

# The Lighthouse Green Fuels Order

Application Reference: EN0110025

Applicant: LGF Projects Limited

## Framework Landscape and Biodiversity Mitigation and Enhancement Strategy

Revision: 00

APFP Reg. 5(2)(a), 5(2)(l) and EIA Reg. 14

| Document Verification |                                                                          |
|-----------------------|--------------------------------------------------------------------------|
| Document Title        | Framework Landscape and Biodiversity Mitigation and Enhancement Strategy |
| Document Ref          | 5.8                                                                      |
| Author                | Arup                                                                     |

#### Revision record

| 00 | Purpose | DCO Application Submission |
|----|---------|----------------------------|
|    | Date    | September 2026             |
|    |         |                            |
|    |         |                            |
|    |         |                            |
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#### Information Classification

| Information Classification | Date | Reason                                                                                 |
|----------------------------|------|----------------------------------------------------------------------------------------|
| Public                     |      | Proprietary information which will have no impact on the company if disclosed publicly |

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## Abbreviations

| Abbreviation    | In full                                                                  |
|-----------------|--------------------------------------------------------------------------|
| AGI             | Above ground infrastructure                                              |
| ASU             | Air separation unit                                                      |
| BAP             | Biodiversity Action Plan                                                 |
| BNG             | Biodiversity Net Gain                                                    |
| CHP             | Combined Heat and Power                                                  |
| CMS             | Central Management System                                                |
| DCO             | Development Consent Order                                                |
| DMP             | Dust Management Plan                                                     |
| ECOW            | Ecological Clerk of Works                                                |
| eDNA            | Environmental DNA                                                        |
| ES              | Environmental Statement                                                  |
| FCEMP           | Construction Environmental Management Plan                               |
| fLBMES          | Framework Landscape and Biodiversity Mitigation and Enhancement Strategy |
| FLL             | Functionally linked land                                                 |
| GCN             | Great Crested Newt                                                       |
| HoPI            | Habitats of Principal Importance                                         |
| INNS            | Invasive Non-Native Species                                              |
| ISMP            | Invasive Species Management Plan                                         |
| LGF             | Lighthouse Green Fuels                                                   |
| LSO             | Long Sea Outfall                                                         |
| LWS             | Local Wildlife Site                                                      |
| MW              | Megawatts                                                                |
| NH <sub>3</sub> | Ammonia                                                                  |
| NMP             | Noise Management Plan                                                    |
| NNL             | No Net Loss                                                              |
| NNR             | National nature reserve                                                  |
| NSIP            | Nationally significant infrastructure project                            |
| NWL             | Northumbrian Water Ltd                                                   |
| OMH             | Open Mosaic Habitat                                                      |
| PEA             | Preliminary ecological appraisal                                         |
| PINS            | Planning Inspectorate                                                    |
| RCBC            | Redcar and Cleveland Borough Council                                     |
| SAC             | Special Area of Conservation                                             |

|      |                                     |
|------|-------------------------------------|
| SAF  | Sustainable Aviation Fuel           |
| SCR  | Selective catalytic reduction       |
| SEE  | Suitably Experienced Ecologist      |
| SNCR | Selective non-catalytic reduction   |
| SoS  | Secretary of State                  |
| SPA  | Special Protection Area             |
| SSSI | Site of Special Scientific Interest |
| STBC | Stockton-on-Tees Borough Council    |
| SuDS | Sustainable Drainage Systems        |
| WwTW | Wastewater Treatment Works          |
| ZoI  | Zone of Influence                   |

## Executive Summary

- 1.1.1 The Proposed Development will deliver a nationally significant Sustainable Aviation Fuel (SAF) facility that supports the UK's decarbonisation objectives whilst seeking to avoid, minimise, restore and compensate for impacts on landscape and biodiversity receptors through the application of the mitigation hierarchy. Embedded and additional mitigation measures have been incorporated into the Proposed Development design, alongside habitat compensation, monitoring and management measures, to ensure potential effects on ecological features are appropriately addressed.
- 1.1.2 Although Biodiversity Net Gain (BNG) is not mandatory for the Proposed Development, the Applicant is committed to a voluntary No Net Loss (NNL) objective, supported by the Framework Biodiversity Net Gain Plan in Appendix 5.8A of this Framework Landscape and Biodiversity Mitigation and Enhancement Strategy (fLBMES), and the compensatory habitat measures outlined within this strategy. These mitigation, compensation, monitoring and enhancement measures have been developed to maintain ecological functionality and biodiversity value, whilst supporting the conservation of designated sites, Habitats of Principal Importance (HoPI), protected species and notable ecological assemblages.
- 1.1.3 This fLBMES demonstrates how the Proposed Development accords with relevant environmental legislation, national policy and good practice guidance, including the requirements of the Planning Act 2008 (PA 2008) [Ref 1], the Overarching National Policy Statement for Energy (NPS EN-1) [Ref 12] and relevant wildlife legislation. Subject to the implementation of the mitigation, compensation, monitoring and enhancement measures secured through Requirements in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)** and detailed LBMES, the Proposed Development will provide a robust framework for the protection and management of landscape and biodiversity interests throughout its lifetime.

## 1 Introduction

### 1.1 Overview

- 1.1.1 This **Landscape and Biodiversity Mitigation and Enhancement Strategy (Application Document Ref. 5.8) (fLBMES)** has been prepared by Ove Arup and Partners Limited (Arup) on behalf of LGF Projects Limited (the Applicant), to support an application (the Application) seeking development consent for the construction, operation, maintenance and decommissioning of the Lighthouse Green Fuels (LGF) project (the Proposed Development) on land within the administrative boundaries of Stockton-on-Tees Borough Council (STBC) and Redcar and Cleveland Borough Council (RCBC).
- 1.1.2 The Order limits for the Proposed Development are made up of the Main Site and Wider Site, together 'the Site'. A more detailed description of the Site is set out at Section 2.4.
- 1.1.3 The Application has been submitted to the Planning Inspectorate (PINS), and the decision whether to grant a Development Consent Order (DCO) will be made by the Secretary of State (SoS) for Energy Security and Net Zero pursuant to the PA 2008 [Ref 1].
- 1.1.4 The Proposed Development comprises a commercial-scale second generation Sustainable Aviation Fuel (SAF) production facility and associated infrastructure.

### 1.2 The Applicant

- 1.2.1 The Applicant is wholly owned by Alfanar Energy Limited (Alfanar). Alfanar is part of a global project development, manufacturing, and engineering group headquartered in Saudi Arabia. Alfanar has developed significant in-house feedstock-to-SAF expertise. This experience will be utilised to construct and operate the Proposed Development.

### 1.3 Overview of the Proposed Development

- 1.3.1 The Proposed Development is anticipated to be the UK's first commercial-scale second generation SAF production facility.
- 1.3.2 The Proposed Development includes the construction, operation, maintenance and decommissioning of a commercial-scale facility that will produce approximately 180 million litres of advanced SAF and approximately 30 million litres of renewable naphtha each year.
- 1.3.3 The Proposed Development includes the following elements (the location of each Work No. is shown on the **Works Plans (Application Document Ref. 2.4)**):

**Table 1.1 Works Description Summaries**

| Work Number: |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Work No. 1   | SAF production facility comprising: <ul style="list-style-type: none"> <li>• 1A - feedstock pre-treatment facility including flue gas treatment and stack</li> <li>• 1B - SAF processing facility including thermal oxidiser, flue gas treatment, and stack</li> <li>• 1C - up to two flare structures</li> </ul>                                                                                                              |
| Work No. 2   | Combined heat and power (CHP) generating station comprising: <ul style="list-style-type: none"> <li>• 2A - boilers and steam turbine generators</li> <li>• 2B - flue gas treatment and stack</li> </ul>                                                                                                                                                                                                                        |
| Work No. 3   | Feedstock and intermediate and final product handling and storage                                                                                                                                                                                                                                                                                                                                                              |
| Work No. 4   | Cooling infrastructure for SAF production facility and CHP plant                                                                                                                                                                                                                                                                                                                                                               |
| Work No. 5   | Bridge and culvert crossings of existing infrastructure                                                                                                                                                                                                                                                                                                                                                                        |
| Work No. 6   | Marine infrastructure comprising: <ul style="list-style-type: none"> <li>• 6A - construction of permanent quay</li> <li>• 6B - permanent quay</li> <li>• 6C - capital and maintenance dredging</li> </ul>                                                                                                                                                                                                                      |
| Work No. 7   | Electrical connection works comprising: <ul style="list-style-type: none"> <li>• 7A - underground and overground cable connections to the existing North Bank Supply Point</li> <li>• 7B - electrical connection works</li> </ul>                                                                                                                                                                                              |
| Work No. 8   | Modified or new natural gas connection and above ground infrastructure (AGI)                                                                                                                                                                                                                                                                                                                                                   |
| Work No. 9   | Supply of industrial gases:<br>Only one of Work No. 9A or Work No. 9B would be developed; <ul style="list-style-type: none"> <li>• 9A - industrial gases connection works comprising installation of new and repurposing of oxygen and nitrogen pipeline connections, and connection to existing low pressure nitrogen supply</li> <li>• 9B - air separation unit (ASU) facility and connections to Work No. 1</li> </ul>      |
| Work No. 10  | Modification or removal and replacement of industrial wastewater pipeline connection works                                                                                                                                                                                                                                                                                                                                     |
| Works No. 11 | <ul style="list-style-type: none"> <li>• Export connection works: 11A - pipeline(s) for the export of SAF and renewable naphtha</li> <li>• 11B or 11C - a pipeline for the export of carbon dioxide (CO<sub>2</sub>) connecting to AGI by others (being either AGI C1 or C2 of the Northern Endurance Partnership (NEP) transport and storage pipeline)</li> </ul> Only one of Work No. 11B or Work No. 11C would be developed |
| Works No. 12 | Surface water attenuation, and drainage and discharge works                                                                                                                                                                                                                                                                                                                                                                    |
| Works No. 13 | Laydown areas comprising:                                                                                                                                                                                                                                                                                                                                                                                                      |

|             |                                                                                                                                                             |
|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
|             | <ul style="list-style-type: none"> <li>• 13A - temporary construction compounds and laydown areas</li> <li>• 13B - permanent laydown and storage</li> </ul> |
| Work No. 14 | Access works and private street improvements                                                                                                                |

- 1.3.4 In addition a range of associated development, both specified and unspecified, is proposed in relation to the above.
- 1.3.5 The new quay on the River Tees (**Work No. 6**) will allow delivery of modular plant and construction materials by ship during construction and biomass and waste wood feedstock during operation, reducing reliance on road transport. Feedstock will be stored (**Work No. 3**) then pre-treated at the Main Site and processed into SAF through gasification and gas-to-liquids processes (**Work No.1**).
- 1.3.6 To support operations, the Proposed Development will include a biomass and waste wood-fired CHP plant (**Work No. 2**) with an electrical output capacity of up to 200 megawatts electrical (MWe), providing a low-carbon energy supply for the SAF process. Cooling infrastructure (**Work No. 4**) will be required for the SAF process and the CHP plant. Connections will provide electricity for start-up and to maintain ancillary site supplies (**Work No. 7**), natural gas for start-up and as auxiliary fuel for some processes during operation (**Work No. 8**), and oxygen and nitrogen which will either be delivered to the Site via pipelines or produced by a new ASU in the Main Site (**Work No. 9A or 9B** respectively). Waste materials, including off-specification materials will be exported from the Main Site by road. Finished products (SAF, and a secondary product of the process, renewable naphtha) will be transferred via pipeline(s) (**Work No. 11A**) to local marine loading facilities for marine export or export by road. CO<sub>2</sub> from the acid gas removal unit in Work No. 1B will be exported via pipeline (**Work No. 11B or Work No. 11C**) subject to a suitable agreement to connect to one of two proximate AGIs in the NEP project.
- 1.3.7 The Proposed Development will also include replacement and new wastewater pipeline connection works (**Work No. 10**), surface water drainage systems (**Work No. 12**) and access and street improvements (**Work No. 14**). Space within the Wider Site is identified for temporary construction and laydown and space within the Main Site identified for permanent laydown and storage areas (**Work No. 13**).
- 1.3.8 The preliminary layout of the Proposed Development is shown on **Indicative General Arrangement Plan (Application Document Ref. 2.5.1)** and **Indicative General Arrangement Isometric (Application Document Ref. 2.5.2)**.

## 1.4 The Site

- 1.4.1 The Site location and boundary (which is also known as the 'Order limits') are shown on **Site Location Plan (Application Document Ref. 2.1)**. The Site is located in Teesside on land to the north and south of the River Tees with connection corridors crossing the Tees.
- 1.4.2 The Main Site is located in the industrial area of Seal Sands approximately 5km east of Billingham town centre and 4km north-east of Middlesbrough town centre, on the north bank of the River Tees in the borough of Stockton-on-Tees). The majority of the Main Site lies south of Seal Sands Road and largely comprises previously developed land formerly used as a chemical plant from the early 1970s. It was last operated by INEOS Nitriles.
- 1.4.3 The Main Site comprises the main SAF facility development area of the Site, lying to the south and north sides of Seal Sands Road and bounded by the proposed quay in the River Tees, with the River Tees to the east.
- 1.4.4 The eastern boundary of the Main Site is formed by the River Tees, where existing jetties will be demolished and a new quay developed.
- 1.4.5 The Wider Site comprises the connection corridors, including land required for road access, pipelines (including under the River Tees), dredging near to the Main Site, and utility connections and construction laydown in both North Tees and (in the borough of Redcar and Cleveland) South Tees.

## 1.5 The DCO Process

- 1.5.1 Part 3 of the PA 2008 defines which projects constitute a nationally significant infrastructure project (NSIP). Once classed as an NSIP, development consent (in the form of a DCO) is required under Part 4 of the PA 2008.
- 1.5.2 In legislative terms the Proposed Development comprises both a SAF production facility and a CHP generating station together with development associated with the SAF production facility and the CHP generating station.
- 1.5.3 The construction and operation of the main SAF production facility does not automatically fall within the definition of an NSIP. Therefore, on 12 August 2025, the Applicant formally requested a direction by the SoS for Energy Security and Net Zero, pursuant to section 35(1) of the PA 2008, that the following elements be treated as one for which development consent is required. The Section 35 direction request was made in respect of: a main gasification facility to process sustainably sourced biomass; feedstock pre-treatment, syngas clean-up apparatus; Fischer-Tropsch process units; refining units; feedstock, intermediates and finished product storage; quayside with ship loading/ offloading infrastructure; supporting

infrastructure and utility connections (hereafter called the ‘Specified Elements’).

- 1.5.4 The SoS for Energy Security and Net Zero issued a direction under Section 35 of the PA 2008 [Ref 1] on 08 September 2025 to confirm that the Specified Elements of the Proposed Development, together with any matters/ development associated with them, should be treated as development for which development consent under the PA 2008 is required.
- 1.5.5 The CHP plant (**Work No. 2**) surpasses the 50 Megawatt (MW) threshold for generating stations defined in Section 15 of the PA 2008 and is therefore a NSIP in its own right.
- 1.5.6 An application for development consent for the Proposed Development has been submitted to PINS acting on behalf of the SoS. Subject to the Application being accepted, PINS will then examine it and make a recommendation to the SoS who will then decide whether to grant a DCO.
- 1.5.7 The application for development consent for the Proposed Development supersedes a previous application that was being progressed by Lighthouse Green Fuels Limited centred on a site off Huntsman Drive in Seal Sands, TS2 1TT (PINS ref. EN010150) [Ref 2]. Statutory consultation on that application took place between 16 May 2024 and 20 June 2024. As shown on the PINS website, that application is discontinued.

## 1.6 The Purpose of this Document

- 1.6.1 The purpose of this fLBMES is to:
- Summarise the baseline for landscape and visual amenity as well as terrestrial ecological features scoped in for assessment by **Chapter 13: Landscape and Visual Amenity (ES Volume I, Application Document Ref. 6.1)** and **Chapter 10: Terrestrial Ecology chapter (ES Volume I, Application Document Ref. 6.1)**, respectively.
  - Outline how the embedded and additional mitigation measures required to ensure no significant effects upon baseline landscape and visual amenity as well as terrestrial ecological features will be delivered, as outlined in **Chapter 13: Landscape and Visual Amenity (ES Volume I, Application Document Ref. 6.1)** and **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)**;
  - Ensure that works undertaken during the construction phase remain compliant with wildlife legislation detailed in **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)**, specifically the Wildlife and Countryside Act 1981 (as amended), Protection of Badgers Act 1992, Habitats and Species Regulations 2010, Countryside

Rights of Way Act 2000, Natural Environment and Rural Communities Act 2006, Hedgerow Regulations 1997;

- Ensure the Proposed Development contributes towards maintaining and/or enhancing the local landscape character;
  - Facilitate the measurement of the success of the mitigation measures; and
  - Inform the need or otherwise for any changes to these measures to deliver biodiversity objectives.
- 1.6.2 The Proposed Development and measures outlined in this document follow the mitigation hierarchy [Ref 3] which comprises the following:
- Avoid - Developers should prioritise preventing or minimising environmental harm through thoughtful site selection, layout, and design. Where significant impacts cannot be avoided, alternative locations should be explored.
  - Minimise - Where impacts are unavoidable, appropriate measures must be taken to reduce their extent and severity during and after development.
  - Restoration - Any habitats that are damaged or degraded must be reinstated to a satisfactory condition once construction or the project is complete.
  - Offset - As a final step, any remaining impacts must be offset by creating or enhancing habitats elsewhere.
- 1.6.3 The Proposed Development will result in the permanent loss of baseline features within the Main Site and temporary impacts to features across the Wider Site. On-site avoidance, minimisation and restoration is not possible within the Main Site according to current designs. Therefore off-site offsetting/compensation (referred to as mitigation in this document) is required. Minimisation and restoration measures will be implemented across the Wider Site to facilitate the reinstatement of baseline features over the Proposed Development's lifetime.
- 1.6.4 In England, the BNG requirement (i.e. 10% net gain) will be mandatory for Nationally Significant Infrastructure Projects (NSIP) from 2 November 2026. The Applicant will apply for a DCO prior to this date and therefore BNG is not mandatory for the Proposed Development.
- 1.6.5 Alternatively, the Proposed Development will commit to a voluntary 'No Net Loss' (NNL) objective (i.e. 0% net gain) to make the maximum potential provision for biodiversity in adherence with local policy, statutory

consultation and good practice principles (see **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)**).

