air pollution but may be indirectly affected by habitat degradation (as detailed above) cause by air pollution.

6.2.109 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.110 Ten receptors located within the Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and (where applicable) NNR will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.111 Therefore, it is assumed that the effects of the Proposed Development relating to air pollution on bats are considered to be **negligible** at a borough level and not significant.

Artificial Lighting

6.2.112 Artificial lighting using during construction would be focused on works areas or those used by personnel working on the Proposed Development, but there is the potential that light spill from artificial lighting could affect bats.

6.2.113 Artificial lighting may disturb bats which may avoid certain habitats, affecting their foraging, commuting, breeding or other activities.

6.2.114 Embedded mitigation will be detailed in the CEMP but is expected to include: sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.

6.2.115 However, the overall construction lighting requirements are not yet known. Furthermore, detailed baseline surveys for bats have not been undertaken.

6.2.116 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to artificial lighting on bats are considered to be **minor adverse** at a borough level.

Breeding Birds

Habitat Loss and Fragmentation

6.2.117 Suitable habitat for breeding birds in the form of open mosaic habitat, woodland, scrub and grassland has been identified within the Proposed Development and the ZoI.

6.2.118 Based on the results of the 2025 breeding bird surveys it is expected that the Proposed Development will result in the loss of habitats within the Proposed Development leading to direct habitat loss and habitat fragmentation for breeding birds.

6.2.119 This will result in the loss of breeding habitat for Schedule 1 and locally notable species.

6.2.120 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to the habitat loss and fragmentation of breeding birds are considered to be ***major adverse*** at a county level.

Noise and Vibration

6.2.121 Construction activities such as drilling and piling are expected to occur within the Proposed Development and lead to an increase in noise and vibration.

6.2.122 A number of noise monitoring locations have been selected for their importance for ecological receptors and will be used to assess baseline noise levels and the predicted impacts of the Proposed Development. As further ecological baseline information becomes available, these noise locations will be amended as necessary.

6.2.123 As baseline noise surveys have not yet taken place, a detailed assessment of noise and vibration impacts on breeding birds cannot be made at the time of writing.

6.2.124 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to noise and vibration on breeding birds are considered to be ***major adverse*** at a county level.

Air Quality

6.2.125 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development.

6.2.126 At this time, the baseline concentrations of air pollutants are not known and the frequency or magnitude of these additional vehicle movements is not known.

6.2.127 Breeding birds are not directly sensitive to changes in air pollution but may be indirectly affected by habitat degradation (as detailed above) caused by air pollution.

6.2.128 Most ecological receptors are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.129 Ten receptors located within the Teesmouth and Cleveland Coast SPA,

Ramsar, SSSI and (where applicable) NNR will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.130 Therefore, the effects of the Proposed Development relating to air pollution on breeding birds are considered to be **negligible** at a county level.

Artificial Lighting

6.2.131 Artificial lighting using during construction would be focused on works areas or those used by personnel working on the Proposed Development, but there is the potential that light spill from artificial lighting could affect breeding birds.

6.2.132 Artificial lighting may disturb breeding birds which may avoid certain habitats, affecting their foraging, commuting, breeding or other activities. Alternatively, lighting may illuminate nests making them more prone to predation.

6.2.133 Embedded mitigation will be detailed in the CEMP but is expected to include sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.

6.2.134 However, the overall construction lighting requirements are not yet known.

6.2.135 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to artificial lighting on breeding birds are considered to be ***minor adverse*** at a county level.

Otter

Habitat Loss and Fragmentation

6.2.136 Suitable terrestrial habitat for otter commuting in the form of scrub and grassland has been identified within the Proposed Development and the ZoI. Suitable watercourses have been identified within the ZoI and adjacent to the Proposed Development.

6.2.137 It is assumed at this stage that the Proposed Development will result in the loss of habitats within the Proposed Development leading to direct habitat loss and habitat fragmentation for otter.

6.2.138 As detailed otter surveys have not yet taken place, a detailed assessment of impacts on otter cannot be made at the time of writing.

6.2.139 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to the habitat loss and fragmentation of otter are

considered to be ***major adverse*** at a borough level.

Noise and Vibration

6.2.140 Construction activities such as drilling and piling are expected to occur within the Proposed Development and lead to an increase in noise and vibration.

6.2.141 A number of noise monitoring locations have been selected for their importance for ecological receptors and will be used to assess baseline noise levels and the predicted impacts of the Proposed Development. As further ecological baseline information becomes available, these noise locations will be amended as necessary.

6.2.142 As baseline noise surveys and detailed otter surveys have not yet taken place, a detailed assessment of impacts on otter cannot be made at the time of writing.

6.2.143 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to noise and vibration on otter are considered to be ***major adverse*** at a borough level.

Air Quality

6.2.144 During the construction phase, local air pollution may be increased by increased road and sea movements associated with the Proposed Development.

6.2.145 At this time, the baseline air pollution levels are not known and the frequency or magnitude of these additional vehicle movements is not known.

6.2.146 Otter are not directly sensitive to changes in air pollution but may be indirectly affected by habitat degradation (as detailed above) cause by air pollution.

6.2.147 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.148 Ten receptors located within the Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and (where applicable) NNR will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.149 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to air pollution on otter are considered to be ***negligible*** at a borough level.

Water Pollution

6.2.150 Water pollution may occur during construction as run-off from the Proposed Development into existing watercourses/waterbodies (including those utilised by otter or hydrologically connected to them). Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.2.151 Embedded mitigation in the CEMP is expected to include (but not limited to) a drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.152 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on otter are considered to be ***negligible*** at a borough level and are not significant.

Artificial Lighting

6.2.153 Artificial lighting using during construction would be focused on works areas or those used by personnel working on the Proposed Development, but there is the potential that light spill from artificial lighting could affect otter.

6.2.154 Artificial lighting may disturb otter which may avoid certain habitats, affecting their foraging, commuting, breeding or other activities.

6.2.155 Embedded mitigation will be detailed in the CEMP but is expected to include: sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.

6.2.156 However, the overall construction lighting requirements are not yet known. Furthermore, detailed baseline surveys for otter have not been undertaken.

6.2.157 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to artificial lighting on otter are considered to be **major adverse** at a borough level.

Other Mammals

Habitat Loss and Fragmentation

6.2.158 Suitable terrestrial habitat for other mammal (namely hedgehog and brown hare) in the form of woodland, scrub and grassland has been identified within the Proposed Development and the ZoI. No mammal signs were recorded during the PEA.