- 1.6.6 **The Framework BNG Plan (Appendix 5.8A to this fLBMES (Application Document Ref. 5.8A))** captures the baseline and post-development biodiversity value of the Proposed Development with a strategy on how the Proposed Development will meet the voluntary NNL objective. The BNG Plan will be revised (as appropriate) at the detailed design stage..
- 1.6.7 A detailed LBMES will be prepared and submitted for approval prior to construction once the detailed design has been developed and once updated/pre-construction protected species surveys have been undertaken, as secured by the 'Landscape and biodiversity enhancement' Requirement in the **Draft DCO (Application Document Ref. 3.1)**. Therefore, whilst the detailed mitigation proposals will follow the principles as set out in this document, the details may evolve as the detailed design is developed.
- 1.6.8 This fLBMES should be read in conjunction with other DCO application documents, in particular:
- **Chapter 3: Site and Surrounding Area (ES Volume I, Application Document Ref. 6.1);**
  - **Chapter 4: Proposed Development (ES Volume I, Application Document Ref. 6.1);**
  - **Chapter 5: Construction Programme and Management (ES Volume I, Application Document Ref. 6.1);**
  - **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1);**
  - **Chapter 11: Freshwater and Marine Ecology of ES Volume I (Application Document Ref. 6.1);**
  - **Appendix 5A: Framework Construction Environmental Management Plan (fCEMP) (ES Volume III, Application Document Ref. 6.3);; and**
  - **Appendices 10A to 10H (ES Volume III, Application Document Ref. 6.3).**

## 2 Summary of landscape and ecological baseline

### 2.1 Overview

- 2.1.1 This section outlines the baseline of the Site for landscape and visual amenity as well as terrestrial ecological features which have been scoped in for assessment as part of **Chapter 13: Landscape and Visual Amenity (ES Volume I, Application Document Ref. 6.1)** and **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)**.

### 2.2 Landscape and visual amenity

#### *Topography*

- 2.2.1 The topography of the Site is largely characterised by a flat low-lying landscape along the river valley and estuary of the River Tees, generally lying between 1m Above Ordnance Datum (AOD) and 10m AOD. The River Tees flows through the centre of the Site from the south west towards the river mouth in the north east. The Site itself is flat adjoining the River Tees at approximately 5m AOD. Refer to **Figure 13.2: Hydrography and Topography (ES Volume II, Application Document Ref. 6.2)**.

#### *Landcover and land use*

- 2.2.2 The Site lies within the industrial Teesport area and landcover within the Site is dominated by large industrial plant, hardstanding, disturbed land of bare earth and aggregate as well as derelict former industrial land which nature started to reclaim with ruderal vegetation including grassland, scattered scrub and isolated trees. Refer to **Figure 13.3: Landcover (ES Volume II, Application Document Ref. 6.2)**.

#### *Landscape designations*

- 2.2.3 The Site is not located within, or in proximity to, any nationally or locally designated landscapes that identifies landscape value. The edge of the North York Moors National Park is approximately 10km south east of the Site. The Site does not demonstrate evidence of landscape qualities that would elevate it above everyday landscapes and so it is considered that the Proposed Development does not constitute a valued landscape in the context of NPPF Policy N2(1)(a) [Ref 4].
- 2.2.4 The Site and most of the landscape study area lies within National Character Area (NCA) 23: Tees Lowlands [Ref 5], as defined by Natural England and illustrated on **Figure 13.5: Published Landscape Character Areas (ES Volume II, Application Document Ref. 6.2)**.
- 2.2.5 A small part of the Site, namely the proposed quay and the dredging works, lie within the Marine Character Area (MCA) 22: Tyne, Tees and Wear Estuaries and Coastal Waters, which is illustrated on **Figure 13.5:**

**Published Landscape Character Areas (ES Volume II, Application Document Ref. 6.2).*****Visual***

- 2.2.6 The Site and surrounding area comprises a generally low lying topography with elevated areas at Cowpen Bewley Woodland Park and undulating landscape to the north west as well as Eston Nab to the south east. Therefore, views of tall industrial features (e.g. industrial plant, power station, tall pylons, port cranes, chimneys, oil storage and refinery as well as wind turbines) within the Tees valley, Teesport area and along the coastline are highly visible across the landscape.
- 2.2.7 Views from within the extensive urban areas are restricted due the urban built-up environment. Fieldwork surveys have shown that buildings as well as vegetation such as scrub, trees and hedges along field boundaries and private gardens further reduce the extent of visibility.
- 2.2.8 Visual receptors are located at the edge of coastal towns and settlements, along PRoW and cycle routes as well as on land with public access such as Cowpen Bewley Woodland Park, Eston Nab and RSPB Saltholme.

**2.3 Ecology****Designated sites**

- 2.3.1 There are eight international statutory designated sites within 20km of the Site which are scoped in for assessment:
- Teesmouth and Cleveland Coast Special Protection Area (SPA);
  - Teesmouth and Cleveland Coast Ramsar site;
  - North York Moors SPA;
  - North York Moors Special Area of Conservation (SAC);
  - Northumbria Coast SPA;
  - Northumbria Coast Ramsar site;
  - Durham Coast SAC; and
  - Castle Eden Dene SAC.
- 2.3.2 The following 15 national statutory designated sites were identified and scoped in for assessment within 20km of the Site:
- Teesmouth and Cleveland Coast Special Site of Scientific Interest (SSSI);

- Teesmouth National Nature Reserve (NNR);
- Saltburn Gill SSSI;
- Braircroft 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; and
- Newton Ketton Meadow SSSI.

2.3.1 Only one local non-statutory site was scoped in for assessment which was Eston Pumping Station Local Wildlife Site (LWS) as it is located within the Site. All other local designated sites are scoped out due to a lack of impact pathways arising from the Proposed Development.

#### Habitats

2.3.2 A Preliminary Ecological Appraisal (PEA) of the Site undertaken in April 2025, April 2026 and May 2026 (**Appendix 10A, ES Volume III, Application Document Ref. 6.3**) identified the following habitats within the Site:

- artificial unvegetated, unsealed land;
- buildings;
- built linear features;
- bramble scrub;
- developed land; sealed surface;
- ditches;
- individual trees;

- intertidal mudflats mixed scrub;
- modified grassland;
- open mosaic habitat (OMH);
- other littoral rock (artificial intertidal structure);
- other neutral grassland;
- other woodland; broadleaved;
- other rivers and streams;
- other sea buckthorn scrub;
- reedbeds;
- rivers;
- sheltered muddy gravels;
- sparsely vegetated land (ruderal/ephemeral);
- sparsely vegetated land (vacant/derelict land); and
- willow scrub.

2.3.3 The Main Site comprises predominantly bare ground with an area of undisturbed semi-natural habitat comprising reedbed, scrub and neutral grassland. Under the UK Habitat Classification, the area of bare ground can be divided into three main components:

- **Developed land, sealed surfaces:**  
This includes roads and areas surfaced with concrete or tarmac.
- **Artificial unvegetated, unsealed surfaces:**  
These areas consist of former building footprints where demolition has left a crushed aggregate base. While most are beginning to be colonised by vegetation, this is currently limited almost entirely to buddleia (*Buddleia davidii*) and narrow-leaved ragwort (*Senecio inaequidans*).
- **Sparsely vegetated land (vacant/derelict):**  
These areas represent former operational land decommissioned at an earlier stage, where vegetation cover now exceeds 20%, meaning they no longer fall within the artificial unvegetated category. Vegetation is still dominated by buddleia and narrow-leaved ragwort, with additional ruderal species and minor grass components also present. The

Schedule 9 invasive species wall cotoneaster (*Cotoneaster horizontalis*) is frequently recorded in these areas.

- 2.3.4 An additional survey of the jetty undertaken by Arup in April 2026 determined the artificial unvegetated, unsealed surface habitat extends out to the River Tees bank top. An 'artificial intertidal structure' habitat is present along the jetty foreshore, consisting of gabion baskets filled with rock..
- 2.3.5 All habitats present on the Site were scoped in for assessment.
- 2.3.6 A baseline BNG assessment was undertaken in the **Framework BNG Plan (Appendix 5.8A to this fLBMES)**. Only habitats impacted by the Proposed Development (i.e. within the 'BNG boundary') were assessed. Table 2.1 and Table 2.2 demonstrate the areas and biodiversity units calculated for each habitat within the BNG boundary.

**Table 2.1 Baseline Area Habitat Units within the BNG Boundary**

| BNG Habitat Type                         | Total Area (ha)    | Area Habitat Units |
|------------------------------------------|--------------------|--------------------|
| <b>High Distinctiveness</b>              |                    |                    |
| Reedbeds                                 | 6.43               | 50.51              |
| OMH                                      | 12.67              | 174.82             |
| <b>Medium Distinctiveness</b>            |                    |                    |
| Other neutral grassland                  | 35.57              | 256.53             |
| Bramble scrub                            | 6.05               | 26.62              |
| Mixed scrub                              | 5.59               | 41.15              |
| Willow scrub                             | 6.30               | 48.73              |
| Other broadleaved woodland               | 7.06               | 33.95              |
| Urban tree                               | 0.05               | 0.23               |
| <b>Low Distinctiveness</b>               |                    |                    |
| Bracken                                  | 0.27               | 0.60               |
| Modified grassland                       | 4.93               | 19.65              |
| Other sea buckthorn scrub                | 0.03               | 0.06               |
| Artificial hard structures               | 0.57               | 2.27               |
| Ruderal/ephemeral                        | 2.10               | 8.38               |
| Vacant or derelict land                  | 41.68              | 125.36             |
| <b>Very Low Distinctiveness</b>          |                    |                    |
| Developed land; sealed surface           | 21.53              | 0.00               |
| Artificial unvegetated, unsealed surface | 12.35              | 0.00               |
| <b>Total</b>                             | 163.16<br>[162.54] | 788.86             |

|                                                                   |  |  |
|-------------------------------------------------------------------|--|--|
| [Total excluding individual trees and intertidal hard structures] |  |  |
|-------------------------------------------------------------------|--|--|

**Table 2.2 Baseline Watercourse Units within the BNG Boundary**

| BNG Habitat Type              | Total Length (km) | Watercourse Units |
|-------------------------------|-------------------|-------------------|
| <b>High Distinctiveness</b>   |                   |                   |
| Other rivers and streams      | 0.58              | 6.00              |
| <b>Medium Distinctiveness</b> |                   |                   |
| Ditches                       | 0.01              | 0.06              |
| <b>Total</b>                  | <b>0.59</b>       | <b>6.06</b>       |

### Species

- 2.3.7 This section details species potentially present within/in proximity to the Site. Species assumed absent and scoped out of detailed assessment within **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)** (including badger (*Meles meles*) and reptiles) are not included.

### Amphibians

- 2.3.8 The PEA visit in April 2025 (**Appendix 10A: Preliminary Ecological Appraisal Update (ES Volume III, Application Document Ref. 6.3)**), identified two additional waterbodies within the Site, specifically within the Main Site (see waterbodies 32 and 33 in **Figure 10.5: Watercourses and Waterbodies within 250m of the Proposed Development**). The 2025 PEA concluded that the only waterbody within 250m of the Site potentially suitable for great crested newt was Dorman's Pool (waterbody 4). All other waterbodies and watercourses identified by the desk study were either regularly dry, too saline or lacked connectivity to the Site due to artificial barriers (e.g. major roads and walls).
- 2.3.9 With the absence of environmental DNA (eDNA) data to confirm the presence or absence of great crested newts (GCNs) the ecological assessment relies upon desk study data. Based on available information from the desk study which is detailed in the terrestrial ecology chapter (**Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)**), it is likely that GCN are absent from the Site.
- 2.3.10 No other species of amphibians such as common toad (*Bufo bufo*) or common frog (*Rana temporaria*) were recorded during field surveys. Due to existing records of common toad and common frog (within the study area) they were scoped in for assessment.

### **Bats**

- 2.3.11 The desk study returned 19 records of bats within the Site, comprising of noctule (*Nyctalus noctule*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), and an unknown pipistrelle species (*Pipistrellus* sp.).
- 2.3.12 Three night-time bat walkovers (i.e. transect surveys) and static detector deployments were conducted within the Main Site in spring, summer and autumn 2025 (**Appendix 10B: Bat Survey and Acoustic Analysis Report (ES Volume III, Application Document Ref. 6.3))**).
- 2.3.13 Only one bat was recorded during the transects surveys, noctule, in the southwest corner of the Main Site and appeared to be commuting towards Dorman's Pool. Analysis of the static detector data revealed that eight species of bat were recorded and overall bat activity across the Main Site was low, the majority of which were common pipistrelle (**Appendix 10B: Bat Survey and Acoustic Analysis Report (ES Volume III, Application Document Ref. 6.3))**).

### **Breeding birds**

- 2.3.14 Over 53,000 records were identified during the desk study which consisted of 257 species. Breeding bird surveys were undertaken within and adjacent to the utility connection corridors and adjacent to the Site in 2023 and 2024. Teesmouth and Cleveland Coast SPA designated species, Schedule 1 species and other locally notable species were recorded during these surveys.
- 2.3.15 Breeding bird surveys were undertaken covering the Main Site from March to July 2025 (**Appendix 10C: Breeding Birds Survey Report (Confidential) (ES Volume III, Application Document Ref. 6.3))**). Several species that are qualifying features of the Teesmouth and Cleveland Coast SSSI were found to be breeding at the Site. Qualifying species recorded include Cetti's warbler (*Cettia cetti*), grasshopper warbler (*Locustella naevia*), lapwing (*Vanellus vanellus*), linnet (*Linaria cannabina*), marsh harrier (*Circus aeruginosus*), oystercatcher (*Haematopus ostralegus*), reed bunting (*Emberiza schoeniclus*), ringed plover (*Charadrius hiaticula*), and water rail (*Rallus aquaticus*). Several locally notable species under the Tees Valley Biodiversity Action Plan (BAP) were also confirmed to breed at the Site.

### **Wintering birds**

- 2.3.16 Over 53,000 records of birds were identified during the desk study consisting of 257 species. Wintering bird surveys were undertaken for a previous development considered under a different DCO application which

overlaps the Site [Ref 2] in 2023 and 2024 by walked and driven transects [Ref 6]. Two qualifying species of the Teesmouth and Cleveland Coast Ramsar were recorded, common redshank (*Tringa tetanus*) and avocet (*Recurvirostra avosetta*), were recorded during these surveys at RSPB Saltholme Pool and Dorman's Pool. Wintering and passage bird activity was also recorded within areas of saltmarsh, reedbed and OMH outside the Site, including at the Reclamation Pond.

- 2.3.17 Wintering bird surveys have been undertaken across the Site from November 2025 to April 2026 (**Appendix 10D: Wintering Birds Survey Report (Confidential) (ES Volume III, Application Document Ref. 6.3)**).
- 2.3.18 Eight qualifying features of the Teesmouth and Cleveland Coast SPA and Ramsar were recorded within the Site Zol (i.e. 250 to 500m): avocet, black-headed gull (*Chroicocephalus ridibundus*), common redshank, gadwall (*Anas strepera*), herring gull (*Larus argentatus*), lapwing, shoveler (*Anas clypeata*) and wigeon (*Anas penelope*).
- 2.3.19 Five qualifying features of the Teesmouth and Cleveland Coast SSSI and Teesmouth NNR were also recorded: avocet, common redshank, gadwall, shelduck (*Tadorna tadorna*) and shoveler.
- 2.3.20 Marsh harrier, a Schedule 1 species under the Wildlife and Countryside Act 1981 [Ref 7], was recorded overwintering within 250m of the Main Site breeding territory.
- 2.3.21 Two locally notable species under the Tees Valley BAP [Ref 8] (grey partridge (*Perdix perdix*) and shelduck) and nine BoCC5 red-listed species (curlew (*Numenius arquata*), fieldfare (*Turdus pilaris*), goldeneye (*Bucephala clangula*), grey partridge, herring gull, lapwing, linnet (*Linaria cannabina*), pochard (*Aythya farina*) and skylark (*Alda arvensis*)) were recorded overwintering within the Site Zol.
- 2.3.22 All surveyed habitats within the Site Zol were assessed as providing 'moderate value' to wintering birds and were noted to support relatively low numbers of notable and protected species. Only compartments 1 (RSPB Back Saltholme and Port Clarence Pool) and 5 (INEOS Site) (see **Figure 1: Proposed Development and Core Bird Areas** in **Appendix 10D: Wintering Birds Survey Report (Confidential) (ES Volume III, Application Document Ref. 6.3)** and **Figure 3: Baseline Habitats** in **Appendix 5.8A** to this **fLBMES (Application Document Ref. 5.8)**) were of 'moderate value' for passage birds; all others were of 'low value'.

### 2.3.23 Notable populations included:

- Avocet numbers at compartment 1 (RSPB Back Saltholme and Port Clarence Pool), only during spring passage, were considered to be significant on the regional level (i.e. >0.5% GB population);
- Black-headed gull numbers at compartment 8 (Dabholm Gut) were considered to be significant enough to be considered functionally linked land (FLL) at the international level (i.e. >1% Tees estuary five year average (2019/20-2023/24) population);
- Common redshank numbers were considered to be significant enough to be considered FLL at the international level at compartment 7 (Bran Sands Lagoon) and significant at the borough level at compartment 8 (Dabholm Gut);
- Gadwall numbers at compartment 8 (Dabholm Gut) were considered to be significant at the borough level (i.e. >0.1 of GB population);
- Great black-backed gull numbers at compartment 5 (INEOS Site) were considered to be significant at the borough level;
- Herring gull numbers at compartments 3 (Dorman's Pool), 6 (Navigator Foreshore) and 7 (Bran Sands Lagoon) were considered to be significant enough to be considered FLL at the international level;
- Lapwing numbers at compartments 6 (Navigator Foreshore) and 7 (Bran Sands Lagoon) were significant enough to be considered FLL at the international level; and
- Wigeon numbers at compartments 1 (RSPB Back Saltholme and Port Clarence Pool) and 2 (RSPB Saltholme East Pool and Saltholme West Pool) were significant enough to be considered FLL at the international level.

2.3.24 The Site is not considered to act as FLL for wintering/passage bird species which are qualifying features of the Teesmouth and Cleveland Coast SPA, Ramsar and SSSI as these significant numbers were recorded outside the Site and within the boundaries of these statutory designated sites.

### ***Otter***

2.3.25 Eight records of Eurasian otter (*Lutra lutra*) were identified through the desk study for the Site. Through consultation with Industry Nature Conservation Association (INCA), otters are established across all suitable waterbodies and watercourses on Teesside with the closest known records located at

Dorman's Pool<sup>1</sup>. Otters are also known to use the River Tees for commuting and foraging opportunities.

- 2.3.26 Otter surveys were undertaken from May to July 2026 (**Appendix 10E: Riparian Mammals Survey Report (ES Volume III, Application Document Ref. 6.3)**). No field signs of otter were recorded, but potential resting habitat was identified in several locations along the western end of Dabholm Gut and on the banks of Bran Sands Lagoon. It was also considered that otter use these habitats for foraging and commuting between other riparian habitats (e.g. River Tees and Coatham Marsh). Therefore, otter are considered in this assessment.

#### ***Water Vole***

- 2.3.27 The desk study identified 27 records of water vole (*Arvicola amphibius*) within the Site. According to consultation with INCA, water vole populations on Teesside have been almost entirely confined to RSPB Saltholme, Cowpen Marsh, and Greenabella Marsh.
- 2.3.28 Water vole surveys were undertaken from May to July 2026 (**Appendix 10E: Riparian Mammals Survey Report (ES Volume III, Application Document Ref. 6.3)**). No confirmed field signs of water vole were recorded, but watercourses adjacent to the Site near RSPB Saltholme were considered suitable for water vole. Unknown burrows were recorded during the 2023/2024 surveys, but these were not confirmed to be water vole. No suitable habitat for water vole was identified within the Site during the PEA (**Appendix 10A, ES Volume III, Application Document Ref. 6.3**), as such water vole are considered to be absent from the Site.

#### ***Other terrestrial mammals***

- 2.3.29 298 records of other mammals were identified in the desk study, consisting of eight species. Of these, three are considered important within the scope of the assessment undertaken through the ES: West European hedgehog (*Erinaceus europaeus*), brown hare (*Lepus europaeus*) and harvest mouse (*Micromys minutus*).
- 2.3.30 The PEA (**Appendix 10A (ES Volume III, Application Document Ref. 6.3)**) identified suitable habitats for all three of these terrestrial mammal species within the Site and recommended that they are mitigated for during construction.

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<sup>1</sup> INCA (2026), pers. comm. April 2026

***Terrestrial invertebrates***

- 2.3.31 600 records of terrestrial invertebrates were identified during the desk study, comprising of 65 species.
- 2.3.32 Lepidoptera surveys were carried out within the Main Site in Summer 2025. No species with statutory protection were recorded, however species of principal important and Tees Valley BAP species were recorded including dingy skipper, grayling and small blue butterfly. These species were recorded in numbers which exceed the criteria for Tees Valley LWS selection and were noted as being of “county” or “sub-regional” significance (**Appendix 10F: Terrestrial Invertebrates Survey Report (ES Volume III, Application Document Ref. 6.3))**).
- 2.3.33 Grayling butterfly are also a scoring species for the invertebrate assemblage qualifying feature of the Teesmouth and Cleveland Coast SSSI.
- 2.3.34 The PEA recorded suitable habitats for a range of terrestrial invertebrate species across the Wider Site however, routine use of tracks/roadways by operators and the maintenance of urban habitats and edges of scrub, grassland habitats (e.g. pesticide spraying, mowing) likely reduces suitability for protected or notable species (**Appendix 10A: Preliminary Ecological Appraisal Update (ES Volume III, Application Document Ref. 6.3))**).

***Invasive non-native species***

- 2.3.35 The following invasive species were identified within 2km of the Site during the desk study:
- American mink (*Neovison vison*);
  - Black rat (*Rattus rattus*);
  - Canada goose (*Branta canadensis*);
  - Egyptian goose (*Alopochen aegyptiaca*);
  - Himalayan cotoneaster (*Cotoneaster simonsii*);
  - Japanese rose (*Rosa rugosa*); and
  - Mandarin duck (*Aix galericulata*).
- 2.3.36 The following invasive species were recorded within the Site during the 2023, 2025 and 2026 survey seasons:
- Giant hogweed (*Heracleum mantegazzianum*);

- Himalayan cotoneaster (*Cotoneaster simonsii*);
- Japanese knotweed (*Reynoutria japonica*);
- Japanese rose (*Rosa rugosa*);
- Montbretia (*Crocasmia x crocosmiiflora*);
- Wall cotoneaster (*Cotoneaster horizontalis*); and
- Unknown cotoneaster species (*Cotoneaster sp.*).

2.3.37 INNS have been consistently recorded within the Site and are therefore scoped into this assessment for construction only due to risks with pre-construction site preparation and clearance.

### 3 Embedded mitigation

3.1.1 As a general principle, the mitigation hierarchy has been applied. The following represents embedded avoidance and mitigation measures that will be enforced during the design of the Proposed Development. This list is not exhaustive and will be refined as the design evolves and further assessment is undertaken.

#### 3.2 Construction phase

3.2.1 Measures to avoid or mitigate impacts from air and water emissions, as well as noise and vibration, will be integrated into the design to minimise effects on surrounding habitats, including statutory designated sites. Further details are provided in **Chapter 8: Air Quality, Chapter 9: Noise and Vibration, and Chapter 12: Water Environment of ES Volume I (Application Document Ref. 6.1)**.

3.2.2 Mitigation measures for impacts associated with quay construction are set out in **Chapter 11: Freshwater and Marine Ecology of ES Volume I (Application Document Ref. 6.1)**.

3.2.3 The Proposed Development includes pipelines crossing under the River Tees, under the SPA, Ramsar and SSSI. Existing pipeline corridors beneath the river will be used, avoiding the need for new crossings.

3.2.4 Construction will be carefully timed and programmed to avoid or minimise impacts on protected and notable species and habitats. For example, percussive piling for quay construction will be scheduled to reduce disturbance to wintering birds, and vegetation clearance will be avoided during the breeding season (March to August inclusive). Where sensitive periods cannot be avoided, visual and acoustic screening will be implemented to minimise disturbance.

3.2.5 A **fCEMP (Appendix 5A (ES Volume III, Application Document Ref. 6.3))** has been prepared and sets out best practice mitigation measures to be incorporated into the Proposed Development during the construction phase. It will form the basis of the detailed CEMP which will be provided by the appointed contractor prior to works commencing, in accordance with a Requirement in Schedule 2 of the **Draft DCO (Application Document Ref. 3.1)**. Measures within the fCEMP relevant to terrestrial ecology include:

- Habitat clearance limited to areas needed to facilitate construction works;
- Protective fencing will be used where necessary to demarcate habitats to be retained and prevent access from construction plant and operatives;

- work areas adjacent to sensitive habitats (e.g. those used by notable populations of breeding/wintering birds outlined in (see **Figure 1: Proposed Development and Core Bird Areas** in **Appendix D: Wintering Birds Survey Report (ES Volume III, Application Document Ref. 6.3)**)) will require advice sought by a suitably qualified Ecological Clerk of Works (ECoW) to advise on required visual and noise screening on perimeter fences to reduce visual and noise disturbance. ECoW presence and sound level monitoring at these locations is also required to monitor animal behaviour and ensure works do not exceed the threshold for disturbance (55dB LAeq) and/or disturb sensitive ecological features;
- it is recommended that any works requiring vegetation clearance is undertaken to avoid the breeding bird season (March to August inclusive). Where this is not possible, all vegetation clearance work must be done under the supervision of an ECoW;
- updated ecological surveys for all sensitive species should works commence more than 18 months after the field surveys were completed (**see Appendix 10A to 10F (ES Volume III, Application Document Ref. 6.3)**);
- implementation of an invasive species management plan will be developed to prevent the spread of INNS of flora and fauna during construction;
- early revegetation of the completed elements of the construction area will be undertaken to reduce the risk of erosion and dust emissions;
- The construction programme being kept to the minimum amount of time needed to complete the works, in order to minimise the temporal extent of disturbance to ecological receptors;
- sensitive timing and programming of construction will aim to avoid and then minimise impacts upon ecological features. For example, where practicable vegetation clearance will not occur from March to August (inclusive) to avoid the breeding season for most protected and/or notable fauna species. Where certain sensitive periods cannot feasibly be avoided, the use of visual and acoustic screening will be developed and employed during construction to avoid disturbance to nearby ecological features;
- if temperatures of zero degrees Celsius (or lower) occur on the Site, at any point within a 24-hour period, for five consecutive days leading up to or during the works period, all noisy construction works within 200m

of locations with significant populations of qualifying features of the Teesmouth and Cleveland Coast SPA/Ramsar/SSSI (e.g. >1% Tees estuary five year average (2019/20-2023/24) will be suspended. Based on the results of the field surveys, particularly wintering birds (see **Appendix 10A to 10F (ES Volume III, Application Document Ref. 6.3)**), this includes connection corridor works west of the Navigator Foreshore and along the north and south banks of Dabholm Gut (see **Inset 10.2 in Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)**). Once temperatures have not dropped to zero degrees Celsius or below for three consecutive days then works will recommence;

- 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);
- careful selection of plant and machinery, access routes and construction methods, the use of noise and visual reduction measures/barriers on operational plant machinery, equipment and vehicles, and timing works to reduce unnecessary noise in areas that are not being utilised for construction purposes, to be secured via an NMP;
- where reasonably practicable, fixed items of construction plant shall be electrically powered in preference to combustion engine driven to reduce air quality and noise impacts;
- materials for night-time working shall be delivered, where practicable, during normal hours of working and be placed as close as practicable to the work area for which they are required;
- good industry practice measures for pollution prevention to minimise impacts on surrounding habitats, such as a suitable drainage design, safely storing chemical/fuels, use of silt fences, avoiding earthworks during wet weather, and storing sub/topsoil at least 20m from watercourses. These measures are to be secured by a construction drainage strategy (as part of the CEMP) in line with the Control of Water Pollution from Construction Sites agreed with the relevant authorities;
- dust suppression measures, to be included in a Dust Management Plan (DMP) as part of the fCEMP; which is secured by a Requirement in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)**
- implementation of a lighting strategy, in accordance with a Requirement in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)**, that ensures the sensitive use of artificial lighting within the Site to minimise light spill into adjacent habitats and sensitive landscape receptors as

well as reducing unnecessary lighting in areas that are not being utilised for construction purposes (see **Appendix 13C: Framework Lighting Strategy (Application Document Ref. 6.3)**).

- 3.2.6 More information and detail on the management plans for construction can be found in **Chapter 5: Construction Programme and Management (ES Volume I, Application Document Ref. 6.1)**, including overall site management in accordance with good industry practice and relevant British Standards, to mitigate and minimise impacts of construction works as far as is reasonably practicable.

### 3.3 Operational phase

- 3.3.1 The **Design Approach Document (Application Document Ref. 6.5)** details the use of cladding and finishing materials used for the components of the Proposed Development. The Proposed Development would use visually recessive, non-reflective colours of white and light grey to reduce their visual prominence and to blend in with surrounding industrial features.
- 3.3.2 Measures to avoid or mitigate impacts from air and water emissions, as well as noise and vibration, will be embedded within the design of the Proposed Development to minimise effects on surrounding habitats, including statutory designated sites. Further details are provided in **Chapter 8: Air Quality, Chapter 9: Noise and Vibration, and Chapter 12: Water Environment of ES Volume I (Application Document Ref. 6.1)**.
- 3.3.3 Measures to address impacts associated with operation of the proposed quay are outlined in **Chapter 11: Freshwater and Marine Ecology of ES Volume I (Application Document Ref. 6.1)**.
- 3.3.4 Acoustic enclosures and building façades will be designed to control noise breakout from continuously operating plant, in accordance with **Chapter 9: Noise and Vibration of ES Volume I (Application Document Ref. 6.1)**. Specific noise limits for plant items will be implemented to ensure the plant noise breakout from enclosures and buildings do not exceed the minimum sound reduction index required.
- 3.3.5 Wastewater from the Proposed Development will be piped to Bran Sands Wastewater Treatment Plant (WwTW). Currently, treated effluent from Bran Sands is discharged to the Dabholm Gut and subsequently the Tees Estuary. Northumbrian Water Ltd (NWL) is proposing to construct a Long Sea Outfall (LSO) from Bran Sands to Tees Bay, which will redirect treated effluent to the North Sea and reduce nitrogen concentrations within the Tees Transitional Waterbody and Tees Bay. The LSO is planned to be operational by 1 April 2030 and will serve industrial discharges across Teesside, including from the Proposed Development.

- 3.3.6 The Proposed Development has a target date of commercial operation of 2031 onwards (see **Chapter 5: Construction, ES Volume I, Application Document Ref. 6.1**), the LSO is expected to be operational ahead of commissioning and available for wastewater discharge.
- 3.3.7 A sensitive lighting scheme will be implemented for all permanent lighting to minimise disturbance in accordance with a Requirement in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)** (see **Appendix 13C: Framework Lighting Strategy (Application Document Ref. 6.3)**).

## 4 Additional mitigation

4.1.1 This section details mitigation measures that will be implemented in conjunction with the embedded mitigation measures set out in Section 3.

### 4.2 Landscape

4.2.1 Due to the scale of the Proposed Development, additional planting and bunding would not be effective in mitigating landscape or visual effects during the construction and operational phases. Therefore, no proposals for additional mitigation measures are required. Refer to **Chapter 13: Landscape and Visual Amenity (ES Volume I, Document Ref 6.1)** for further information.

### 4.3 Habitats

#### *General construction mitigation*

- 4.3.1 To prevent degradation/reduction in condition of retained habitats due to pollution, dust, air quality impacts, changes in hydrology, sedimentation or accidental encroachment, all construction activities will be completed under a CEMP. This will include measures to prevent encroachment into areas of retained habitat or land outside of the Site boundary. Heras fencing or similar will be used to demarcate the working area and prevent movement of vehicles or plant outside of it. It will also include pollution prevention measures to reduce the risk of pollution incidents occurring on the Site.
- 4.3.2 Construction materials will be securely stored and maintained away from watercourses. Silt fences or similar will be placed around exposed ground and stockpiles, and early revegetation of the completed elements of the construction area will be undertaken to reduce further erosion and dust.
- 4.3.3 Chemicals and fuels must be stored in secure containers located away from watercourses or waterbodies (or in suitably bunded or kerbed areas). No refuelling of plant or machinery will take place near water environments.
- 4.3.4 The Framework BNG Plan established that there will be a decrease of 91.77% and 0.94% in Area Habitat Units and Watercourse Units respectively (**Appendix 5.8A to this fLBMES**). As mentioned in Section 1.6, the Proposed Development cannot deliver on-site habitat creation according to current designs however, temporarily impacted habitats across the Wider Site will be reinstated to baseline over the Proposed Development's lifetime through a BAP. The remaining biodiversity units will be delivered through off-site habitat creation and enhancements.

#### *Measures for loss of habitat*

- 4.3.5 The additional mitigation required to ensure no significant effects as a result of the Proposed Development on ecological features in relation to habitat

loss, fragmentation and the loss of functionally linked land (FLL) or habitat (FLH) are summarised in Table 4.1 and Table 4.2.

- 4.3.6 The additional mitigation for these features and impacts comprises off-site compensatory habitats being created using a like-for-like principle.

**Table 4.1 Additional Mitigation Requirements for Habitat Loss, Fragmentation and Loss of FLL/FLH.**

| Ecological Feature                                                       | Importance | Likely Impacts                                                                                                                                        | Additional Mitigation                                                                     | BNG Habitat Type           | Area (ha) |
|--------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------|-----------|
| Teesmouth and Cleveland Coast Site of Special Scientific Interest (SSSI) | National   | Loss of Functionally Linked Land (FLL) and Habitat (FLH) - loss of habitat at the Main Site which supports qualifying feature birds and invertebrates | Off-site habitat creation to compensate loss of FLL/FLH at the Main Site.                 | Reedbed                    | 4.96      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | OMH                        | 12.67     |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Vacant or derelict land    | 7.50      |
| Habitats of Principal Importance (HoPI)                                  | National   | Habitat Loss - Loss of nationally important habitats within the Main Site                                                                             | Off-site habitat creation to compensate loss of HoPI.                                     | Reedbed                    | 6.43      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | OMH                        | 12.67     |
| Other Habitats                                                           | Local      | Habitat Loss - Loss of locally important habitats across the Proposed Development                                                                     | Off-site habitat creation to compensate loss of habitats across the Proposed Development. | Bracken                    | 0.27      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Other neutral grassland    | 35.57     |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Other sea buckthorn scrub  | 0.03      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Bramble scrub              | 2.34      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Mixed scrub                | 5.59      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Willow scrub               | 6.30      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Other littoral rock        | 0.57      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Vacant or derelict land    | 29.79     |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Other broadleaved woodland | 7.06      |
| Amphibians                                                               | Local      | Habitat Loss - loss of suitable habitats for                                                                                                          | Off-site habitat creation to compensate loss of                                           | Pond (non-priority)        | N/A       |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Reedbed                    | 6.36      |

|                           |          |                                                                                       |                                                                                                                                                                                                                                  |                         |       |
|---------------------------|----------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------|
|                           |          | amphibians within the Main Site.                                                      | habitats. This includes: Two ephemeral ponds, reedbed, other neutral grassland and scrub.                                                                                                                                        | Other neutral grassland | 13.80 |
|                           |          |                                                                                       |                                                                                                                                                                                                                                  | Bramble scrub           | 1.50  |
|                           |          |                                                                                       |                                                                                                                                                                                                                                  | Mixed scrub             | 2.56  |
|                           |          |                                                                                       |                                                                                                                                                                                                                                  | Willow scrub            | 5.88  |
| Breeding Birds            | National | Habitat Loss - loss of habitats for notable species within the Main Site              | Off-site habitat creation to compensate loss of habitats. This includes reedbed for marsh harrier and other reedbed dependent birds, OMH and sparsely vegetated habitat (i.e. vacant or derelict land) for ground nesting birds. | Reedbed                 | 4.96  |
|                           |          |                                                                                       |                                                                                                                                                                                                                                  | OMH                     | 12.67 |
|                           |          |                                                                                       |                                                                                                                                                                                                                                  | Vacant or derelict land | 7.50  |
| Terrestrial Invertebrates | National | Habitat Loss - loss of habitats for notable invertebrate species within the Main Site | Off-site habitat creation to compensate loss of habitats. This includes reedbed, OMH and sparsely vegetated habitat (i.e. vacant or derelict land).                                                                              | Reedbed                 | 4.96  |
|                           |          |                                                                                       |                                                                                                                                                                                                                                  | OMH                     | 12.67 |
|                           |          |                                                                                       |                                                                                                                                                                                                                                  | Vacant or derelict land | 7.50  |

Table 4.2 Summary of Additional Mitigation Requirements for Habitat Loss, Fragmentation and Loss of FLL/FLH.

| BNG Habitat Type           | Area (ha)    |
|----------------------------|--------------|
| Reedbed                    | 6.43         |
| OMH                        | 12.67        |
| Other neutral grassland    | 23.15        |
| Bramble scrub              | 2.34         |
| Mixed scrub                | 3.86         |
| Willow scrub               | 6.30         |
| Other broadleaved woodland | 7.06         |
| Urban tree                 | 0.05         |
| Vacant or derelict land    | 7.50         |
| <b>Total</b>               | <b>69.36</b> |

Habitats of Principal Importance

- 4.3.7 Habitats of Principal Importance (HoPI) within the Site (approximately 6.43 ha of reedbed and 12.67 ha of OMH) will be lost as a result of the Proposed Development. To offset this loss, compensatory habitat will be created off-site as part of the overall habitat mitigation strategy. To ensure appropriate compensation for the loss of HoPI, a like-for-like compensation strategy will be delivered. This will involve the creation and long-term management of compensatory habitats that replicate the character and ecological functions of those being lost. Therefore, habitat creation proposals will include approximately 6.43 ha of reedbed habitat and approximately 12.67 ha of OMH, providing equivalent habitat resources (see Table 4.1 and Table 4.2).
- 4.3.8 At the time of writing, the detailed design, location and specification of the proposed compensatory habitat have not yet been finalised, whilst the Applicant engages with third parties. Consequently, the assessment presented within this report is based on the information currently available. The detailed LBMES (to be prepared in accordance with the 'Landscape and biodiversity enhancement' Requirement in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)**) will report further details to ensure that the adequacy, suitability, and effectiveness of the proposed compensatory habitat measures can be fully assessed and agreed.