6.2.159 It is assumed at this stage that the Proposed Development will result in the

loss of habitats within the Proposed Development leading to direct habitat loss and habitat fragmentation for other mammals.

6.2.160 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to the habitat loss and fragmentation of other mammals re considered to be ***minor adverse*** at a borough level.

Air Quality

6.2.161 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development.

6.2.162 At this time, the baseline air pollution levels are not known, and the frequency or magnitude of these additional vehicle movements is not known.

6.2.163 Mammals are not directly sensitive to changes in air pollution but may be indirectly affected by habitat degradation (as detailed above) caused by air pollution.

6.2.164 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.165 Ten receptors located within the Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and (where applicable) NNR will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.166 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to air pollution on other mammals are considered to be **negligible** at a borough level.

Artificial Lighting

6.2.167 Artificial lighting using during construction would be focused on works areas or those used by personnel working on the Proposed Development, but there is the potential that light spill from artificial lighting could affect other mammals.

6.2.168 Artificial lighting may disturb other mammals which may avoid certain habitats, affecting their foraging, commuting, breeding or other activities.

6.2.169 Embedded mitigation will be detailed in the CEMP but is expected to include: sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.

6.2.170 However, the overall construction lighting requirements are not yet known.

6.2.171 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to artificial lighting on other mammals are considered to be **minor adverse** at a borough level.

Terrestrial Invertebrates

Habitat Loss and Fragmentation

6.2.172 Suitable terrestrial habitat for terrestrial invertebrates in the form of swamp, sparsely vegetated land, woodland, reedbed, scrub and grassland has been identified within the Proposed Development and the ZoI.

6.2.173 It is assumed at this stage that the Proposed Development will result in the loss of habitats within the Proposed Development leading to direct habitat loss and habitat fragmentation for terrestrial invertebrates.

6.2.174 No statutory protected invertebrates were recorded during the detailed invertebrate surveys, but the Proposed Development does have the potential to support them. Other notable invertebrate species were recorded during the invertebrate surveys.

6.2.175 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to the habitat loss and fragmentation of terrestrial invertebrates are considered to be ***minor adverse*** at a borough level.

Air Quality

6.2.176 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development.

6.2.177 At this time, the baseline air pollution levels are not known, and the frequency or magnitude of these additional vehicle movements is not known.

6.2.178 Terrestrial invertebrates are not directly sensitive to changes in air pollution but may be indirectly affected by habitat degradation (as detailed above) caused by air pollution.

6.2.179 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.180 Ten receptors located within the Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and (where applicable) NNR will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction

traffic would result in significant impacts.

6.2.181 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to air pollution on terrestrial invertebrates are considered to be **negligible** at a borough level.

Water Pollution

6.2.182 Water pollution may occur during construction as run-off (accidental and deliberate) from the Proposed Development into existing watercourses/waterbodies. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.2.183 Embedded mitigation in the CEMP is expected to include (but not limited to) a drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.184 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on terrestrial invertebrates are considered to be ***negligible*** at a borough level and are not significant.

Artificial Lighting

6.2.185 Artificial lighting using during construction would be focused on works areas or those used by personnel working on the Proposed Development, but there is the potential that light spill from artificial lighting could affect terrestrial invertebrates.

6.2.186 Artificial lighting may disturb terrestrial invertebrates which may avoid certain habitats or attract them to the lit areas, affecting their foraging, commuting, breeding or other activities.

6.2.187 Embedded mitigation will be detailed in the CEMP but is expected to include: sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.

6.2.188 However, the overall construction lighting requirements are not yet known.

6.2.189 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to artificial lighting on terrestrial invertebrates are considered to be **minor adverse** at a borough level.

Water Vole

Habitat Loss and Fragmentation

6.2.190 Suitable watercourses for water vole may be present within the Proposed Development and ZoI.

6.2.191 It is assumed at this stage that the Proposed Development will result in the loss of habitats within the Proposed Development leading to direct habitat loss and habitat fragmentation for water vole.

6.2.192 As detailed water vole surveys have not yet taken place, a detailed assessment of impacts on water vole cannot be made at the time of writing.

6.2.193 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to the habitat loss and fragmentation of water vole are considered to be ***major adverse*** at a borough level.

Noise and Vibration

6.2.194 Construction activities such as drilling and piling are expected to occur within the Proposed Development and lead to an increase in noise and vibration.

6.2.195 A number of noise monitoring locations have been selected for their importance for ecological receptors and will be used to assess baseline noise levels and the predicted impacts of the Proposed Development. As further ecological baseline information becomes available, these noise locations will be amended as necessary.

6.2.196 As baseline noise surveys and detailed water vole surveys have not yet taken place, a detailed assessment of impacts on water vole cannot be made at the time of writing.

6.2.197 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to noise and vibration on water vole are considered to be **major adverse** at a borough level.

Air Quality

6.2.198 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development.

6.2.199 At this time, the baseline air pollution levels are not known, and the frequency or magnitude of these additional vehicle movements is not known.

6.2.200 Water vole are not directly sensitive to changes in air pollution but may be indirectly affected by habitat degradation (as detailed above) caused by air

pollution.

6.2.201 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.202 Ten receptors located within the Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and (where applicable) NNR will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.203 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to air pollution on water vole are considered to be **negligible** at a borough level.

Water Pollution

6.2.204 Water pollution may occur during construction as run-off (accidental and deliberate) from the Proposed Development into existing watercourses/waterbodies (including those utilised by water vole or hydrologically connected to them). Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.2.205 Embedded mitigation in the CEMP is expected to include (but not limited to) a drainage strategy to prevent/reduce the rainwater run-off and to reduce the impact of chemical/fuel spills.

6.2.206 Therefore, with embedded mitigation, the effects of the Proposed Development relating to water pollution on water vole are considered to be ***negligible*** at a borough level and are not significant.

Artificial Lighting

6.2.207 Artificial lighting using during construction would be focused on works areas or those used by personnel working on the Proposed Development, but there is the potential that light spill from artificial lighting could affect water vole.

6.2.208 Artificial lighting may disturb water vole which may avoid certain habitats or watercourses, affecting their foraging, commuting, breeding or other activities.

6.2.209 Embedded mitigation will be detailed in the CEMP but is expected to include: sensitive use of artificial lighting to minimise light spill into adjacent

habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.

6.2.210 However, the overall construction lighting requirements are not yet known. Furthermore, detailed baseline surveys for water vole have not been undertaken.

6.2.211 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to artificial lighting on water vole are considered to be **major adverse** at a borough level.

Wintering Birds

Habitat Loss and Fragmentation

6.2.212 Suitable habitat for wintering birds in the form of intertidal mudflat and grassland has been identified within the Proposed Development and the ZoI.

6.2.213 It is assumed at this stage that the Proposed Development will result in the loss of habitats within the Proposed Development leading to direct habitat loss and habitat fragmentation for wintering birds.

6.2.214 As wintering bird surveys have not yet taken place, a detailed assessment of impacts on wintering birds cannot be made at the time of writing.

6.2.215 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to the habitat loss and fragmentation of breeding birds are considered to be ***major adverse*** at an international/national/ borough level.

Noise and Vibration

6.2.216 Construction activities such as drilling and piling are expected to occur within the Proposed Development and lead to an increase in noise and vibration.

6.2.217 A number of noise monitoring locations have been selected for their importance for ecological receptors and will be used to assess baseline noise levels and the predicted impacts of the Proposed Development. As further ecological baseline information becomes available, these noise locations will be amended as necessary.

6.2.218 As baseline noise surveys and detailed wintering bird surveys have not yet taken place, a detailed assessment of noise and vibration impacts on wintering birds cannot be made at the time of writing.

6.2.219 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to noise and vibration on breeding birds are considered to be **major adverse** at an international/national/borough level.

Air Quality

6.2.220 During the construction phase, local air pollution may be increased by increased road, rail and sea movements associated with the Proposed Development.

6.2.221 At this time, the baseline air pollution levels are not known and the frequency or magnitude of these additional vehicle movements is not known.

6.2.222 Wintering birds are not directly sensitive to changes in air pollution but may be indirectly affected by habitat degradation (as detailed above) caused by air pollution.

6.2.223 Most ecological receptors (Chapter 8: Air Quality (PEIR, Volume 1)) are considered to have negligible impacts as change in air pollutants is below the 1% critical level.

6.2.224 Ten receptors located within the Teesmouth and Cleveland Coast SPA, Ramsar, SSSI and (where applicable) NNR will see in changes over the critical level. However, changes in vegetation as a result of deposition impacts are a function of long-term exposure (years) rather than short term exposure. It is therefore considered unlikely that impacts from construction traffic would result in significant impacts.

6.2.225 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to air pollution on wintering birds are considered to be **negligible** at an international/national/borough level.

Artificial Lighting

6.2.226 Artificial lighting using during construction would be focused on works areas or those used by personnel working on the Proposed Development, but there is the potential that light spill from artificial lighting could affect wintering birds.

6.2.227 Artificial lighting may disturb wintering birds which may avoid certain habitats, affecting their feeding, commuting, breeding or other activities.

6.2.228 Embedded mitigation will be detailed in the CEMP but is expected to include: sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.

6.2.229 However, the overall construction lighting requirements are not yet known. Furthermore, baseline surveys for wintering birds have not been undertaken.

6.2.230 Therefore, as a precaution, it is assumed that the effects of the Proposed Development relating to artificial lighting on wintering birds are considered

to be ***major adverse*** at an international/national/borough level.

6.3 Operational Phase

6.3.1 Based on currently available information regarding the Proposed Development, baseline ecology information and best judgement, the following impacts have been assessed at the time of writing:

- Air Pollution; and
- Water Pollution.

6.3.2 The following impacts will be subject to a detailed assessment within the Environmental Statement:

- Artificial Lighting;
- Loss of Sightlines;
- Visual Impact; and
- Noise and Vibration.

Teesmouth and Cleveland Coast SPA and Ramsar

Air Pollution

6.3.3 At the time of writing, the detailed air quality analysis has indicated that there is the potential for air quality impacts on the designated site from NO_x, metal deposition, SO_2 and HF. Alone, these effects are considered to be not significant but in-combination effects have not been considered.

6.3.4 Therefore, there is the potential for significant effects to occur. These will be assessed in detail within the Environmental Statement and the HRA.

Water Pollution

6.3.5 Water pollution may occur during operation as run-off or wastewater from the Proposed Development into existing watercourses/waterbodies. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.3.6 An appropriate surface water drainage system will be implemented that will incorporate appropriate pollution control and maintenance measures to mitigate the risk of pollution during operation. The operation of the Proposed Development will also include appropriate preventative measures, monitoring and control of environmental risks through the environmental permit.

6.3.7 Process water produced by the facility will be piped to the Bran Sands

WwTW for treatment and will be discharged to Tees Bay using a new outfall that will manage discharge under Northumbrian Water Ltd's new environmental permits with no direct untreated discharge made to the River Tees or other water bodies proposed. If the proposed marine outfall from Bran Sands is not operational when the SAF production facility commences operation, then direct discharge to the Tees via Bran Sands WwTW may be required. Mitigation measures to compensate for additional nutrient nitrogen emissions to the Tees from Bran Sands WwTW will be agreed with Natural England and the Environment Agency.

6.3.8 Therefore, it assumed that the effects of the Proposed Development relating to water pollution are considered to be **negligible** and not significant.

Noise

6.3.9 At the time of writing, an operational noise impact assessment on ecological receptors has not been carried out. Therefore, operational noise impacts cannot be assessed.

6.3.10 These impacts will be assessed in detail in the ES.

Visual Disturbance and Loss of Sightlines

6.3.11 At the time of writing, a visual assessment of the Proposed Development on ecological receptors has not been carried out. Therefore, these impacts cannot be assessed.

6.3.12 These impacts will be assessed in detail in the ES.

North York Moors SPA and SAC

Air Quality

6.3.13 The operational air quality assessment has indicated that the designated site will not see any air quality changes above the critical level.

6.3.14 Therefore, it assumed that the effects of the Proposed Development relating to air quality impacts are considered to be **negligible** and not significant.

Northumbria Coast SPA and Ramsar

Air Quality

6.3.15 The operational air quality assessment has indicated that the designated site will not see any air quality changes above the critical level.

6.3.16 Therefore, it assumed that the effects of the Proposed Development

relating to air quality impacts are considered to be **negligible** and not significant.

Durham Coast SAC

Air Quality

6.3.17 The operational air quality assessment has indicated that the designated site will not see any air quality changes above the critical level.

6.3.18 Therefore, it assumed that the effects of the Proposed Development relating to air quality impacts are considered to be **negligible** and not significant.

Castle Eden Dene SAC

6.3.19 At the time of writing, Castle Eden Dene SAC has not been subject to a detailed air quality assessment. Therefore, these impacts cannot be assessed.