Other habitats

- 4.3.9 Other habitats within the Site (approximately 99.94 ha of bracken, neutral grassland, modified grassland, bramble scrub, mixed scrub, willow scrub, sea buckthorn scrub, littoral rock, vacant/derelict land, broadleaved woodland and urban trees) will be lost as a result of the Proposed Development.
- 4.3.10 To offset this loss, compensatory habitat will be created offsite for habitats of medium distinctiveness or higher as part of the habitat mitigation for the Proposed Development. To ensure appropriate compensation for the loss of other habitats, a like-for-like compensation strategy will be delivered. This will involve the creation and long-term management of compensatory habitats that replicate the character and ecological functions of those being lost (see Table 4.1 and Table 4.2).
- 4.3.11 At the time of writing, the detailed design and specification of the proposed compensatory habitat have not yet been finalised. Consequently, the assessment presented within this report is based on the information currently available. The detailed LBMES (to be prepared in accordance with the 'Landscape and biodiversity enhancement' Requirement in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)**) will report further details to ensure that the adequacy, suitability, and effectiveness of the

detailed compensatory habitat measures can be reviewed and approved by the relevant authority.

Amphibian habitat

- 4.3.12 Habitats within the Main Site (approximately 30.10 ha consisting of reedbed, scrub and neutral grassland which includes some of the HoPI and other habitats lost as mentioned above) were noted to have suitability for common amphibians such as common toad. These habitats will be lost as a result of the Proposed Development.
- 4.3.13 To offset this loss, compensatory habitat will be created offsite for these species (comprising scrub, reedbed and neutral grassland) as part of the habitat mitigation for the Proposed Development. To ensure appropriate compensation for the loss of other habitats, a like-for-like compensation strategy will be delivered. This will involve the creation and long-term management of compensatory habitats that replicate the character and ecological functions of those being lost (see Table 4.1 and Table 4.2).
- 4.3.14 At the time of writing, the detailed design and specification of the proposed compensatory habitat have not yet been finalised. Consequently, the assessment presented within this report is based on the information currently available. The detailed LBMES (to be prepared in accordance with the 'Landscape and biodiversity enhancement' Requirement in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)**) will report further details to ensure that the adequacy, suitability, and effectiveness of the detailed compensatory habitat measures can be reviewed and approved by the relevant authority.

Schedule 1 species habitat (Marsh Harrier and Cetti's Warbler)

- 4.3.15 The Proposed Development will result in the loss of breeding habitat for marsh harrier and ground-nesting bird species at the Main Site, including ringed plover, lapwing, oystercatcher and skylark. Compensatory habitat will therefore be created.
- 4.3.16 The marsh harrier breeding habitat comprises approximately 4.96 ha of reedbed. Compensatory habitat will offset this loss by creating at least an equivalent area of functionally similar breeding habitat (see Table 4.1 and Table 4.2). This will comprise dense common reed (*Phragmites australis*) under shallow standing water (typically 10–50cm) to provide secure nesting conditions. A disturbance buffer (approximately 200–500m) will be established, with restricted access during the breeding season. The habitat will be created in advance of the construction phase, allowing sufficient time for establishment, and secured through long-term management, monitoring and adaptive management.

- 4.3.17 The reedbed will also benefit other notable Teesmouth and Cleveland Coast SSSI assemblage species, including Cetti's warbler, reed bunting, grasshopper warbler and water rail as well as scarce reedbed-dependent lepidoptera.
- 4.3.18 Ground-nesting bird species currently use sparsely vegetated, developed and unvegetated habitats within the Main Site. Compensatory habitat for these species will consist of open, sparsely vegetated areas with sand, shingle and cobble substrates. These areas will maintain low vegetation cover and a heterogeneous surface to support multiple breeding territories and avoid fragmentation.
- 4.3.19 Disturbance will be minimised through seasonal exclusion zones, access management and buffering. Limited shallow, ephemeral wet features may be included to enhance invertebrate availability for foraging; however, core nesting areas will remain dry and well-drained to optimise breeding conditions and minimise flood and predation risk.
- 4.3.20 The habitat will be created in advance of any construction works located 300-500m from the reedbed within the Main Site, allowing several years for establishment, and secured through long-term management, including monitoring of habitat condition and breeding success, with adaptive management as required.
- 4.3.21 At the time of writing, the detailed design and specification of the proposed compensatory habitat have not yet been finalised. Consequently, the assessment presented within this report is based on the information currently available. The detailed LBMS (to be prepared in accordance with a Requirement in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)**) will report further details to ensure that the adequacy, suitability, and effectiveness of the detailed compensatory habitat measures can be reviewed and approved by the relevant authority .

*Notable ground nesting birds and terrestrial invertebrates habitat*

- 4.3.22 Habitats within the Main Site supporting notable bird and terrestrial invertebrate species comprise approximately 12.67 ha of OMH and 7.50 ha of vacant/derelict land, totalling 20.17 ha.
- 4.3.23 Compensatory habitat for ground-nesting birds will provide at least 20.17 ha of open, sparsely vegetated habitat with sand, shingle, and cobble substrates (see Table 4.1 and Table 4.2). The design will maintain low vegetation cover and a heterogeneous surface to support multiple breeding territories while avoiding fragmentation. Disturbance will be minimised through seasonal exclusion zones, access management, and buffering.

- 4.3.24 Shallow ephemeral wet features may be included to enhance invertebrate prey availability; however, core nesting areas will remain dry, well-drained, and free of standing water to reduce flood and predation risk.
- 4.3.25 At the time of writing, the detailed design and specification of the proposed compensatory habitat have not yet been finalised. Consequently, the assessment presented within this report is based on the information currently available. The detailed LBMES (to be prepared in accordance with the 'Landscape and biodiversity enhancement' Requirement in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)**) will report further details to ensure that the adequacy, suitability, and effectiveness of the detailed compensatory habitat measures can be reviewed and approved by the relevant authority.

### ***Operational Mitigation***

#### ***Designated Sites, HoPI and other habitats***

##### ***Air pollution mitigation***

- 4.3.26 Selective Non-catalytic Reduction/Selective Catalytic Reduction (SNCR/SCR) systems are required. This is anticipated to comprise enhanced SNCR/SCR treatment for NO<sub>x</sub> reduction and wet scrubbing for NH<sub>3</sub> control on emissions from both the CHP Plant Stack and the SAF Production Product Pretreatment Stack. Refer to **Chapter 8: Air Quality (ES Volume I, Application Document Ref. 6.1)** for more details.

##### ***Water pollution mitigation***

- 4.3.27 Implementation of additional measures will be incorporated into the Proposed Development to reduce nutrient concentrations as outlined within **Chapter 12: Water Environment (ES Volume I, Application Document Ref. 6.1)** and the **Framework Drainage Strategy** (appended to the **Flood Risk Assessment, Application Document Ref. 5.8**). Measures will be implemented to ensure that discharge water quality meets the relevant permit conditions and discharge consent limits, thereby minimising the potential for adverse effects on receiving watercourses and downstream designated ecological sites. The performance of the treatment systems will be monitored and maintained throughout the operational life of the development to ensure continued compliance with regulatory requirements and best practice guidance. Refer to **Chapter 12: Water Environment (ES Volume I, Application Document Ref. 6.1)** and the **Framework Drainage Strategy** (appended to the **Flood Risk Assessment, Application Document Ref. 5.8**) for more details.

#### 4.4 Species

- 4.4.1 Pre-construction surveys for protected and notable species are recommended to be undertaken a minimum of eight weeks in advance of any works commencing to allow for any necessary mitigation to be implemented in case of any changes to the ecological baseline of the Site. Should avoidance of potential effects through design refinement not be possible, species-specific mitigation plans will be developed and where necessary, disturbance licence applications will be made to Natural England.

##### *Species licences*

- 4.4.2 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. Licensing will also prescribe requirements for compensation or features where applicable. Species which have the potential to require licensing include:

- Otter and water vole – in the event resting or breeding places are identified within the Site during the second field survey; and;
- Invasive Non-Native Species (INNS) – in the event that INNS are to be eradicated, controlled and/or contained as part of construction and operational activities.

- 4.4.3 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 detailed CEMP.

##### *Construction noise and vibration mitigation*

- 4.4.4 Additional mitigation measures are required to manage construction noise and avoid adverse impacts on three ecological receptors: LGF Quayside, Dabholm Gut, and Bran Sands Lagoon. At these locations, predicted noise levels exceed the critical thresholds for impacting terrestrial ecological receptors (i.e. >55 dB L<sub>Aeq</sub> or >3 dB above baseline noise level), including qualifying features of the Teesmouth and Cleveland Coast SPA/Ramsar/SSSI, as well as breeding and wintering birds and otter. Further details are provided in **Annex 10H: Noise and Vibration Assessment for Terrestrial Ecological Receptors (ES Volume III, Application Document Ref. 6.3)**.
- 4.4.5 During the construction phase, full acoustic screening, implemented in accordance with best practice and the guidance set out in **Chapter 9: Noise and Vibration (ES Volume I, Application Document Ref. 6.1)**, will be installed at each receptor location. This will be combined with visual

screening to remove line of sight between construction activities and ecological receptors. The locations that require acoustic and visual screening are along the northern and southern boundaries of the access track on the north bank of Dabholm Gut (see **Figure 10.9 Acoustic Screening (ES Volume II, Application Document Ref. 6.2)**). Together, these measures are expected to achieve a reduction of approximately 10dB in construction noise levels (see Table 10.20 in **Annex 10H: Noise and Vibration Assessment for Terrestrial Ecological Receptors (ES Volume III, Application Document Ref. 6.3)**).

- 4.4.6 With the implementation of these additional mitigation measures, predicted noise levels at Dabholm Gut and Bran Sands Lagoon will be reduced to below the 55dB threshold. At LGF Quayside, noise levels remain above this threshold; however, the increase from baseline noise levels is limited to less than 3dB.

#### Amphibians

- 4.4.7 The Proposed Development will result in the unavoidable loss and fragmentation of habitats of ecological value. Following the application of the mitigation hierarchy, opportunities to avoid and retain habitats in situ have been considered throughout the design process; however, due to the nature and extent of the Proposed Development, complete retention of all habitats is not feasible. Where habitat loss or severance cannot be avoided, appropriate mitigation measures will be implemented to maintain ecological connectivity and compensate for losses. In addition, opportunities to incorporate biodiversity enhancement measures into the detailed design will be explored to maximise ecological value across the compensatory habitat site.
- 4.4.8 To compensate for the loss of habitats utilised by amphibians, the off-site compensatory habitat includes the creation of approximately two ephemeral ponds, 6.36 ha of reedbed, and 13.80 ha of neutral grassland, 1.50 ha bramble scrub, 2.56 ha mixed scrub, and 5.88ha of willow scrub. These habitats will be designed to provide a mosaic of aquatic and terrestrial features suitable for foraging, dispersal, sheltering, and breeding amphibians. The creation of a diverse habitat network will improve habitat connectivity within the wider landscape and provide long-term ecological benefits for amphibian populations and other associated fauna.
- 4.4.9 A lighting strategy will be implemented throughout the construction and operational phases of the Proposed Development to minimise impacts on ecological receptors (see **Appendix 13C: Framework Lighting Strategy (Application Document Ref. 6.3)**). Artificial lighting will be carefully designed and positioned to reduce light spill into adjacent habitats using

lighting guidance [Ref 9]. Lighting levels will be restricted to those necessary for health, safety, and operational requirements, and unnecessary lighting will be avoided in areas not actively being used for construction activities. Where practicable, directional luminaires, shielding, and motion-sensitive controls will be utilised to further reduce potential disturbance to wildlife.

- 4.4.10 To promote awareness of protected and notable species on Site, all construction personnel will receive a site induction and ecological toolbox talk prior to commencing works. The toolbox talk will include information on amphibian identification, legal protection, ecological sensitivities, and procedures to follow should amphibians be encountered during construction activities. Where significant numbers of amphibians or protected species are identified during the construction phase, works in the affected area will cease where appropriate and advice sought from a suitably qualified ecologist. The ecologist will assess the situation and determine whether additional mitigation measures, including the implementation of a supervised translocation programme, are necessary to avoid adverse effects on local amphibian populations and ensure compliance with relevant environmental legislation and best practice guidance.

## Bats

### *Construction phase*

- 4.4.11 In addition to the embedded mitigation laid out in the **fCEMP (Appendix 5A, ES Volume III, Application Document Ref. 6.3)**, the following additional mitigation for bats is recommended:

#### Lighting

- 4.4.12 Measures to be incorporated into the construction and operational lighting scheme for the Site:
- Presence of artificial lighting onsite will be minimised wherever possible;
  - LED luminaires will be used due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
  - External security lighting will be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most purposes, a 1- or 2-minute timer is likely to be appropriate;
  - Column mounted luminaires will be located so that the rear shields are adjacent to habitats, or narrow optics selected that direct light into the task area where needed; and

- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

### ***Operation phase***

- 4.4.13 The following additional lighting mitigation has been identified for bats at the operational phase (refer to **Appendix 13C: Framework Lighting Strategy, ES Volume III, Application Document Ref. 6.3**):

#### *Permanent lighting*

- Any artificial lighting will be directed away from the Site boundary features in order to maintain their suitability as dark corridors for bats and other notable species sensitive to lighting;
- All luminaires will lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used. LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability;
- A warm white light source (2700Kelvin or lower) will be adopted to reduce blue light component and, where possible, light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (REF 9);
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, will be considered;
- Luminaires will always be mounted horizontally with no light output above 90° and/or no upward tilt;
- The potential to incorporate a Central Management System (CMS) and physical screening options behind light sources adjacent to vegetated areas (REF 9; REF 10) will be explored as an option in the detailed Lighting Strategy. The CMS provides the ability to dim or turn off individual or groups of luminaires when not in use or during less busy times. Dimming can be precisely controlled, with dimming states often being as low as 10 or 20%. Due to the electrical difficulties of maintaining a dimming state of under 10%, luminaires will be set to off below this point. If this is not practical, sufficient justification will be provided within the detailed Lighting Strategy.
- Where possible, internal luminaires will be recessed (as opposed to using a pendant fitting) where installed in proximity to windows to reduce glare and light spill;

- Any pathways throughout the Site that require artificial lighting will be addressed via the use of waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges; and
- Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

### Breeding birds

#### ***General mitigation***

- 4.4.14 Where possible, proposed works and locations of infrastructure will be re-located to avoid protected or notable habitats and species such as reedbeds and wintering and breeding birds.
- 4.4.15 Mitigation measures required in relation to nesting birds would be outlined, agreed and committed to as part of the detailed CEMP.
- 4.4.16 Ideally vegetation removal and demolition works will be undertaken between late July and September inclusive, to also avoid the critical breeding season and over-wintering period for SPA, Ramsar and SSSI interest feature birds. Where this is not feasible, a Suitably Experienced Ecologist (SEE) will undertake the role of ECoW. In this capacity, checks for nesting birds within any vegetation to be cleared will be conducted no more than 48 hours prior to clearance. If any nests are found, the ECoW will advise a suitable buffer zone, and works shall cease within the localised area until all birds have fledged. Subsequently, if any active nests are found during construction the ECoW will be consulted to avoid impacting any breeding birds.

#### ***Noise and vibration disturbance related mitigation***

- 4.4.17 To minimise potential impacts associated with noise and vibration disturbance, appropriate mitigation measures will be implemented during construction and operation of the Proposed Development. These measures will include the installation of acoustic screening and buffer zones around significant plant and machinery, where practicable, to attenuate noise levels and reduce disturbance to sensitive ecological receptors. The mitigation strategy will be designed to achieve a reduction in sound levels of up to 10dB and maintain noise levels below the relevant impact threshold of 55dB, thereby minimising the potential for adverse effects on birds.

#### ***Breeding bird habitat***

- 4.4.18 The majority of habitat is being lost from the Main Site. To mitigate for this loss, off-site compensatory habitat will be provided, in the form of 4.96 ha of

reedbed for marsh harrier and other reedbed dependent birds and 12.67 ha of OMH and 7.50 ha sparsely vegetated land for ground nesting birds.

### Wintering Birds

#### *General mitigation measures*

- 4.4.19 To safeguard the overwintering bird assemblages associated with the Teesmouth and Cleveland Coast SSSI, SPA and Ramsar site, a weather-triggered restriction on noisy construction activities will be implemented. If air temperatures on the Proposed Development Site fall to 0°C or below at any point within a 24-hour period for five consecutive days immediately preceding or during the construction period, all noisy construction activities within 200m of the designated site will cease. Construction activities may recommence only after temperatures have remained above 0°C for three consecutive days. This measure is intended to minimise potential disturbance to wintering birds during periods of prolonged cold weather, when individuals are likely to be under increased energetic stress and more sensitive to disturbance.

#### *Invasive non-native species*

- 4.4.20 Several INNS have been recorded within the Site boundary. In order to ensure compliance with relevant wildlife and environmental legislation **[Error! Reference source not found.]**, and to align with current best practice guidance, an Invasive Species Management Plan (ISMP) will be required prior to the commencement of any site clearance, construction, or enabling works. The ISMP will set out appropriate biosecurity measures, containment and treatment methodologies, monitoring requirements, and procedures for the handling, storage, transport, and disposal of any invasive plant material. Implementation of these measures will minimise the risk of inadvertent spread both within and beyond the Site and ensure that the Proposed Development is undertaken using legally compliant and environmentally responsible methodologies.