6.3.20 These impacts will be assessed in detail in the ES.

Teesmouth and Cleveland Coast SSSI

Air Pollution

6.3.21 At the time of writing, the detail air quality analysis has indicated that there is the potential for air quality impacts on the designated site from NO_x, metal deposition, SO_2 and HF. Alone, these effects are considered to be not significant but in-combination effects have not yet been considered.

6.3.22 Therefore, there is the potential for significant effects to occur. These will be assessed in detail within the ES.

Water Pollution

6.3.23 Water pollution may occur during operation as run-off (accidental and deliberate) or wastewater from the Proposed Development into existing watercourses/waterbodies. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.3.24 An appropriate surface water drainage system will be implemented that will incorporate appropriate pollution control and maintenance measures to mitigate the risk of pollution during operation. The operation of the Proposed Development will also include appropriate preventative

measures, monitoring and control of environmental risks through the environmental permit.

6.3.25 All wastewater streams produced by the facility will be piped to the Bran Sands WwTW for treatment and will be discharged to Tees Bay using a new outfall that will manage discharge in accordance with existing environmental permits, with no direct discharge made to the River Tees or other water bodies proposed. If the proposed marine outfall from Bran Sands is not operational when the SAF production facility commences operation, then direct discharge to the Tees via Bran Sands WwTW may be required. Mitigation measures to compensate for additional nutrient nitrogen emissions to the Tees from Bran Sands WwTW will be agreed with Natural England and the Environment Agency.

6.3.26 Therefore, it assumed that the effects of the Proposed Development relating to water pollution are considered to be **negligible** and not significant.

Noise

6.3.27 At the time of writing, an operational noise impact on ecological receptors has not been carried out. Therefore, operational noise impacts cannot be assessed at this stage. These impacts will be assessed in detail in the ES.

Visual Disturbance and Loss of Sightlines

6.3.28 At the time of writing, a visual assessment of the Proposed Development on ecological receptors has not been carried out. Therefore, these impacts cannot be assessed at this stage. These impacts will be assessed in detail in the ES.

Teesmouth NNR

Air Pollution

6.3.29 At the time of writing, the detailed air quality analysis has indicated that there is the potential for air quality impacts on the designated site from NO_x, and potentially other trace pollutants such as metals. However, these effects are considered to be not significant based on the predicted concentrations.

Water Pollution

6.3.30 Water pollution may occur during operation as run-off (accidental and deliberate) or wastewater from the Proposed Development into existing watercourses/waterbodies. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and

those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.3.31 An appropriate surface water drainage system will be implemented that will incorporate appropriate pollution control and maintenance measures to mitigate the risk of pollution during operation. The operation of the Proposed Development will also include appropriate preventative measures, monitoring and control of environmental risks through the environmental permit.

6.3.32 All wastewater streams produced by the facility will be piped to the Bran Sands WwTW for treatment and will be discharged to Tees Bay using a new outfall that will manage discharge in accordance with existing environmental permits, with no direct discharge made to the River Tees or other water bodies proposed.

6.3.33 Therefore, it assumed that the effects of the Proposed Development relating to water pollution are considered to be **negligible** and not significant.

Noise

6.3.34 At the time of writing, an operational noise impact assessment on ecological receptors has not been carried out. Therefore, operational noise impacts cannot be assessed. These impacts will be assessed in detail in the ES.

Visual Disturbance and Loss of Sightlines

6.3.35 At the time of writing, a visual assessment of the Proposed Development on ecological receptors has not been carried out. Therefore, these impacts cannot be assessed. These impacts will be assessed in detail in the ES.

Briarcroft Pasture SSSI, North York Moors SSSI and Whitton Bridge Pasture SSSI

Air Quality

6.3.36 The operational air quality assessment has indicated that the designated sites will not see any air quality changes above the critical level.

6.3.37 Therefore, it assumed that the effects of the Proposed Development relating to air quality impacts are considered to be **negligible** and not significant.

Durham Coast SSSI, Hart Bog SSSI, Pike Whin Bog SSSI, Hulam Fen SSSI, Castle Eden Dene SSSI, Pinkney and

Gerrick SSSI, Fishburn Grassland SSSI, Charity Land SSSI and Newton Ketton Meadow SSSI

Air Quality

6.3.38 The operational air quality assessment has indicated that the designated sites will not see any air quality changes above the critical level.

6.3.39 Therefore, it assumed that the effects of the Proposed Development relating to air quality impacts are considered to be **negligible** and not significant.

Habitats of Principal Importance

Air Pollution

6.3.40 At the time of writing, the detail air quality analysis has indicated that there is the potential for air quality impacts on the designated site from NO_x, metal deposition, SO_2 and HF. Alone, these effects are considered to be not significant but in-combination effects have not yet been considered.

6.3.41 Therefore, there is the potential for significant in-combination effects to occur. These will be assessed in detail within the ES.

Water Pollution

6.3.42 Water pollution may occur during operation as run-off or wastewater from the Proposed Development into existing watercourses/waterbodies. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.3.43 An appropriate surface water drainage system will be implemented that will incorporate appropriate pollution control and maintenance measures to mitigate the risk of pollution during operation. The operation of the Proposed Development will also include appropriate preventative measures, monitoring and control of environmental risks through the environmental permit.

6.3.44 All wastewater streams produced by the facility will be piped to the Bran Sands WwTW for treatment and will be discharged to Tees Bay using a new outfall that will manage discharge in accordance with existing environmental permits, with no direct discharge made to the River Tees or other water bodies proposed.

6.3.45 Therefore, it assumed that the effects of the Proposed Development relating to water pollution are considered to be **negligible** and not

significant.

Amphibians

Water Pollution

6.3.46 Water pollution may occur during operation as run-off or wastewater from the Proposed Development into existing watercourses/waterbodies. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.3.47 An appropriate surface water drainage system will be implemented that will incorporate appropriate pollution control and maintenance measures to mitigate the risk of pollution during operation. The operation of the Proposed Development will also include appropriate preventative measures, monitoring and control of environmental risks through the environmental permit.

6.3.48 All wastewater streams produced by the facility will be piped to the Bran Sands WwTW for treatment and will be discharged to Tees Bay using a new outfall that will manage discharge in accordance with existing environmental permits, with no direct discharge made to the River Tees or other water bodies proposed.

6.3.49 Therefore, it assumed that the effects of the Proposed Development relating to water pollution are considered to be **negligible** and not significant.