## 5 Species and habitat monitoring and enhancement measures

### 5.1 Monitoring

#### Habitats

- 5.1.1 Off-site compensatory habitat will be created through a registered off-site provider to deliver the required additional mitigation as well as contributing towards the voluntary objective of NNL. The registered provider will be required to conduct appropriate monitoring of the compensatory habitat, through an agreement with the Applicant and relevant authority, to ensure the required habitat types, conditions and ecological functions for the affected terrestrial ecological features are established and are maintained for the relevant period.

#### Invasive non-native species

- 5.1.2 In order to ensure compliance with relevant wildlife and environmental legislation [Ref 11], and to align with current best practice guidance, an ISMP will be required for the Proposed Development.
- 5.1.3 The ISMP will set out appropriate monitoring requirements and procedures for any invasive plant material identified within the Proposed Development during its operational phase. Implementation of these measures will minimise the risk of inadvertent spread both within and beyond the Site.

#### Notable and protected species

- 5.1.4 Eight protected and/or notable species or species groups have been identified as present or likely present across the Site and its immediate surrounds (amphibians, bats, breeding birds, wintering birds, otter, water vole, other terrestrial mammals, terrestrial invertebrates).
- 5.1.5 A programme of appropriate monitoring during construction and post development, as required, for each phase will be agreed with Stockton-on-Tees Borough Council following the detailed design stage and the completion of pre-commencement surveys.

### 5.2 Enhancement

- 5.2.1 At this stage of design, it is expected that there is no available land within the Site for habitat creation or enhancement measures. The following enhancements measures are outline options considered to ensure compliance with local policy, guidance and statutory consultation detailed in **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)**.

***Proposed quay***

- 5.2.2 Colonisation of the proposed quay has the potential to deliver positive effects through habitat creation and increased biodiversity. This could compensate for the loss of baseline intertidal habitat (artificial intertidal structure).
- 5.2.3 It is recommended that opportunities are explored to include microhabitats through the use of textured or varied surface treatments, as well as the incorporation of features such as vertipools to promote colonisation by marine organisms as potential enhancement opportunities at detailed design stage.
- 5.2.4 Potential enhancement features will be explored further at the detailed design stage when design of the proposed quay is available.

## 6 Conclusion

- 6.1.1 The Proposed Development will deliver a nationally significant Sustainable Aviation Fuel facility that supports the UK's decarbonisation objectives whilst seeking to avoid, minimise, restore and compensate for impacts on landscape and biodiversity receptors through the application of the mitigation hierarchy. Embedded and additional mitigation measures have been incorporated into the Proposed Development design, alongside habitat compensation, monitoring and management measures, to ensure potential effects on ecological features are appropriately addressed.
- 6.1.2 Although Biodiversity Net Gain is not mandatory for the Proposed Development, the Applicant is committed to a voluntary No Net Loss objective, supported by the Framework Biodiversity Net Gain Plan and the compensatory habitat measures outlined within this Strategy. These measures have been developed to maintain ecological functionality and biodiversity value, whilst supporting the conservation of designated sites, Habitats of Principal Importance, protected species and notable ecological assemblages.
- 6.1.3 This Framework Landscape and Biodiversity Mitigation and Enhancement Strategy demonstrates how the Proposed Development accords with relevant environmental legislation, national policy and good practice guidance, including the requirements of the PA 2008 [Ref 1], NPS EN-1 [Ref 12] and relevant wildlife legislation. Subject to the implementation of the mitigation, compensation, monitoring and enhancement measures secured through Requirements in Schedule 2 of the **draft DCO (Application Document Ref. 3.1)** and detailed LBMES, the Proposed Development will provide a robust framework for the protection and management of landscape and biodiversity interests throughout its lifetime.

## References

- Ref 1 UK Government (2008) Planning Act 2008. Available online: <https://www.legislation.gov.uk/ukpga/2008/29/contents> [Accessed August 2026].
- Ref 2 Planning Inspectorate (2026). Lighthouse Green Fuels Project (DISCONTINUED). Available online: <https://national-infrastructure-consenting.planninginspectorate.gov.uk/projects/EN010150/documents> [Accessed August 2026].
- Ref 3 CIEEM (2019) Biodiversity Net Gain Good practice principles for development. Available online: <https://cieem.net/wp-content/uploads/2019/02/C776a-Biodiversity-net-gain.-Good-practice-principles-for-development.-A-practical-guide-web.pdf> [Accessed August 2026].
- Ref 4 Ministry of Housing, Communities & Local Government (2026) National Planning Policy Framework Available online: [https://assets.publishing.service.gov.uk/media/6a8334c03bd75b81e2329ac4/National\\_Planning\\_Policy\\_Framework.pdf](https://assets.publishing.service.gov.uk/media/6a8334c03bd75b81e2329ac4/National_Planning_Policy_Framework.pdf) [Accessed September 2026].
- Ref 5 Natural England. National Character Assessment 23 Tees Lowlands, 2014. (Online) Available online: <https://nationalcharacterareas.co.uk/tees-lowlands/> [Accessed August 2026].
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- Ref 7 UK Government (1981). Wildlife and Countryside Act 1981. Available online: <https://www.legislation.gov.uk/ukpga/1981/69/contents> [Accessed August 2026].
- Ref 8 Tees Valley Biodiversity Action Plan (BAP) (2012). Tees Valley Nature Partnership.
- Ref 9 Bat Conservation Trust (2023). Guidance Note 08/23, Bats and Artificial Lighting at Night. Institute of Lighting Professionals, Rugby. Available online: <https://www.bats.org.uk/news/2023/08/bats-and-artificial-lighting-at-night-ilp-guidance-note-update-released> [Accessed August 2026].
- Ref 10 CIEEM (2025) UK Bat Mitigation Guidelines. Available online: <https://cieem.net/wp-content/uploads/2023/09/Bat-Mitigation-Guidelines-2025-V1.2.pdf> [Accessed August 2026].
- Ref 11 UK Government (2019). The Invasive Alien Species (Enforcement and Permitting) Order 2019. Available online: <https://www.legislation.gov.uk/uksi/2019/527/made> [Accessed August 2026].

- Ref 12 Department for Energy Security & Net Zero (2026). Overarching National Policy Statement for energy (EN-1), 2025. Available online: <https://www.gov.uk/government/publications/overarching-national-policy-statement-for-energy-en-1-2025/overarching-national-policy-statement-for-energy-en-1-2025-accessible-webpage> [Accessed August 2026].

# The Lighthouse Green Fuels Order

Application Reference: EN0110025

Applicant: LGF Projects Limited

## Framework Landscape and Biodiversity Mitigation and Enhancement Strategy: Framework Biodiversity Net Gain Plan

Document Reference: 5.8A

Revision: 00

APFP Reg. 5(2)(a), 5(2)(l) and EIA Reg. 14

| Document Verification |                                                                      |
|-----------------------|----------------------------------------------------------------------|
| Document Title        | Framework Landscape and Biodiversity Mitigation and Enhancement Plan |
| Document Ref          | 5.8A                                                                 |
| Author                | Arup                                                                 |

#### Revision record

| 00 | Purpose | DCO Application Submission |
|----|---------|----------------------------|
|    | Date    | September 2026             |
|    |         |                            |
|    |         |                            |
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#### Information Classification

| Information Classification | Date | Reason                                                                                 |
|----------------------------|------|----------------------------------------------------------------------------------------|
| Public                     |      | Proprietary information which will have no impact on the company if disclosed publicly |

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## Abbreviations

| Abbreviation | In full                                                     |
|--------------|-------------------------------------------------------------|
| Arup         | Ove Arup and Partners Limited                               |
| ASU          | Air Separation Unit                                         |
| BDU          | Biodiversity Unit                                           |
| BNG          | Biodiversity Net Gain                                       |
| BOA          | Biodiversity Opportunity Area                               |
| CIEEM        | Chartered Institute of Ecology and Environmental Management |
| DCO          | Development Consent Order                                   |
| Defra        | Department for Environment, Farming and Rural Affairs       |
| fBNG         | Framework Biodiversity Net Gain                             |
| fCEMP        | Framework Construction Environmental Management Plan        |
| ERIC NE      | Environmental Records Information Centre North East         |
| GIS          | Geographical Information System                             |
| ha           | Hectare                                                     |
| HDD          | Horizontal Directional Drilling                             |
| INCA         | Industry Nature Conservation Association                    |
| LNRS         | Local Nature Recovery Strategy                              |
| LPA          | Local Planning Authority                                    |
| MoRPh        | Modular River Physical Survey                               |
| NCA          | National Character Area                                     |
| NPPF         | National Planning Policy Framework                          |
| NPS          | National Policy Statement                                   |
| NSIP         | Nationally Significant Infrastructure Project               |
| OEP          | Office of Environmental Protection                          |
| PINS         | The Planning Inspectorate                                   |
| RCA          | River Condition Assessment                                  |
| RCBC         | Redcar and Cleveland Borough Council                        |
| SAF          | Sustainable Aviation Fuel                                   |
| SBC          | Statutory Biodiversity Credits                              |
| SoS          | Secretary of State                                          |
| STBC         | Stockton on Tees Borough Council                            |
| TCPA         | Town and Country Planning Act                               |
| TVBAP        | Tees Valley Biodiversity Action Plan                        |
| TVCA         | Tees Valley Combined Authority                              |

TVNP

Tees Valley Nature Partnership

UKHab

UK Habitat Classification

WFD

Water Framework Directive

WwTP

Wastewater Treatment Plant

## 1 Introduction

### 1.1 Overview

- 1.1.1 This Framework Biodiversity Net Gain (BNG) (fBNG) Plan has been prepared by Ove Arup and Partners Ltd (Arup) on behalf of LGF Projects Ltd (the Applicant), to support an application (the Application) seeking Development Consent for the construction, operation, maintenance and decommissioning of the Lighthouse Green Fuels project on land at Stockton-on-Tees and Redcar and Cleveland on Teesside (the Proposed Development) on land within the administrative boundaries of Stockton-on-Tees Borough Council (STBC) and Redcar and Cleveland Borough Council (RCBC) on Teesside (the Site). Throughout this fBNG Plan, the location of the Sustainable Aviation Fuel (SAF) plant, Combined Heat and Power (CHP) plant and Air Separation Unit (ASU) is referred to as the Main Site. Areas of land required for connections and accesses is referred to as the Wider Site.
- 1.1.2 As BNG is not mandatory for the Application, the Proposed Development has voluntarily committed to achieve no net loss (NNL) of biodiversity by delivering the required ecological compensation measures and addressing any residual Biodiversity Unit (BDU) shortfall through additional biodiversity enhancement measures.
- 1.1.3 This fBNG Plan encompasses UK Habitat Classification (UKHab) data collected during UKHab field surveys from May to August 2025 and April to May 2026 in line with current guidance [Ref 1]. BNG baseline data was collected in line with Natural England guidance [Ref 2]. This report also conforms to the British Standard BS8683:2023 Biodiversity Code of Practice for Planning and Development.

### 1.2 Proposed Development

- 1.2.1 The 190.79 hectare (ha) Site is located in Teesside on land to the north and south of the River Tees. The Site and extents of the Main Site and Wider Site are shown in **Figure 4.2: Main Site and Wider Site (ES Volume II, Application Document Ref. 6.2)**.

#### Main Site

- 1.2.2 The location of the Main Site, where the SAF plant, CHP plant and ASU will be located, is on the north bank of the River Tees in the industrial area of Seal Sands, approximately 5km east of Billingham town centre and 4km north east of Middlesbrough town centre. It is immediately bounded by the River Tees to the east and is surrounded by the Seal Sands industrial area to the north, south and west.

### Wider Site

- 1.2.3 The Wider Site includes areas of land required for connections and accesses.

## 1.3 Objectives

### NLL objective

- 1.3.1 In England, the BNG requirement (i.e. 10% net gain) will be mandatory for Nationally Significant Infrastructure Projects (NSIP) from 2 November 2026. The Applicant will apply for a Development Consent Order (DCO) prior to this date and therefore BNG is not mandatory for the Proposed Development.
- 1.3.2 Alternatively, the Proposed Development will commit to a voluntary 'No Net Loss' (NNL) objective (i.e. 0% net gain) to make the maximum potential provision for biodiversity in adherence with local policy, statutory consultation and good practice principles (see Section 2).
- 1.3.3 This fBNG plan captures the baseline and post-development biodiversity value of the Proposed Development with a strategy on how the Proposed Development will meet the voluntary NNL objective. The DCO application will be made on the basis of achieving NNL of biodiversity and achieving the required ES habitat compensation requirements.
- 1.3.4 The fBNG Plan will be revised at the detailed design stage should additional baseline information and/or post-development designs be provided. It will also be revised should the legal context for BNG and NSIPs change prior to the Applicant's DCO submission.

### Report objectives

- 1.3.5 The report objectives are to:
- Identify the baseline habitats within the Site and BNG boundary (see Section 3.2) and assess their condition in accordance with the Statutory Biodiversity Metric;
  - Determine the total number of BDUs within the BNG boundary, calculated using the Statutory Biodiversity Metric;
  - Determine the post-development habitats and the total number of post-development BDUs within the BNG boundary, calculated using the Statutory Biodiversity Metric; and
  - Outline the strategy for how the Proposed Development will meet the NNL objective.

## 2 Legal and policy context

### 2.1 Legislation

#### The Environment Act 2021

2.1.1 The introduction to the Environment Act (2021) (the Act) [Ref 3] describes it as *"an Act to make provision about targets, plans and policies for improving the natural environment; for statements and reports about environmental protection; for the Office for Environmental Protection; about waste and resource efficiency; about air quality; for the recall of products that fail to meet environmental standards; about water; about nature and biodiversity; for conservation covenants; about the regulation of chemicals; and for connected purposes."*

2.1.2 The main points of the Act relate to:

- Environmental governance, including targets, improvement plans, monitoring, principles, and reporting, and recognition of the government's 25-year plan to improve the environment. The 25-year plan provides the overarching national environmental policy context that led to the introduction of BNG and wider nature recovery measures in the Act and NSIP BNG regime. The plan established the Government's ambition to leave the environment in a better state than it inherited it and drive long-term nature recovery across England;
- Nature and biodiversity; the Act makes provisions for *"biodiversity gain in planning"* which applies to applications under the Town and Country Planning Act 1990 (TCPA) [Ref 4]. This provision does not apply to this application; and
- Conservation covenants; the Act makes additional provisions for conservation covenants to support the *"biodiversity gain in planning"* concept by providing a mechanism through which any gains can be secured and managed.

#### **Planning Act 2008**

2.1.3 The Planning Act 2008 (PA 2008) [Ref 5], as amended by Section 99 and Schedule 15 of the Environment Act 2021 [Ref 3], introduces a BNG requirement for NSIPs through amendments to sections 103 to 105 and the insertion of Schedule 2A. Under this statutory framework, the SoS may not grant an application for DCOs unless satisfied that the proposed development meets the biodiversity gain objective as set out in the relevant biodiversity gain statement to which the development relates.

- 2.1.4 The mandatory BNG requirement will only apply to NSIP applications made on or after 2 November 2026. These applications must submit a BNG Plan and Statutory Biodiversity Metric which demonstrates how the statutory BNG requirement will be achieved and implemented.
- 2.1.5 Defra published updated guidance for NSIPs and BNG on 27 August 2026 [Ref 6] which includes reference to biodiversity gain statements for NSIPs which were published on 2 June 2026 [Ref 7]. The guidance and statements, separated by sector, set out how NSIPs must calculate, deliver and report on BNG. The mandatory BNG requirement and the biodiversity gain statement do not apply to this application. BNG for this application remains non-statutory and the requirements of schedule 2A and the statement are not matters which the Secretary of State must take into account in decision making. Further guidance

#### Statutory Biodiversity Credits

- 2.1.6 The Environment Act 2021 [Ref 3] provides the legislative basis for biodiversity net gain, including the use of statutory biodiversity credits. Statutory biodiversity credits can be purchased from the Secretary of State where necessary to address any residual biodiversity unit shortfall after on-site and off-site measures have been considered.
- 2.1.7 In February 2024, Defra updated their published statutory prices and information on calculating costs for developers buying SBCs [Ref 8].
- 2.1.8 To compensate the loss of baseline BDUs through SBCs, a spatial risk multiplier is applied, which doubles the number of credits required (i.e. two SBCs must be purchased for each BDU). This does not apply to irreplaceable habitats, as bespoke compensation is required, and as such should be treated and compensated for outside of the BNG calculation, at an additional cost.

## 2.2 Policy

### National Planning Policy Framework

- 2.2.1 The revised National Planning Policy Framework (NPPF) was published in August 2026 [Ref 9] and is a material consideration in all planning decisions. The NPPF places a responsibility on decision-makers to conserve and enhance the natural environment, support nature recovery and protect habitats of international, national and local importance through the application of Policies N2 and N6.

### Overarching National Policy Statement for Energy (EN-1)

- 2.2.2 This National Policy Statement (NPS) sets out national policy for energy infrastructure [Ref 10]. It has effect for the decisions by the SoS on applications for energy developments that are NSIPs under the PA 2008 **[Error! Reference source not found.]**. The SoS considers assessment principles outlined within the NPS, including a principle for 'Environmental and Biodiversity Net Gain'.
- 2.2.3 This principle states that NSIPs *"should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity, and the wider environment where possible."*

### Tees Valley Local Nature Recovery Strategy

- 2.2.4 Local Nature Recovery Strategies (LNRS) are locally led collaborative strategies to drive nature's recovery and provide wider environmental improvements established by the Environment Act 2021 [Ref 3]. Each LNRS will:
- Agree priorities for nature's recovery;
  - Map the most valuable existing areas for nature; and
  - Map specific proposals for creating or improving habitat for nature and wider environmental goals.
- 2.2.5 The Site is situated within the administrative boundary of the Tees Valley LNRS [Ref 11]. The Tees Valley Combined Authority (TVCA) has been appointed as the responsible authority for preparing and publishing the Tees Valley LNRS and is in partnership with Mott MacDonald, the Environmental Records Information Centre North East (ERIC NE) and the Tees Valley Nature Partnership (TVNP) to develop a plan for preparing the Tees Valley LNRS.
- 2.2.6 According to TVCA, public consultation is anticipated for August/September 2026 with publication in December 2026.