Noise

6.3.50 At the time of writing, an operational noise assessment on ecological receptors has not been carried out. Therefore, operational noise impacts cannot be assessed. These impacts will be assessed in detail in the ES.

Bats

Noise

6.3.51 At the time of writing, an operational noise assessment on ecological receptors has not been carried out. Therefore, operational noise impacts cannot be assessed. These impacts will be assessed in detail in the ES.

Visual Disturbance and Loss of Sightlines

6.3.52 At the time of writing, a visual assessment of the Proposed Development

on ecological receptors has not been carried out. Therefore, these impacts cannot be assessed. These impacts will be assessed in detail in the ES.

Breeding Birds

Noise

6.3.53 At the time of writing, an operational noise assessment on ecological receptors has not been carried out. Therefore, operational noise impacts cannot currently be assessed. These impacts will be assessed in detail in the ES.

Visual Disturbance and Loss of Sightlines

6.3.54 At the time of writing, a visual assessment of the Proposed Development on ecological receptors has not been carried out. Therefore, these impacts cannot currently be assessed. These impacts will be assessed in detail in the ES.

Other Mammals

Otter

Water Pollution

6.3.55 Water pollution may occur during operation as run-off or wastewater from the Proposed Development into existing watercourses/waterbodies. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.3.56 An appropriate surface water drainage system will be implemented that will incorporate appropriate pollution control and maintenance measures to mitigate the risk of pollution during operation. The operation of the Proposed Development will also include appropriate preventative measures, monitoring and control of environmental risks through the environmental permit.

6.3.57 All wastewater streams produced by the facility will be piped to the Bran Sands WwTW for treatment and will be discharged to Tees Bay using a new outfall that will manage discharge in accordance with existing environmental permits, with no direct discharge made to the River Tees or other water bodies proposed.

6.3.58 Therefore, it assumed that the effects of the Proposed Development relating to water pollution are considered to be **negligible** and not

significant.

Noise

6.3.59 At the time of writing, an operational noise assessment on ecological receptors has not been carried out. Therefore, operational noise impacts cannot currently be assessed.

6.3.60 These impacts will be assessed in detail in the ES.

Visual Disturbance and Loss of Sightlines

6.3.61 At the time of writing, a visual assessment of the Proposed Development on ecological receptors has not been carried out. Therefore, these impacts cannot currently be assessed. These impacts will be assessed in detail in the ES.

Water Vole

Water Pollution

6.3.62 Water pollution may occur during operation as run-off or wastewater from the Proposed Development into existing watercourses/waterbodies. Pollutants and sediments may be carried within this run-off which may impact the water quality of the watercourses and those connected to them hydrologically. Without mitigation, this could cause major impacts to habitats that are vulnerable to water pollution (causing habitat degradation).

6.3.63 An appropriate surface water drainage system will be implemented that will incorporate appropriate pollution control and maintenance measures to mitigate the risk of pollution during operation. The operation of the Proposed Development will also include appropriate preventative measures, monitoring and control of environmental risks through the environmental permit.

6.3.64 All wastewater streams produced by the facility will be piped to the Bran Sands WwTW for treatment and will be discharged to Tees Bay using a new outfall that will manage discharge in accordance with existing environmental permits, with no direct discharge made to the River Tees or other water bodies proposed.

6.3.65 Therefore, it assumed that the effects of the Proposed Development relating to water pollution are considered to be **negligible** and not significant.

Noise

6.3.66 At the time of writing, an operational noise assessment has not been carried

out for water vole. Therefore, operational noise impacts cannot currently be assessed.

6.3.67 These impacts will be assessed in detail in the ES.

Visual Disturbance and Loss of Sightlines

6.3.68 At the time of writing, a visual assessment of the impacts of the Proposed Development on water vole has not been carried out. Therefore, these impacts cannot currently be assessed. These impacts will be assessed in detail in the ES.

Wintering Birds

Noise

6.3.69 At the time of writing, an operational noise impact has not been carried out. Therefore, operational noise impacts cannot currently be assessed. These impacts will be assessed in detail in the ES.

Visual Disturbance and Loss of Sightlines

6.3.70 At the time of writing, a visual assessment of the impacts of the Proposed Development on wintering birds has not been carried out. Therefore, these impacts cannot currently be assessed. These impacts will be assessed in detail in the ES.

7. Mitigation and Enhancement Measures

7.1 Overview

7.1.1 This section considers any additional mitigation measures which are likely to be required to address significant impacts during both construction and operational phases.

7.1.2 Mitigation measures described below are based upon the known ecological baseline, currently available information relating to the Proposed Development, and assumed potential impacts resulting from the construction and operation of the Proposed Development at the time of writing (discussed above). Mitigation measures will be refined further throughout the project design process and reported in the ES.

7.1.3 This assessment will be undertaken using the results of the terrestrial ecology surveys, as well as further information being provided from environmental disciplines on which the terrestrial ecology assessment partly relies (Air Quality, Water Environment & Noise).

7.2 Construction Phase

7.2.1 Design of the Proposed Development and associated construction activities has been developed to minimise the loss of habitats within the Teesmouth and Cleveland Coast SSSI, SPA and Ramsar where possible.

7.2.2 Vegetation removal and demolition works will be programmed outside the bird breeding season (approximately March to August, inclusive), where practicable. However, this will need to be considered in relation to avoidance of works during the overwintering bird period. Where avoidance of works during bird nesting season is not feasible, any vegetation removal undertaken within this period will require a pre-clearance inspection for nesting birds by a Suitably Experienced Ecologist (SEE)/Ecological Clerk of Works (ECoW). Where an active nest/or nesting activity is found, an appropriately sized exclusion zone will be enforced around the area until such time that the nest becomes inactive (for example, eggs hatch and chicks fledge the nest, or the nest fails). Mitigation measures required in relation to nesting birds would be outlined, agreed and committed to as part of the CEMP.

7.2.3 If required, applications will be made for protected species licensing in advance of construction works commencing. Bespoke methodologies will be prescribed within any licence application. Licencing will also prescribe requirements for compensation or features where applicable, such as bat boxes, to address the loss of any breeding/resting, roosting or sheltering

feature.

7.2.4 Where licensing is not required, precautionary working methods will be employed for works with the potential to impact upon protected/notable species. Precautionary working methods will be outlined, agreed and committed to as part of the CEMP.

7.2.5 Modification of working practices, where necessary, in response to noise assessment results in order to minimise potential noise impacts to protected and notable species.