### Stockton-on-Tees Borough Council Local Plan

- 2.2.7 The STBC Local Plan [Ref 12] was adopted in January 2019 and forms part of the statutory development plan for STBC over the period 2019 to 2032. It identifies and allocates land required over this thirteen year period in order to achieve the vision for sustainable economic growth and development of the Borough.
- 2.2.8 BNG relevant policies include:

- Policy ENV5 – Preserve, Protect and Enhance Ecological Networks, Biodiversity and Geodiversity.
- Policy ENV6 - Green Infrastructure, Open Space, Green Wedges and Agricultural Land.

#### Redcar and Cleveland Local Plan

2.2.9 The RCBC Local Plan [Ref 13] was adopted in May 2018 and forms part of the statutory development plan for RCBC for the period 2018 to 2032. It identifies and allocates land required over this fourteen year period in order to achieve the vision for sustainable economic growth and development of the area.

2.2.10 BNG relevant policies include:

- Policy N2: Green Infrastructure; and
- Policy N4: Biodiversity and Geological Conservation.

#### Tees Valley Landscape Area and Biodiversity Opportunity Area

2.2.11 The TVNP identified five broad landscape areas within the Tees Valley [Ref 14]. These landscape areas also act as Biodiversity Opportunity Areas (BOAs) and comprise the key areas for potential biodiversity enhancement where targeted maintenance, restoration, creation, mitigation and offsetting measures should be adopted to enhance biodiversity. The existing ecological and geological data for the Tees Valley have been brought together to produce descriptions and maps of the priority habitats and species in each landscape area.

#### Tees Valley Nature Partnership Priority habitats and Species in the Tees Valley

2.2.12 The TVNP is a collection of organisations and individuals working together to conserve, enhance and promote biodiversity in the Tees Valley region. The current Tees Valley Biodiversity Action Plan (TVBAP) [Ref 15] has been in place since January 2012 and covers the local authority areas of Hartlepool, Stockton, Middlesbrough and Redcar and Cleveland.

2.2.13 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.

## 2.3 Consultation

### Planning Inspectorate

- 2.3.1 In November 2025, the Planning Inspectorate (PINS) provided a scoping opinion for the Proposed Development [Ref 16]. TPINS acknowledged that the Proposed Development had not committed to a Biodiversity Gain Objective and that other projects, prior to mandatory NSIP BNG have been providing voluntary commitments. They recommended the Proposed Development prepares a BNG Plan based on the 'maximum potential provision'. The applicable comments are provided in Table 2.1.**Error! Reference source not found.**

Table 2.1 PINS Scoping Opinion Comments Relevant to BNG

| Page Number | Heading                                         | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 28          | Section 10: BNG                                 | <p>The Environment Act 2021 includes NSIPs in the requirement for BNG, with the biodiversity gain objective for NSIPs defined as at least a 10% increase in the pre-development biodiversity value of the on-site habitat. It is the intention that BNG should apply to all terrestrial NSIPs accepted for examination from a date still to be confirmed by the Government. [The Planning Inspectorate] understand that November 2025 and May 2026 are both options. This includes the intertidal zone but excludes the subtidal zone (an approach to marine net gain is being developed but this will not form part of mandatory BNG). Projects that span both offshore and onshore will be subject to BNG requirements for the onshore components only.</p> <p>Some organisations have made public BNG commitments, and some projects are already delivering BNG on a voluntary basis.</p> <p>[The Planning Inspectorate] note that the Applicant has not committed to delivering a specific percentage BNG. Therefore, [the Planning Inspectorate] recommend that the Applicant undertakes detailed habitat assessment and prepares a BNG plan based on the maximum potential provision</p> |
| 30          | Section 14: Soils and agricultural land quality | <p>The ES should set out details of how any adverse impacts on soils can be avoided or minimised and demonstrate how soils will be sustainably used and managed, including consideration in site design and master planning, and areas for green infrastructure or BNG. The aim will be to minimise soil handling and maximise the sustainable use and management of the available soil to achieve successful after-uses and minimise off-site impacts.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## Natural England

- 2.3.2 A Preliminary Environmental Information Report (PEIR) [Ref 17] was produced in December 2025. Natural England provided their advice in relation to the PEIR.
- 2.3.3 Natural England recommended that the Proposed Development uses the Statutory Biodiversity Metric to measure biodiversity and provide gains following existing rules and guidance. The applicable comments are provided in Table 2.2.

**Table 2.2 Natural England PEIR Comments Relevant to BNG**

| Page Number | Heading                                                    | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 38          | Table 1: Natural England's key advice and recommendations: | <p>In relation to Chapter 10, Section 7.4.1 of the PEIR:<br/> <i>"Habitat enhancement (on/off site) will be considered within the BNG framework/assessment."</i></p> <p>Natural England Recommendation:</p> <p>Although BNG is not yet a mandatory requirement for NSIPs, [Natural England] strongly recommend that BNG provision is secured through this development. This will reflect the important role NSIPs must play in delivering the government's environmental targets.</p> <p>Early engagement with Natural England on BNG proposals will help maximise outcomes and reduce risks. The biodiversity baseline should include all land contained within the site's red line boundary and proposals can be iteratively refined over time and throughout detailed design.</p> <p>[Natural England] encourage developers to:</p> <ul style="list-style-type: none"> <li>• develop their BNG proposals in adherence with well-established BNG principles</li> <li>• use the latest version of the Defra biodiversity metric, adhering to the metric guidance</li> </ul> <p>Biodiversity gains should ideally be secured for a minimum of 30 years and be subject to adaptive management and monitoring. BNG plans should be secured by a suitably worded requirement in the DCO.</p> |

## 2.4 Summary

- 2.4.1 There is no legislation or policy provided by the UK government that makes the BNG requirement mandatory for NSIPs prior to the commencement date of 2 November 2026. National and local policy states that development should demonstrate 'net gains' in biodiversity where possible. LGF has committed in the published EIA Scoping Report and PEIR that a BNG assessment will be completed for the Proposed Development. It has not committed to the BNG requirement of 10%.

- 2.4.2 PINS and Natural England recognise that BNG is not yet mandatory for NSIPs. They highlight that some organisations have made public BNG commitments and are delivering BNG on a voluntary basis. They also recognise that a specific Biodiversity Gain Objective percentage has not been committed to by the Proposed Development however, they recommended that the Applicant undertakes a detailed habitat assessment and prepares a BNG Plan based on the maximum potential provision.

## 3 Methods

### 3.1 Overview

- 3.1.1 Applications for DCOs submitted on/after 2 November 2026 must submit a fBNG Plan and Statutory Biodiversity Metric which demonstrates the (then applicable) statutory BNG objective and how it will be achieved and implemented.
- 3.1.2 All development subject to BNG should follow the Biodiversity Gain Hierarchy, first seeking to avoid and then minimise losses of biodiversity on-site as far as possible. The Proposed Development follows this despite BNG not being mandatory.
- 3.1.3 Where losses are incurred, these should be compensated for through habitat restoration and/or enhancement on-site. If compensating for losses within the development footprint is not possible, as a last resort, residual biodiversity losses should be offset by gains elsewhere. Offsets are distinguished from other forms of mitigation in that they are outside the Site and require measurable conservation outcomes.
- 3.1.4 The Statutory Biodiversity Metric [Ref 2] provides a proxy value for biodiversity in the form of BDUs. The tool provides a score for different habitats and linear features based on their distinctiveness and adjusts their value according to the condition and strategic significance of the habitat. The habitat distinctiveness values are based on the species richness, rarity and the degree to which the habitat supports species rarely found in other habitats. Table 3.1 presents the BNG trading summary for habitat distinctiveness and details what mitigation would be required to satisfy the trading rules if they were applicable.
- 3.1.5 Habitats were mapped in a Geographic Information System (GIS) to calculate the area/length of each habitat. These values, along with on-site condition assessments were used in the Statutory Biodiversity Metric Calculator to establish the baseline BDUs for habitats, hedgerows, and watercourses on-site (Section 4).

**Table 3.1 Trading Summary Based on Habitat Distinctiveness**

| Distinctiveness Group | Trading Rule                                                    |
|-----------------------|-----------------------------------------------------------------|
| Very high             | Bespoke compensation likely to be required                      |
| High                  | Same habitat required                                           |
| Medium                | Same broad habitat or a higher distinctiveness habitat required |
| Low                   | Same distinctiveness or better habitat required                 |

## 3.2 Assessment approach

3.2.1 The assessment methodology used in the fBNG Plan has adopted the methodology and guidance provided within the latest DEFRA publications for NSIPs [Ref 6 and Ref 7] and BNG good practice principles [Ref 18].

### BNG boundary

3.2.2 According to the NSIP BNG guidance [Ref 6 and Ref 7], the BNG requirement will only apply to an area referred to as the 'BNG boundary'. This includes habitats within the Site that are:

- Negatively impacted by the development (both temporary and permanent impacts); and
- Used to contribute towards the BNG requirement (where on-site biodiversity gains will be located).

3.2.3 Habitats within the Site that will remain unimpacted by the development do not need to be included in the baseline, although applicants may choose to voluntarily include them.

3.2.4 Where there are areas of design uncertainty or limits of deviation, applicants must apply the realistic worst-case extent of habitat loss or deterioration based on the maximum design and construction parameters. It must include all expected areas of habitat loss or deterioration from the development, including permanent and temporary impacts from construction, enabling works, access routes, and associated development.

3.2.5 The baseline and BNG boundary plan must be updated in subsequent updated BNG Plans and Statutory Metrics if the extent or value of habitat loss and deterioration is greater or lower than in the fBNG plan.

3.2.6 A BNG boundary plan is provided in **BNG Figure 1: Proposed Development and Biodiversity Net Gain Boundary** of this fBNG Plan (Application Document Ref. 5.8).

### Temporary impacts

3.2.7 Under the current BNG guidance [Ref 2], it is not necessary to record a habitat as lost (i.e. it is treated in the Statutory Biodiversity Metric as retained) when there are temporary impacts to a habitat and the area can be restored to both:

- Baseline habitat type within two years of the initial impact; and
- Baseline condition within two years of the initial impact.

- 3.2.8 Under the NSIP BNG guidance [Ref 6 and Ref 7], this will be extended to 5 years for habitats of low and very low distinctiveness only. The reinstatement of these temporarily impacted habitats is considered non-significant and does not need to be secured. The BNG requirement is still required on temporarily used land, which does not meet the above criteria, as it has been impacted by the development.

### 3.3 Terrestrial habitats

#### Field surveys

- 3.3.1 Terrestrial habitat surveys of the Main Site were conducted by the Industry Nature Conservation Association (INCA) from May to August 2025 and of the Wider Site by INCA and Arup from April to May 2026.
- 3.3.2 Additional UKHab surveys had previously been completed by WSP from April 2023 to January 2024 for parts of the Main Site and Wider Site.
- 3.3.3 During the field surveys all terrestrial habitats were mapped using the UKHab system [Ref 19], upon which BNG calculations are based.
- 3.3.4 Condition assessments were also performed in the field using the condition assessment sheets from the Statutory Biodiversity Metric technical supplement [Ref 2].
- 3.3.5 Each of the habitats recorded during the baseline field surveys were entered into separate Statutory Biodiversity Metrics for the Main Site and Wider Site, respectively (Annex A:).
- 3.3.6 The habitat distinctiveness score is auto-populated by the tool based on the habitat type. Habitat condition scores were added based on the data collected during the baseline field survey.

#### Secondary data

- 3.3.7 Due to land access restrictions, the scope of UKHab field surveys was limited and a complete baseline survey could not be completed for the Site. The applicant is continuing to seek access to these areas and will undertake confirmatory surveys where possible. A total area of approximately 24.01 ha and 19.69 ha within the Site and BNG boundary respectively, could not be surveyed, as shown by **Figure 10.1: Field Survey Data Gaps (ES Volume II, Application Document Ref 6.2)**.
- 3.3.8 UKHab type and condition has been assumed for areas without field survey data using previously completed survey data (older than best practice timeframe [Ref 20]) and publicly available information in the form of satellite imagery, photogrammetry data and habitat data from published planning applications which overlap with the Proposed Development, sourced from

LPA planning portals [Ref 21, Ref 22 and Ref 23] and PINS website [Ref 24 and Ref 25].

- 3.3.9 The NSIP BNG guidance [Ref 6 and Ref 7] allows for secondary data sources to inform the baseline as long as it can be demonstrated that no material change to the habitats has occurred since. Where there is insufficient evidence about the biodiversity value of habitats, the baseline calculation should be taken to be the highest biodiversity value of the habitat (e.g. aerial images and photographs). For the subsequent updated biodiversity gain plans, additional surveys should be carried out to replace these assumptions where possible, to ensure an accurate reflection of the baseline value before development commences.

### 3.4 Marine and subtidal habitats

- 3.4.1 BNG will apply to NSIPs, or components of NSIPs, onshore in England, as far as the mean low-water mark [Ref 7 and **Error! Reference source not found.**]. Projects, or components of projects, in the marine environment beyond the intertidal zone are not included within the scope of the mandatory requirements for BNG for TCPA or NSIP schemes.
- 3.4.2 There are provisions in the Environment Act 2021 [Ref 3] to allow Marine Net Gain to be made mandatory for NSIPs in the future. Defra will provide further information on the development of Marine Net Gain in due course. If such provision is made, it will not apply to this application and no Marine Net Gain is provided for in the marine environment in this plan.
- 3.4.3 All watercourse habitats recorded downstream of the River Tees Tidal Barrage are classified as transitional waterbodies according to the Water Framework Directive (WFD) [**Error! Reference source not found.**]. The WFD defines them as “*waterbodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but are substantially influenced by freshwater flows*”. These are also referred to as estuaries, a subtidal habitat.
- 3.4.4 As subtidal habitats are not subject to BNG, they were not recorded within the watercourse module of the Statutory Biodiversity Metrics for the Main Site and Wider Site (Annex A:).

### 3.5 Strategic significance

- 3.5.1 The strategic significance of each habitat is based on a landscape scale assessment. As the LNRS for the Tees Valley region has not been published and specified alternative documents have not been provided, the alternative documents set out in Section 2.2 have been used to assign strategic significance according to the categories in Table 3.2.

- 3.5.2 Once the TVCA publish the LNRS, strategic significance will need to be reassessed for all habitats which may change the total baseline BDU value within the BNG boundary.

**Table 3.2 Statutory Biodiversity Metric Strategic Significance Categories**

| Strategic Significance Category                                    | Score Applied in the Metric | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| High - Formally identified in local strategy                       | 1.15                        | <p>The habitat type is mapped and described as locally ecologically important within a specific location, within documents specified by the relevant planning authority.</p> <p>If your project delivers the mapped habitat creation or enhancement actions set out within specified alternative documents, or enhances an existing habitat identified within specified alternative documents as locally ecologically important, strategic significance can be recorded as high in the post-intervention sheets.</p> <p>If the specified alternative documents identify existing habitat as locally ecologically important within a specified location, strategic significance may be recorded as high in the baseline.</p> |
| Medium - Location ecologically desirable but not in local strategy | 1.10                        | <p>This category can be applied when the Local Planning Authority (LPA) has not identified a suitable document for assessing strategic significance. Users should:</p> <ul style="list-style-type: none"> <li>• explain how the habitat type is ecologically important within a specific location;</li> <li>• demonstrate the importance of that habitat in providing ecological linkage to other strategically significant locations; and</li> <li>• use professional judgement.</li> </ul> <p>When the above criteria are met, strategic significance may be recorded as medium in the baseline and post-intervention sheets.</p>                                                                                         |
| Low - Area/compensation not in local strategy                      | 1                           | Where the definitions for high or medium strategic significance are not met.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

### 3.6 Protected and irreplaceable habitats

- 3.6.1 Irreplaceable habitats take a very significant period of time to restore, recreate or replace once destroyed, due to their age, species diversity and rarity. A list of irreplaceable habitats can be found within the Biodiversity Gain Requirements (Irreplaceable Habitats) Regulations [Ref 27].

On-site irreplaceable habitats should be recorded within the Statutory Biodiversity Metric, however the BNG requirement does not apply when irreplaceable habitats are to be lost [Ref 28]. Any impacts to these habitats

are considered unacceptable and will require bespoke compensation to be agreed. Options may include habitat creation, enhancement or restoration, potentially on a large scale, for the irreplaceability of the habitat loss or damage. No irreplaceable habitats were recorded within the Site.

### 3.7 Post-Development

3.7.1 Based on current designs and descriptions of the Proposed Development, the following assumptions regarding baseline habitat loss and post-development habitat creation/enhancement have been made. Refer to **Chapter 4: Proposed Development, Chapter 5: Construction and Chapter 6: Alternatives (ES Volume I, Application Document Ref. 6.1)** as well as **Works Plans (Application Document Ref. 2.3)** for further information.

3.7.2 Post-development impacts are illustrated in **BNG Figure 2: Post-Development Impacts (Application Document Ref. 5.8)**.

#### Main Site

3.7.3 All habitats within the Main Site will be impacted by the Proposed Development and therefore have been included in the BNG boundary and baseline.

#### *Air Separation Unit*

3.7.4 The ASU is an alternative to using a third party oxygen and nitrogen pipeline so no detailed plans are currently available. With consideration of construction methods, the entire ASU footprint is anticipated to be first cleared for a construction laydown area.

3.7.5 Therefore, all baseline habitats within the ASU footprint have been assumed to be lost and replaced with urban unsealed surface habitat. These habitats have been included in the BNG boundary and baseline.

#### *Marine Infrastructure*

3.7.6 The existing jetties and other infrastructure on the river frontage of the Main Site will be demolished and piles extracted. The existing gabion baskets and embankment face will also be removed. The proposed quay will be constructed from the existing embankment, extending up to 30m into the River Tees and up to a sheeted wall.

3.7.7 Therefore, all baseline habitats within the quayside footprint to the mean low-water mark have been assumed to be lost and replaced with urban sealed surface habitat. These habitats have been included in the BNG boundary and baseline.

***Main Site Other***

- 3.7.8 All other baseline habitats within the remainder of the Main Site (i.e. old INEOS site) will be cleared for groundworks and the construction of the SAF plant.
- 3.7.9 Therefore all baseline habitats within the remainder of the Main Site have been assumed to be lost and replaced with urban sealed surface habitat. These habitats have been included in the BNG boundary and baseline.

***Wider Site******Access Roads and Car Parks***

- 3.7.10 All existing roads/tracks and car parks are to be maintained and used for construction/operational traffic. Therefore, it has been assumed that no impacts will occur and these areas have been excluded from the BNG boundary and baseline.