7.2.6 Construction materials should be securely stored and maintained away from watercourses. Silt fences or similar should be placed around exposed ground and stockpiles, and early revegetation of the completed elements of the construction area should be undertaken to reduce further erosion and dust.

7.2.7 Chemicals and fuels must be stored in secure containers located away from watercourses or waterbodies. No refuelling of plant or machinery should take place near water environments.

7.2.8 Where required, off-site compensation and enhancement measures (such as creation of new habitats) will be implemented during the construction phase, as early as practicable possible.

7.3 Operational Phase

7.3.1 A full assessment of the operation of the Proposed Development and mitigation measure to minimise impacts will be made within the ES.

7.4 Enhancement Measures

7.4.1 Habitat enhancement (on/off site) will be considered within the BNG framework/assessment.

8. Residual Effects and Conclusions

8.1.1 Based on the baseline information currently available, it is not possible to assess potential residual effects in full. Further surveys and assessment in relation to terrestrial ecology are required beyond the PEIR stage in order to help determine any potential significant effects that will remain following mitigation.

8.1.2 A comprehensive assessment of potential residual effects will be provided within the ES.

9. Summary of Significant Effects

9.1 Introduction

9.1.1 Summaries of the potential significant effects associated with the construction (and decommissioning) of the Proposed Development are presented in Table 9.1.

9.1.2 Operational effects will be detailed within the ES. Summaries of the potential significant effects associated with the operation of the Proposed Development as assessed to date are presented in Table 9.2.

9.1.3 Following mitigation, operational effects realting to water pollution are deemed to be negligible and not significant for all receptors.

9.1.4 At the time of writing, the detailed air quality analysis has indicated that there is the potential for air quality impacts on designated sites and habitats from NO_x, metal deposition, SO_2 and HF. Alone, these effects are considered to be not significant but in-combination effects have not been considered. Therefore, there is the potential for significant effects to occur. These will be assessed in detail within the Environmental Statement

Table 9.1 Construction Summary

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Habitat loss	Teesmouth and Cleveland Coast SPA and Ramsar	International	Permanent/temporary loss of habitat within the designated site	Not assessed at this time	Moderate adverse (significant without mitigation)
Loss of functionally linked land			Permanent/temporary loss/degradation of habitat supporting schedule 1 species	Not assessed at this time	Major adverse (significant without mitigation)
Air pollution			Degradation of habitats from air pollution	Not assessed at this time	Negligible (not significant)
Dust emissions			Degradation of habitats from dust emissions smothering habitats	Dust management plan to be put in place	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater)	Embedded mitigation in the CEMP to include drainage strategy agreed with EA and NE	Negligible (not significant)
Air pollution	Teesmouth SSSI	National	Degradation of habitats from air pollution	N/A	Negligible (not significant)
Dust emission			Degradation of habitats from dust emissions smothering habitats	Dust management plan to be put in place	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater)	Embedded mitigation in the CEMP to include drainage strategy agreed with EA and NE	Negligible (not significant)
Air pollution	Teesmouth NNR	National	Degradation of habitats from air pollution	N/A	Negligible (not significant)

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater)	Embedded mitigation in the CEMP to include drainage strategy agreed with EA and NE	Negligible (not significant)
Habitat loss	Eston Pumping Station LWS	County	Permanent/temporary loss of habitat within the designated site	Not assessed at this time	Major adverse (significant without mitigation)
Air pollution			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Dust emissions			Degradation of habitats from dust emissions smothering habitats	Dust management plan to be put in place	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater)	Embedded mitigation in the CEMP to include drainage strategy as agreed with EA and NE	Negligible (not significant)
Habitat loss	Habitats of Principal Importance	National	Permanent/temporary loss of habitats of principal importance	Not assessed at this time	Minor adverse (significant without mitigation)
Air pollution			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Dust emissions			Degradation of habitats from dust emissions smothering habitats	Dust management plan to be put in place	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater)	Embedded mitigation in the CEMP to include drainage strategy as agreed with EA and NE	Negligible (not significant)
Habitat loss	Habitats	Borough	Permanent/temporary loss of habitats	N/A	Moderate adverse

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
					(significant without mitigation)
Air pollution			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Dust emissions			Degradation of habitats from dust emissions smothering habitats	Dust management plan to be put in place	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater)	Embedded mitigation in the CEMP to include drainage strategy as agreed with EA and NE	Negligible (not significant)
Habitat disturbance	Invasive Species	Local	Accidental spread of invasive species within and adjacent to the Proposed Development	Embedded mitigation to include and invasive species management plant	Negligible (not significant)
Habitat loss and Fragmentation	Amphibians	Borough	Habitat loss/fragmentation due to the Proposed Development leading to a reduction in habitat available for the designated species	N/A	Major adverse (significant without mitigation)
Noise and vibration			Noise and vibration above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviors.	N/A	Major adverse (significant without mitigation)
Air quality			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater	Embedded mitigation in the CEMP to include drainage strategy as agreed with EA and NE	Negligible (not significant)

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Artificial lighting			Lighting levels above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours.	Sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.	Moderate adverse (significant without mitigation)
Habitat loss and Fragmentation	Bats	Local	Habitat loss/fragmentation due to the Proposed Development leading to a reduction in habitat available for the designated species	N/A	Minor adverse (not significant)
Noise and vibration			Noise and vibration above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviors.	N/A	Minor adverse (not significant)
Air quality			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater	Embedded mitigation in the CEMP to include drainage strategy as agreed with EA and NE	Negligible (not significant)
Artificial lighting			Lighting levels above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours.	Sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being	Minor adverse (not significant)

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
				utilised for construction purposes.	
Habitat loss and Fragmentation	Breeding Birds	County	Habitat loss/fragmentation due to the Proposed Development leading to a reduction in habitat available for the designated species	N/A	Major adverse (significant without mitigation)
Noise and vibration			Noise and vibration above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviors.	N/A	Major adverse (significant without mitigation)
Air quality			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater	Embedded mitigation in the CEMP to include drainage strategy as agreed with EA and NE	Negligible (not significant)
Artificial lighting			Lighting levels above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours.	Sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.	Minor adverse (significant without mitigation)
Habitat loss and Fragmentation	Otter	Borough	Habitat loss/fragmentation due to the Proposed Development leading to a reduction in habitat available for the designated species	N/A	Major adverse (significant without mitigation)