***Connection Corridors***

- 3.7.11 At the time of writing, the Proposed Development is considering several connection options for industrial gases (natural gas, oxygen, nitrogen and carbon dioxide), electricity and water services.
- 3.7.12 This involves a combination of installing above and below ground pipelines and cables that run from the Main Site along existing connection corridors north of the Tees and under the River Tees via an existing tunnel to join existing connection corridors south of the Tees. Construction methods involve a 10m to 25m working width along the existing and proposed connection corridors.
- 3.7.13 The construction programme anticipates all works relating to the connection corridors would take two years to complete. As the Proposed Development has not yet confirmed which options will be undertaken, a 'worst case scenario' has been assumed where all the considered connection options in the **Works Plans (Application Document Ref. 2.3)** will be constructed.
- 3.7.14 Above ground pipelines will be installed using cranes, mobile plant and civils equipment within 20m of existing connection corridors and their access roads. The removal of vegetation within this working width may be required in select locations to facilitate working and storage areas. For this assessment, it has been assumed all baseline habitats within the working width will be lost and reinstated/replaced with either urban unsealed surface, species poor grassland or bramble scrub habitat subject to the baseline habitat present. These habitats have been included in the BNG boundary and baseline.

- 3.7.15 Underground pipelines and cables will be installed using open-cut techniques and Horizontal Directional Drilling with backfill and replacement of topsoil to agreed standards as set out by the **Framework Construction Environmental Management Plan (fCEMP) (Appendix 5A (ES Volume III, Application Document Ref. 6.3))**. The removal of vegetation will be required within the working width to facilitate groundworks, working and storage areas. These habitats will then be reinstated/replaced with either urban unsealed surface, species poor grassland or bramble scrub habitat subject to the baseline habitat present. These habitats have been included in the BNG boundary and baseline.

#### *Construction Laydown Areas*

- 3.7.16 Construction laydown areas have been identified, as shown on **Figure 5.1: Construction Access and Temporary Construction Compounds (ES Volume II, Application Document Ref. 6.2)**.
- 3.7.17 All construction laydown areas will be subject to clearance, levelling and ground preparation. It is anticipated that these areas will be established with permeable surfaces whilst in use during the construction phase. This will be maintained for 3 to 4 years according to the construction programme.
- 3.7.18 After the construction phase, it is anticipated that the Main Site areas will be maintained while the South Tees areas will have topsoil reinstated to agreed standards as set out by the **fCEMP (Appendix 5A (ES Volume III, Application Document Ref. 6.3))**.
- 3.7.19 Therefore, it has been assumed that all baseline habitats within the Main Site will be lost and replaced with urban unsealed surface habitat. All baseline habitats within the Wider Site will be lost and reinstated/replaced with either urban unsealed surface, species poor grassland or bramble scrub habitat, subject to the baseline habitat present. These habitats have been included in the BNG boundary and baseline.

#### *Wider Site Other*

- 3.7.20 The remaining areas within the Wider Site include the marine working area and River Tees tunnel crossing. Both are located in the marine environment beyond the intertidal zone and therefore have not been included within the BNG boundary or baseline.

### 3.8 Hedgerows

- 3.8.1 No hedgerows have been recorded within the Site and therefore the hedgerows module from the Statutory Biodiversity Metric does not need to be assessed.

### 3.9 Watercourses

- 3.9.1 Ditches have been identified from field surveys within the Site. Only one watercourse that requires a river condition assessment (RCA)/modular river physical survey (MoRPh) has been identified within 10m of the Site; Dabholm Cut.
- 3.9.2 The area of a watercourse may be recorded in the area module as the category 'watercourse footprint'. There are no BDUs associated with this category because all BDUs generated by watercourses are reported on within the watercourse module and are classified as linear rather than area habitats.

### 3.10 NNL strategy

- 3.10.1 The Proposed Development has not committed to the BNG objective of 10%. However, it aims to provide an appropriate level of habitat compensation for any losses and maximise additional opportunities for biodiversity. Adhering to mitigation principles, the Proposed Development's NNL objective is to create habitat as close as possible to the baseline habitats lost, where possible, and achieve a 'no net loss' (NNL) in BDUs.
- 3.10.2 As the Proposed Development is not subject to the mandatory NSIP Biodiversity Net Gain regime and is seeking to achieve no net loss rather than a statutory 10% gain, a number of project-specific variations to the standard NSIP BNG methodology have been applied. The approach includes the six variations because the Proposed Development is seeking to achieve a bespoke NNL outcome while also meeting the ecological compensation requirements identified in the Environmental Statement. The variations from the NSIP BNG guidance [Ref 6 and Ref 7] that guide the Proposed Development's NNL strategy are outlined below.

#### Variation 1: Environmental Statement Habitat Compensation

- 3.10.3 **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)** sets out the additional mitigation required to ensure no significant effects as a result of the Proposed Development on ecological features in relation to habitat loss, fragmentation and the loss of functionally linked land (FLL) or habitat (FLH). This variation allows habitats that are already being created as ecological compensation for habitat loss, functionally linked land, HoPI and species impacts to contribute towards the NNL calculation. Without this, the BDU generated by those compensatory habitats would not be recognised in the NNL strategy.
- 3.10.4 The additional mitigation comprises off-site compensatory habitats being created using a like-for-like principle. For example, the loss of 1 ha of

reedbed must be replaced with 1 ha of reedbed. The habitats and their areas required are summarised in Table 3.3.

**Table 3.3 Additional Mitigation Requirements for Habitat Loss**

| Ecological Feature                                                       | Importance | Likely Impacts                                                                                                                                        | Additional Mitigation                                                                     | BNG Habitat Type           | Area (ha) |
|--------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------------------|-----------|
| Teesmouth and Cleveland Coast Site of Special Scientific Interest (SSSI) | National   | Loss of Functionally Linked Land (FLL) and Habitat (FLH) - loss of habitat at the Main Site which supports qualifying feature birds and invertebrates | Off-site habitat creation to compensate loss of FLL/FLH at the Main Site.                 | Reedbed                    | 4.96      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | OMH                        | 12.67     |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Vacant or derelict land    | 7.50      |
| Habitats of Principal Importance (HoPI)                                  | National   | Habitat Loss - Loss of nationally important habitats within the Main Site                                                                             | Off-site habitat creation to compensate loss of HoPI.                                     | Reedbed                    | 6.43      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | OMH                        | 12.67     |
| Other Habitats                                                           | Local      | Habitat Loss - Loss of locally important habitats across the Proposed Development                                                                     | Off-site habitat creation to compensate loss of habitats across the Proposed Development. | Bracken                    | 0.27      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Other neutral grassland    | 35.57     |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Other sea buckthorn scrub  | 0.03      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Bramble scrub              | 2.34      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Mixed scrub                | 5.59      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Willow scrub               | 6.30      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Other littoral rock        | 0.57      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Vacant or derelict land    | 29.79     |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Other broadleaved woodland | 7.06      |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Urban tree                 | 0.05      |
| Amphibians                                                               | Local      | Habitat Loss - loss of suitable habitats for                                                                                                          | Off-site habitat creation to compensate loss                                              | Pond (non-priority)        | N/A       |
|                                                                          |            |                                                                                                                                                       |                                                                                           | Reedbed                    | 6.36      |

| Ecological Feature        | Importance | Likely Impacts                                                                        | Additional Mitigation                                                                                                                                                                                                            | BNG Habitat Type        | Area (ha) |
|---------------------------|------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------|
|                           |            | amphibians within the Main Site.                                                      | of habitats. This includes: Two ephemeral ponds, reedbed, other neutral grassland and scrub.                                                                                                                                     | Other neutral grassland | 13.80     |
|                           |            |                                                                                       |                                                                                                                                                                                                                                  | Bramble scrub           | 1.50      |
|                           |            |                                                                                       |                                                                                                                                                                                                                                  | Mixed scrub             | 2.56      |
|                           |            |                                                                                       |                                                                                                                                                                                                                                  | Willow scrub            | 5.88      |
| Breeding Birds            | National   | Habitat Loss - loss of habitats for notable species within the Main Site              | Off-site habitat creation to compensate loss of habitats. This includes reedbed for marsh harrier and other reedbed dependent birds, OMH and sparsely vegetated habitat (i.e. vacant or derelict land) for ground nesting birds. | Reedbed                 | 4.96      |
|                           |            |                                                                                       |                                                                                                                                                                                                                                  | OMH                     | 12.67     |
|                           |            |                                                                                       |                                                                                                                                                                                                                                  | Vacant or derelict land | 7.50      |
| Terrestrial Invertebrates | National   | Habitat Loss - loss of habitats for notable invertebrate species within the Main Site | Off-site habitat creation to compensate loss of habitats. This includes reedbed, OMH and sparsely vegetated habitat (i.e. vacant or derelict land).                                                                              | Reedbed                 | 4.96      |
|                           |            |                                                                                       |                                                                                                                                                                                                                                  | OMH                     | 12.67     |
|                           |            |                                                                                       |                                                                                                                                                                                                                                  | Vacant or derelict land | 7.50      |

- 3.10.5 Baseline habitats of medium distinctiveness or higher, Habitats of Principal Importance (HoPI), FLL and FLH permanently impacted by the Proposed Development will be compensated for by securing the off-site creation of like-for-like habitats through a registered off-site provider within the Proposed Development's LPA areas and National Character Area (NCA).
- 3.10.6 An exception is that areas of OMH and vacant or derelict land required will be compensated for using an 'other habitat mosaic' as mentioned in Variation 5.
- 3.10.7 These habitats will be created to 'Moderate' condition with exception of bramble scrub where condition is not applicable. The Statutory Biodiversity Metric off-site tabs provide further information (Annex A:). The habitats and their areas required are summarised in Table 3.4.

- 3.10.8 All other habitats impacted by the Proposed Development will be compensated by Variation 2.

**Table 3.4 Variation 1 Compensatory Habitat Areas for Ecological Features**

| BNG Habitat Type           | Area (ha)    |
|----------------------------|--------------|
| Reedbed                    | 6.43         |
| OMH                        | 12.67        |
| Other neutral grassland    | 23.15        |
| Bramble scrub              | 2.34         |
| Mixed scrub                | 3.86         |
| Willow scrub               | 6.30         |
| Other broadleaved woodland | 7.06         |
| Urban tree                 | 0.05         |
| Vacant or derelict land    | 7.50         |
| <b>Total</b>               | <b>69.36</b> |

#### Variation 2: Voluntary NNL Contribution

- 3.10.9 Variation 2 provides a mechanism for the applicant to fund additional biodiversity units from registered off-site providers to cover any remaining shortfall after Variation 1.
- 3.10.10 All other habitats impacted by the Proposed Development, including low distinctiveness baseline habitats required for additional mitigation, will be compensated for via a voluntary payment from the Applicant to registered off-site provider(s). This payment will deliver off-site creation of low distinctiveness habitats or higher, as required by the BNG trading rules.
- 3.10.11 This will ensure there are no significant effects on locally important habitats lost as a result of the Proposed Development and deliver the remaining BDUs required to meet the Proposed Development's NNL objective.

#### Variation 3: Wider Site Habitat Compensation

- 3.10.12 Baseline habitats of low distinctiveness impacted by the Proposed Development across the Wider Site are to be reinstated to baseline habitat type and condition via a Biodiversity Action Plan (BAP) commitment over the lifetime of the Proposed Development. Habitats created and maintained through the BAP will not be subject to legal agreement.
- 3.10.13 This will also contribute towards ensuring there are no significant effects on locally important habitats lost across the Wider Site as a result of the Proposed Development.

#### Variation 4: Off-Site Provider BNG Baseline

- 3.10.14 It has been assumed the off-site provider for Variation 1 has a baseline consisting of very low distinctiveness habitats with a value of zero BDUs. This means when habitats and BDUs are created for the Proposed Development, there are no significant baseline habitat losses and the provider would not require an off-site gains site to make up for any losses.

#### Variation 5: Other Habitat Mosaic

- 3.10.15 Variation 5 has been introduced because the project needs to compensate for OMH.
- 3.10.16 A 'defined mosaic' is a habitat classification which include several habitat types as their primary function, for example 'open mosaic on previously developed land' (OMH) or 'floodplain wetland mosaic and coastal floodplain grazing marsh'.
- 3.10.17 'Other habitat mosaic' is not defined by habitat type and can be mapped using component parts. For example, if a 10ha habitat mosaic is estimated to be 75% calcareous grassland and 25% mixed scrub, 7.5ha of calcareous grassland and 2.5ha of mixed scrub would be recorded/mapped.
- 3.10.18 In May 2025, the Government held a consultation [Ref 29] on improving the implementation of BNG for brownfield development. The consultation addressed specific challenges with OMH and considered allowing the compensation of OMH with an alternative habitat mosaic with similar ecological benefits.
- 3.10.19 This likely change in approach to OMH has been used to inform the off-site strategy. For this assessment, other neutral grassland of 'Moderate' condition has been used as a proxy for other habitat mosaic. Other neutral grassland in Moderate condition has been selected as an appropriate proxy for this habitat as it is a medium distinctiveness habitat which takes 5 years to create in moderate condition. These parameters are anticipated to be similar for creating 'other habitat mosaic' so will result in the same BDU score.

#### Variation 6: Individual Trees Compensation

- 3.10.20 The Statutory Biodiversity Metric calculates the BDUs for individual trees differently from the other habitat types by using a function called the tree helper. As individual trees compose a small proportion of the total baseline BDU value (see Section 4.4), individual tree planting has not been included in the>NNL strategy. The area of individual trees required under Variation 1 will be delivered through 'Moderate' condition other broadleaved woodland.

### 3.11 Assessment limitations

- 3.11.1 Any grid references provided within this report are approximate (obtained through handheld GPS devices) and are to be used as a guide only.
- 3.11.2 UKHab data from field surveys does not cover the entirety of the Site. There is a data gap of approximately 24.01ha and 19.69ha within the Site and BNG boundary respectively. Secondary data sources specified in Section 3.3 have been relied upon to provide historical context and therefore inform assumptions regarding the baseline habitats and their condition which are likely to be present. The Applicant's position is that the current level of survey effort undertaken to date, supplemented by these secondary data sources, is adequate to support the ES for the Proposed Development.
- 3.11.3 Some of the secondary data sources included Phase 1 or UKHab data collected using version 1 classifications and the relevant BNG guidance at the time. This data has been translated into UKHab version 2 classifications so it can be used in the Statutory Biodiversity Metric.
- 3.11.4 According to Chartered Institute of Ecology and Environmental Management (CIEEM) guidance [Ref 20], habitat data that is older than 18 months should be reviewed to determine whether further surveys are required to update the previously collected information. As further surveys were not possible due to land access restrictions, a review of the secondary data was conducted using satellite imagery and photogrammetry data. This determined there has not been any material change to these habitats since the surveys were undertaken and therefore the secondary data is likely valid for use in the baseline section of the Statutory Biodiversity Metric.
- 3.11.5 This report is the result of survey work undertaken from 2023 to 2026. This report refers, within the limitations stated, to the condition or Proposed Development within the Site at the time of the inspections..

## 4 Baseline habitats

### 4.1 Overview

- 4.1.1 A detailed description of the habitats and flora species recorded within the Site, which underpin the classification of these habitats, is available within the **Preliminary Ecological Appraisal (Appendix 10A (ES Volume III, Application Document Ref. 6.3) and Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1).**
- 4.1.2 **BNG Figure 3: Baseline Habitats (Application Document Ref. 5.8)** illustrates the baseline habitats present within the Site and BNG boundary, using UKHab classification symbology. Habitats within the Site are summarised in Table 4.1.
- 4.1.3 No irreplaceable habitats have been identified during the UKHab surveys completed and these are therefore not considered any further in this report.

**Table 4.1 Baseline Habitats Recorded within the Site Boundary**

| Broad Habitat Type                    | UKHab Type                               | UKHab Code (Secondary Code) | Total Area (ha) |
|---------------------------------------|------------------------------------------|-----------------------------|-----------------|
| Wetland                               | Reedbeds                                 | f2e                         | 6.43            |
| Grassland                             | Bracken                                  | g1c                         | 0.27            |
|                                       | Other neutral grassland                  | g3c                         | 36.62           |
|                                       | Modified grassland                       | g4                          | 5.01            |
| Heathland and shrub                   | Other sea buckthorn scrub                | h3c6                        | 0.03            |
|                                       | Bramble scrub                            | h3d                         | 6.22            |
|                                       | Mixed scrub                              | h3h                         | 5.59            |
|                                       | Willow scrub                             | h3j                         | 6.30            |
| Rivers and lakes                      | Rivers (priority habitat)                | r2a                         | 12.37           |
|                                       | Other rivers and streams                 | r2b                         | 0.03            |
| Marine inlets and transitional waters | Other littoral rock                      | t1f                         | 0.57            |
|                                       | Intertidal mudflats                      | t2d5                        | 0.08            |
|                                       | Sheltered muddy gravels                  | t2e                         | 0.05            |
| Urban                                 | Buildings                                | u1b5                        | 1.03            |
|                                       | Other developed land                     | u1b6                        | 31.49           |
|                                       | Artificial unvegetated, unsealed surface | u1c                         | 15.53           |
|                                       | OMH                                      | u1f (80)                    | 12.67           |
|                                       | Ruderal/ephemeral                        | u1f (81)                    | 2.10            |
|                                       | Vacant or derelict land                  | u1f (82)                    | 41.68           |

| Broad Habitat Type                                                                       | UKHab Type                 | UKHab Code (Secondary Code) | Total Area (ha)                  |
|------------------------------------------------------------------------------------------|----------------------------|-----------------------------|----------------------------------|
| Woodland and forest                                                                      | Other broadleaved woodland | w1g                         | 7.06                             |
|                                                                                          | Urban tree                 | w1g (201)                   | 0.05                             |
| <b>Total</b><br><b>[Total excluding individual trees and intertidal hard structures]</b> |                            |                             | <b>191.18</b><br><b>[190.56]</b> |

## 4.2 BNG boundary

4.2.1 Habitats within the BNG boundary are those impacted by the Proposed Development, as set out in Section 3.7, and considered further by this report. These habitats are summarised in Table 4.2.