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Noise and vibration			Noise and vibration above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviors.	N/A	Major adverse (significant without mitigation)
Air quality			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater	Embedded mitigation in the CEMP to include drainage strategy as agreed with EA and NE	Negligible (not significant)
Artificial lighting			Lighting levels above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours.	Sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.	Major adverse (significant without mitigation)
Habitat loss and Fragmentation	Other mammals	Proposed Development	Habitat loss/fragmentation due to the Proposed Development leading to a reduction in habitat available for the designated species	N/A	Minor adverse (not significant)
Air quality			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater	Embedded mitigation in the CEMP to include drainage strategy as agreed with EA and NE	Negligible (not significant)

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Artificial lighting			Lighting levels above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours.	Sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.	Minor adverse (significant without mitigation)
Habitat loss and Fragmentation	Terrestrial Invertebrates	Borough	Habitat loss/fragmentation due to the Proposed Development leading to a reduction in habitat available for the designated species	N/A	Minor adverse (significant without mitigation)
Air quality			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater	Embedded mitigation in the CEMP to include drainage strategy as agreed with EA and NE	Negligible (not significant)
Artificial lighting			Lighting levels above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours.	Sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.	Minor adverse (significant without mitigation)
Habitat loss and Fragmentation	Water vole	Borough	Habitat loss/fragmentation due to the Proposed Development leading to a reduction in habitat available for the designated species	N/A	Major adverse (significant without mitigation)

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Noise and vibration			Noise and vibration above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviors.	N/A	Major adverse (significant without mitigation)
Air quality			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater	Embedded mitigation in the CEMP to include drainage strategy	Negligible (not significant)
Artificial lighting			Lighting levels above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours.	Sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.	Major adverse (significant without mitigation)
Habitat loss and Fragmentation	Wintering birds	International/ National/Borough	Habitat loss/fragmentation due to the Proposed Development leading to a reduction in habitat available for the designated species	N/A	Major adverse (significant without mitigation)
Noise and vibration			Noise and vibration above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviors.	N/A	Major adverse (significant without mitigation)

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Air quality			Degradation of habitats from air pollution	N/A	Negligible (not significant)
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater	Embedded mitigation in the CEMP to include drainage strategy	Negligible (not significant)
Artificial lighting			Lighting levels above normal/acceptable levels may cause the designated species to be excluded from suitable habitats adjacent to the Proposed Development or cause them to change their behaviours.	Sensitive use of artificial lighting to minimise light spill into adjacent habitats and reduction of unnecessary lighting in areas that are not being utilised for construction purposes.	Major adverse (significant without mitigation)

Table 9.2 Operational Summary

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Air pollution	Teesmouth and Cleveland Coast SPA and Ramsar	International	Individual effects not significant. In combination effects to be considered in the ES.	Not assessed at this time	TBC
Water pollution			Degradation of aquatic habitat from water pollution (run-off and wastewater). Nutrient nitrogen enrichment of watercourses	Monitoring of run-off water quality and treatment if necessary. Treatment of wastewater at Bran Sands WwTW	Negligible (not significant)
Noise		Operational noise impacts not yet assessed. Will be assessed in ES.	To be assessed in the ES	To be assessed in the ES	To be assessed in the ES
Visual Disturbance		Visual assessment of ecological receptors not yet carried out. Will be assessed in the ES.	To be assessed in the ES	To be assessed in the ES	To be assessed in the ES
Air pollution	North York Moors SPA and SAC	International	No air quality changes above the critical level.	None	Negligible (not significant)

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Air pollution	Northumbria Coast SPA and Ramsar	International	No air quality changes above the critical level.	None	Negligible (not significant)
Air Pollution	Durham Coast SAC	International	No air quality changes above the critical level.	None	Negligible (not significant)
Air Pollution	Castle Eden Dene SAC	International	To be assessed in detail in the ES	To be assessed in the ES	To be assessed in the ES
Air Pollution	Teesmouth and Cleveland Coast SSSI	National	No significant effects from individual pollutants. In-combination effects to be assessed in ES.	To be assessed in the ES	To be assessed in the ES
Water Pollution			Water pollution (run-off and wastewater). Nutrient nitrogen enrichment of watercourses	Monitoring of run-off water quality and treatment if necessary. Treatment of wastewater at Bran Sands WwTW	Negligible (not significant)
Noise		Operational noise impacts not yet assessed. Will be assessed in ES.	To be assessed in the ES	To be assessed in the ES	To be assessed in the ES
Visual Disturbance		Visual assessment of ecological receptors not yet carried out. Will be assessed in the ES.	To be assessed in the ES	To be assessed in the ES	To be assessed in the ES

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Air Pollution	Teesmouth NNR	National	No significant effects from individual pollutants. In-combination effects to be assessed in ES	To be assessed in the ES	In-combination effects to be assessed in ES
Water Pollution			Water pollution (run-off and wastewater). Nutrient nitrogen enrichment of watercourses	Monitoring of run-off water quality and treatment if necessary. Treatment of wastewater at Bran Sands WwTW	Negligible (not significant)
Noise		Operational noise impacts not yet assessed. Will be assessed in ES.	To be assessed in the ES	To be assessed in the ES	To be assessed in the ES
Visual Disturbance		Visual assessment of ecological receptors not yet carried out. Will be assessed in the ES.	To be assessed in the ES	To be assessed in the ES	To be assessed in the ES
Air Pollution	Braircroft Pasture SSSI, North York Moors SSSi, Whitton Bridge Pasture SSSI	National	No air quality changes above the critical level.	None	Negligible (not significant)
Air Pollution	Durham Coast SSSI, Hart Bog SSSI, Pike	National	No air quality changes above the critical level.	None	Negligible (not significant)

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
	Whin Bog SSSI, Hulam Fen SSSI, Castle Eden Dene SSSI, Pinkney and Gerrick SSSI, Fishburn Grassland SSSI, Charity Land SSSI, Newton Ketton Meadow SSSI				
Habitats of Principal Importance	Air Pollution		No significant effects from individual pollutants. In-combination effects to be assessed in ES	To be assessed in the ES	In-combination effects to be assessed in ES
	Water Pollution		Water pollution (run-off and wastewater).	Monitoring of run-off water quality and treatment if necessary. Treatment of wastewater at Bran Sands WwTW	Negligible (not significant)
Amphibians	Water Pollution		Water pollution (run-off and wastewater).	Monitoring of run-off water quality and treatment if necessary. Treatment of wastewater at Bran Sands WwTW	Negligible (not significant)
Noise		Operational noise impacts not yet assessed. Will	To be assessed in the ES	To be assessed in the ES	To be assessed in the ES

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
		be assessed in ES.			
Bats	Noise		Operational noise impacts not yet assessed. Will be assessed in ES.	To be assessed in the ES	To be assessed in the ES
	Visual Disturbance		Visual assessment of ecological receptors not yet carried out. Will be assessed in the ES.	To be assessed in the ES	To be assessed in the ES
Breeding Birds	Noise		Operational noise impacts not yet assessed. Will be assessed in ES.	To be assessed in the ES	To be assessed in the ES
	Visual Disturbance		Visual assessment of ecological receptors not yet carried out. Will be assessed in the ES.	To be assessed in the ES	To be assessed in the ES
Other Mammals	Noise		Operational noise impacts not yet assessed. Will be assessed in ES.	To be assessed in the ES	To be assessed in the ES
	Visual Disturbance		Visual assessment of ecological receptors not yet carried out. Will be assessed in the ES.	To be assessed in the ES	To be assessed in the ES
Otter	Water Pollution		Water pollution (run-off and wastewater).	Monitoring of run-off water quality and treatment if necessary. Treatment of wastewater at Bran Sands WwTW	Negligible (not significant)
	Noise		Operational noise impacts not yet assessed. Will be assessed in ES.	To be assessed in the ES	To be assessed in the ES
	Visual Disturbance		Visual assessment of ecological receptors not yet carried out. Will be assessed in the ES.	To be assessed in the ES	To be assessed in the ES

Potential Impact	Receptor	Importance	Likely Significant Effects	Proposed Mitigation	Residual Effects
Water Vole	Water Pollution		Water pollution (run-off and wastewater).	Monitoring of run-off water quality and treatment if necessary. Treatment of wastewater at Bran Sands WwTW	Negligible (not significant)
	Noise		Operational noise impacts not yet assessed. Will be assessed in ES.	To be assessed in the ES	To be assessed in the ES
	Visual Disturbance		Visual assessment of ecological receptors not yet carried out. Will be assessed in the ES.	To be assessed in the ES	To be assessed in the ES
Wintering Birds	Noise		Operational noise impacts not yet assessed. Will be assessed in ES.	To be assessed in the ES	To be assessed in the ES
	Visual Disturbance		Visual assessment of ecological receptors not yet carried out. Will be assessed in the ES.	To be assessed in the ES	To be assessed in the ES

References

Ref 1 Overarching National Policy Statement for energy (EN-1) (2024). Department for Energy Security and Net Zero. Available at: https://assets.publishing.service.gov.uk/media/65bbfbdc709fe1000f637052/overarching-nps-for-energy-en1.pdf.

Ref 2 National Planning Policy Framework (2024). Ministry of Housing, Communities & Local Government. Available at: https://assets.publishing.service.gov.uk/media/67aafe8f3b41f783cca46251/NPPF_December_2024.pdf

Ref 3 Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System (2005). Defra. Available at: https://assets.publishing.service.gov.uk/media/5a78c5e7ed915d04220653ab/147570.pdf.

Ref 4 Redcar and Cleveland Borough Council - Local Plan - Adopted May 2018 (2018). Redcar and Cleveland Borough Council. Available at: https://www.redcar-cleveland.gov.uk/planning/local-plan.

Ref 5 Stockton-on-Tees Borough Council – Local Plan – Adopted January 2019 (2019). Stockton-on-Tees Borough Council. Available at: https://www.stockton.gov.uk/local-plan.

Ref 6 Tees Valley Biodiversity Action Plan (BAP) (2012). Tees Valley Nature Partnership.

Ref 7 UK Government (1981). Wildlife and Countryside Act 1981. Available at: https://www.legislation.gov.uk/ukpga/1981/69/contents

Ref 8 UK Government (2000). Countryside and Rights of Way Act 2000. Available at: https://www.legislation.gov.uk/ukpga/2000/37/contents

Ref 9 UK Government (2006). Natural Environment and Rural Communities Act 2006. Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents

Ref 10 UK Government (2019). The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573

Ref 11 UK Government (2021). Environment Act 2021. Available at: https://www.legislation.gov.uk/ukpga/2021/30/contents

Ref 12 UK Government (1992). Protection of Badgers Act 1992. Available at: https://www.legislation.gov.uk/ukpga/1992/51/contents

Ref 13 UK Government (2009). Directive 2009/147/EC of the European Parliament and of the Council. Available at: https://www.legislation.gov.uk/eudr/2009/147/contents

Ref 14 UK Government (2019). The Invasive Alien Species (Enforcement and Permitting) Order 2019. Available at: https://www.legislation.gov.uk/uksi/2019/527/made

Ref 15 CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.

Ref 16 CIEEM (2017). Guidelines for Preliminary Ecological Appraisal.

Ref 17 CIEEM (2020). Guidelines for Accessing, Using and Sharing Biodiversity Data in the UK.

Ref 18 Planning Inspectorate (2024). Nationally Significant Infrastructure Projects: Advice on Habitats Regulations Assessments. Available at: https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-habitats-regulations-assessments

Ref 19 Environment Agency and DEFRA (2016) Air emissions risk assessment for your environmental permit. Available at: https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit

Ref 20 BSI (2013) BS 42020: 2013 Biodiversity — Code of practice for planning and development

Ref 21 BSI (2012) BS 5837:2012 – Trees in relation to design, demolition and construction – Recommendations

Ref 22 Natural England and the Forestry Commission (2022) Ancient woodland, ancient trees and veteran trees: advice for making planning decisions

Ref 23 UKHabs Survey Methodology. Available at: https://ukhab.org/.

Ref 24 Harris et all (1989) Surveying Badgers. The Mammal Society, London.

Ref 25 Collins, J. (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London.

Ref 26 Marchant, J.H. (1983) Common Birds Census Instructions. BTO, Tring.

Ref 27 Bibby, C. J., Burgess, N. D. and Hill, D. A. (1992) Bird Census Techniques. Academic Press, London.

Ref 28 Bird Survey & Assessment Steering Group. (2025). Bird Survey Guidelines for assessing ecological impacts. Available at: https://birdsurveyguidelines.org/methods/survey-method/.

Ref 29 Chanin P (2003) Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No 10. English Nature, Peterborough.

Ref 30 English Nature (2005). Organising surveys to determine site quality for invertebrates. English Nature. Peterborough. Available at: https://publications.naturalengland.org.uk/publication/69045

Ref 31 Survey data collected for the Lighthouse Green Fuels project.

Lighthouse
GREEN FUELS

www.lighthousegreenfuels.co.uk