**Table 4.2 Baseline Habitats Recorded within the BNG Boundary**

| Broad Habitat Type                    | UKHab Type                                    | BNG Habitat Type               |
|---------------------------------------|-----------------------------------------------|--------------------------------|
| Wetland                               | Reedbeds                                      | Same as UKHab                  |
| Grassland                             | Bracken                                       | Same as UKHab                  |
|                                       | Other neutral grassland                       |                                |
|                                       | Modified grassland                            |                                |
| Heathland and shrub                   | Other sea buckthorn scrub                     | Same as UKHab                  |
|                                       | Bramble scrub                                 |                                |
|                                       | Mixed scrub                                   |                                |
|                                       | Willow scrub                                  |                                |
| Rivers and lakes                      | Other rivers and streams (riparian zone only) | Same as UKHab                  |
|                                       | Ditches                                       |                                |
| Marine inlets and transitional waters | Other littoral rock                           | Artificial hard structures     |
| Urban                                 | Buildings                                     | Developed land; sealed surface |
|                                       | Other developed land                          |                                |
|                                       | Artificial unvegetated, unsealed surface      | Same as UKHab                  |
|                                       | OMH                                           |                                |
|                                       | Ruderal/ephemeral                             |                                |
|                                       | Vacant or derelict land                       |                                |
| Woodland and forest                   | Other broadleaved woodland                    | Same as UKHab                  |
|                                       | Tree                                          | Urban tree                     |

#### 4.3 Strategic significance

- 4.3.1 The strategic significance of each habitat is based on a landscape scale assessment. As a LNRS has not been published, alternative suitable documents mentioned in Section 2.2 were used to identify the local priorities for biodiversity and nature improvement and habitats were scored accordingly based on their strategic significance category (Table 3.2).

##### High strategic significance

- 4.3.2 Reedbeds, OMH and watercourses have been assigned high strategic significance as they are identified as priority habitats within the Tees Valley by the TVBAP [Ref 15] and Local Plans [Ref 12, Ref 13].

##### Medium strategic significance

- 4.3.3 Grassland, bracken, scrub, ditches, individual trees and other woodland habitats have been assigned medium strategic significance as they are not formally identified as priority habitats within the TVBAP [Ref 15] however roadside verges, woodlands and trees are identified as habitats which should be protected, preserved or enhanced by the STBC Local Plan [Ref 12, Ref 13].
- 4.3.4 Grassland, bracken and scrub habitats are also recognised as being of ecological value to the local environment due to the ecological niches they provide for a wide range of local, national and international species which utilise habitats in the region.
- 4.3.5 All these habitats also provide important ecological connectivity between strategically significant locations sites across the Tees Valley such as the statutory (e.g. Teesmouth and Cleveland Site of Special Scientific Interest) and non-statutory designated sites (e.g. RSPB Saltholme).

##### Low strategic significance

- 4.3.6 All other habitats recorded within the Site have been assigned low strategic significance as no LNRS has been published at time of writing to guide this classification and none of these habitats meet the criteria for either high or medium strategic significance.

#### 4.4 Baseline biodiversity units

- 4.4.1 The habitats recorded within the BNG boundary and their baseline BDUs, calculated in the Statutory Biodiversity Metric (Annex A:), are provided in Table 4.3 for the Proposed Development.

**Table 4.3 Baseline Area Habitat Units within the BNG Boundary**

| BNG Habitat Type                                                         | Total Area (ha) | Area Habitat Units |
|--------------------------------------------------------------------------|-----------------|--------------------|
| <b>High Distinctiveness</b>                                              |                 |                    |
| Reedbeds                                                                 | 6.43            | 50.51              |
| OMH                                                                      | 12.67           | 174.82             |
| <b>Medium Distinctiveness</b>                                            |                 |                    |
| Other neutral grassland                                                  | 35.57           | 256.53             |
| Bramble scrub                                                            | 6.05            | 26.62              |
| Mixed scrub                                                              | 5.59            | 41.15              |
| Willow scrub                                                             | 6.30            | 48.73              |
| Other broadleaved woodland                                               | 7.06            | 33.95              |
| Urban tree                                                               | 0.05            | 0.23               |
| <b>Low Distinctiveness</b>                                               |                 |                    |
| Bracken                                                                  | 0.27            | 0.60               |
| Modified grassland                                                       | 4.93            | 19.65              |
| Other sea buckthorn scrub                                                | 0.03            | 0.06               |
| Artificial hard structures                                               | 0.57            | 2.27               |
| Ruderal/ephemeral                                                        | 2.10            | 8.38               |
| Vacant or derelict land                                                  | 41.68           | 125.36             |
| <b>Very Low Distinctiveness</b>                                          |                 |                    |
| Developed land; sealed surface                                           | 21.53           | 0.00               |
| Artificial unvegetated, unsealed surface                                 | 12.35           | 0.00               |
| <b>Total</b>                                                             | <b>163.16</b>   | <b>788.86</b>      |
| <b>[Total excluding individual trees and intertidal hard structures]</b> | <b>[162.54]</b> |                    |

**Table 4.4 Baseline Watercourse Units within the BNG Boundary**

| BNG Habitat Type              | Total Length (km) | Watercourse Units |
|-------------------------------|-------------------|-------------------|
| <b>High Distinctiveness</b>   |                   |                   |
| Other rivers and streams      | 0.58              | 6.00              |
| <b>Medium Distinctiveness</b> |                   |                   |
| Ditches                       | 0.01              | 0.06              |
| <b>Total</b>                  | <b>0.59</b>       | <b>6.06</b>       |

## 5 Post-Development habitats

### 5.1 Overview

- 5.1.1 Post-development habitats are based on designs and descriptions of the Proposed Development, as described in Section 3.7.
- 5.1.2 **BNG Figure 4: Post-Development Habitats (Application Document Ref. 5.8)** illustrates the post-development habitats within the Proposed Development and BNG boundary, using UKHab classification symbology.

### 5.2 Post-Development biodiversity units

- 5.2.1 The habitats within the BNG boundary and their post-development BDUs, calculated in the Statutory Biodiversity Metrics (Annex A:), are provided in Table 5.1 and Table 5.2 for the Proposed Development.
- 5.2.2 No hedgerow or watercourse creation/enhancement measures are proposed as part of the Proposed Development. Works within the riparian zone for Dabholm Cut/Beck will be mitigated for as part of the **fCEMP (Appendix 5A (ES Volume III, Application Document Ref. 6.3))** so there is no change to the level of encroachment or overall condition.
- 5.2.3 The Proposed Development results in a loss of **718.45 Area Habitat Units** (-91.07%) and **0.06 Watercourse Units** (-0.94%).

**Table 5.1 Post-Development Area Habitat Units within the BNG Boundary**

| BNG Habitat Type                         | Total Area (ha) | Area Habitat Units |
|------------------------------------------|-----------------|--------------------|
| <b>Medium Distinctiveness</b>            |                 |                    |
| Bramble scrub                            | 3.71            | 16.33              |
| <b>Low Distinctiveness</b>               |                 |                    |
| Modified grassland                       | 14.23           | 28.13              |
| Ruderal/ephemeral                        | 2.10            | 8.38               |
| Vacant or derelict land                  | 4.40            | 17.56              |
| <b>Very Low Distinctiveness</b>          |                 |                    |
| Developed land; sealed surface           | 98.20           | 0.00               |
| Artificial unvegetated, unsealed surface | 39.90           | 0.00               |
| <b>Total</b>                             | <b>162.53</b>   | <b>70.41</b>       |

**Table 5.2 Post-Development Watercourse Units within the BNG Boundary**

| BNG Habitat Type            | Total Length (km) | Watercourse Units |
|-----------------------------|-------------------|-------------------|
| <b>High Distinctiveness</b> |                   |                   |
| Other rivers and stream     | 0.58              | 6.00              |
| <b>Total</b>                | <b>0.58</b>       | <b>6.00</b>       |

## 6 BNG strategy

### 6.1 No Net Loss requirement

- 6.1.1 The BDU requirement for the Proposed Development to achieve NNL totals **718.45 Area Habitat Units** and **0.06 Watercourse Units**. The BDU requirement for each distinctiveness group is summarised in Table 6.1 **Error! Reference source not found..**

**Table 6.1 Biodiversity Unit Requirement for NNL**

| Distinctiveness Group | Area Habitat Units | Hedgerow Units | Watercourse Units | Trading Rules                                           |
|-----------------------|--------------------|----------------|-------------------|---------------------------------------------------------|
| Very High             | 0.00               | 0.00           | 0.00              | Same habitat required                                   |
| High                  | 225.33             | 0.00           | 0.00              | Same habitat required                                   |
| Medium                | 390.88             | 0.00           | 0.06              | Same broad habitat or a higher distinctiveness required |
| Low                   | 102.24             | 0.00           | 0.00              | Same distinctiveness or better habitat required         |
| Very Low              | 0.00               | 0.00           | 0.00              | None                                                    |
| <b>Total</b>          | <b>718.45</b>      | <b>0.00</b>    | <b>0.06</b>       |                                                         |

### 6.2 On-site strategy

- 6.2.1 At this stage of design, it is assumed that there is no suitable, available land within the Site for significant on-site gains (i.e. habitat creation or enhancement measures)<sup>1</sup>.
- 6.2.2
- 6.2.3 Habitats directly impacted by the Proposed Development will be mitigated for as part of the **Framework Landscape and Biodiversity Mitigation and Enhancement Strategy (fLBMES) (Application Document Ref. 5.8)**.
- 6.2.4 As mentioned in Variation 3, a BAP will be enacted across the Wider Site to compensate for baseline habitats impacted by the Proposed Development. The BAP will aim to reinstate the baseline habitats over the lifetime of the Proposed Development.

### 6.3 Off-site strategy

- 6.3.1 A set of strategy scenarios have been assessed to inform the offsite habitat compensatory strategy delivered as part of this assessment.

<sup>1</sup> Due of the nature and use of site (operational plant with hazards), available land is likely to be unsuitable for habitat creation. While unlikely, during detailed design the Applicant will seek opportunities to include some on-site habitat creation.

- 6.3.2 Consultation is underway at the time of writing between the Applicant and third parties, to determine the availability of BDU within the Proposed Development's LPA areas and NCA.
- 6.3.3 Additional mitigation, including the creation of compensatory habitats, is required to ensure there are no significant effects as a result of the Proposed Development with regards to habitat loss for protected/notable species of flora and fauna (refer to **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1))**.
- 6.3.4 The delivery of compensatory habitats under Variation 1 and their resulting BDUs will contribute towards NNL for the Proposed Development. The areas of OMH and vacant or derelict land required will be compensated for using an 'other habitat mosaic' which meets the habitat requirements set out in **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)** and the **fLBMES (Application Document Ref. 5.8)**. All other habitats will be compensated for using a like-for like approach.
- 6.3.5 Table 6.2 provides a summary of the BDUs generated by the compensatory habitat under Variation 1. This results in a shortfall of **296.30 Area Habitat Units** and **0.06 Watercourse Units** to achieve NNL.

**Table 6.2 Biodiversity Units Generated by Variation 1 Habitat Compensation**

| BNG Habitat Type           | Area (ha)    | Area Habitat Unit |
|----------------------------|--------------|-------------------|
| Reedbed                    | 6.43         | 40.29             |
| Other habitat mosaic       | 20.17        | 135.03            |
| Other neutral grassland    | 23.15        | 154.98            |
| Bramble scrub              | 2.34         | 9.03              |
| Mixed scrub                | 3.86         | 25.84             |
| Willow scrub               | 6.30         | 23.65             |
| Other broadleaved woodland | 7.11         | 33.33             |
| <b>Total</b>               | <b>69.36</b> | <b>422.15</b>     |

- 6.3.6 Voluntary NNL contributions will then be made, as per Variation 2, by the Applicant to cover this remaining shortfall in BDUs to ensure NNL and no significant effects for the locally important ecological features impacted by the Proposed Development.
- 6.3.7 All off-site biodiversity voluntary contributions will be appropriately secured with a legal agreement to ensure they are created and maintained for at least 30 years, as required by the biodiversity gain sites register [Ref 6 and

Ref 7]. This will be in the form of a conservation covenant or planning obligation.

## 7 Conclusions

### 7.1 Baseline

- 7.1.1 The baseline habitats within the BNG boundary consist of reedbeds, bracken, neutral and modified grassland, scrub, ditches, sparsely vegetated land, OMH, broadleaved woodland, intertidal structures, individual trees and both sealed and unsealed urban habitats. These habitats have a total baseline BDU value of **788.86 Area Habitat Units** and **6.06 Watercourse Units**.
- 7.1.2 Approximately 19.69ha of baseline data within the BNG boundary has been assumed using secondary sources so their BDU value may change subject to further survey and assessment..

### 7.2 Post-Development

- 7.2.1 It is assumed that the majority of habitats within the Main Site will be lost while the habitats within the Wider Site will be either retained, subject to temporary loss, reinstated as their baseline habitat or replaced with either urban habitat, species poor grassland or bramble scrub post-development.
- 7.2.2 Post-development, the habitats within the BNG boundary have a total BDU value of **70.41 Area Habitat Units** and **6.00 Watercourse Units**.
- 7.2.3 As works plans, construction parameters and habitat reinstatement measures are refined through further stages of design, the extent of impacts (permanent and temporary) on baseline habitats can be reassessed to determine whether the BNG boundary and post-development assumptions should be updated in subsequent BNG plans and metric calculations (if necessary).

### 7.3>NNL strategy

- 7.3.1 To achieve no net loss, the Proposed Development would require **718.45 Area Habitat Units** and **0.06 Watercourse Habitat Units**. On-site habitat mitigation and compensation will be delivered through the **fLBMES** and a BAP for the Wider Site.
- 7.3.2 Off-site compensatory habitat will be created through a registered off-site provider as required by the mitigation detailed in **Chapter 10: Terrestrial Ecology (ES Volume I, Application Document Ref. 6.1)** which is anticipated to generate **422.15 Area Habitat Units**. The remaining **296.30 Area Habitat Units** and **0.06 Watercourse Units** will be purchased voluntarily from a registered off-site provider.

- 7.3.3 BNG is not mandatory for NSIPs until 2 November 2026 and the Proposed Development application is due to be submitted prior to this commencement date. The Applicant is committed to delivering NNL as an alternative objective to promote biodiversity in adherence with local policy, statutory consultation and good practice principles.

## References

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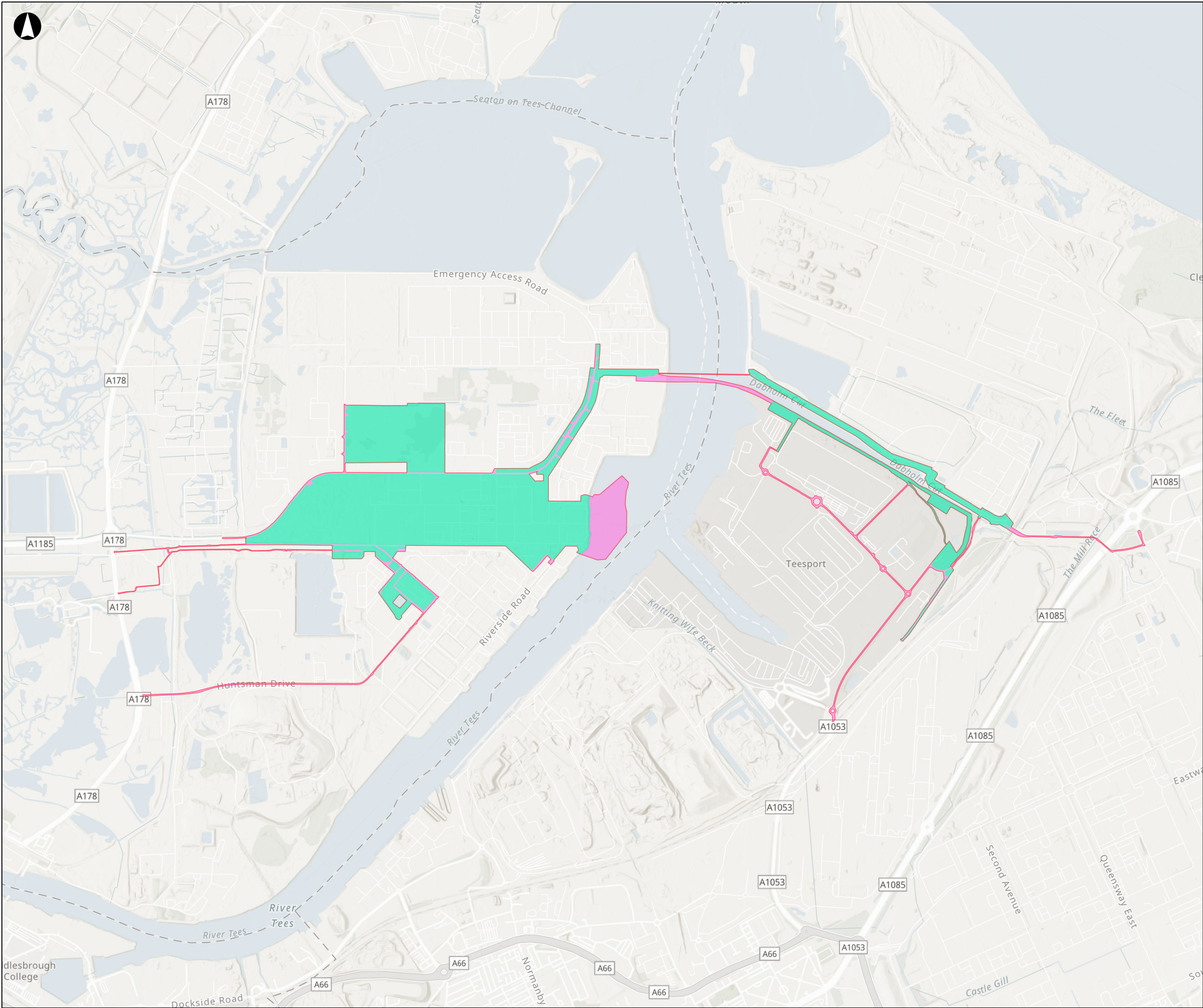
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## Annex A: Statutory Biodiversity Metric

|                                                                                                          |                                |                                                        |                                                   |
|----------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------|---------------------------------------------------|
| Lighthouse Green Fuels                                                                                   |                                | Return to results menu                                 |                                                   |
| Headline Results                                                                                         |                                |                                                        |                                                   |
| Scroll down for final results ▲                                                                          |                                |                                                        |                                                   |
| On-site baseline                                                                                         | Area habitat units             | 788.86                                                 |                                                   |
|                                                                                                          | Hedgerow units                 | 0.00                                                   |                                                   |
|                                                                                                          | Watercourse units              | 6.06                                                   |                                                   |
| On-site post-intervention<br>(Including habitat retention, creation & enhancement)                       | Area habitat units             | 70.41                                                  |                                                   |
|                                                                                                          | Hedgerow units                 | 0.00                                                   |                                                   |
|                                                                                                          | Watercourse units              | 6.00                                                   |                                                   |
| On-site net change<br>(units & percentage)                                                               | Area habitat units             | -718.45                                                | -91.07%                                           |
|                                                                                                          | Hedgerow units                 | 0.00                                                   | 0.00%                                             |
|                                                                                                          | Watercourse units              | -0.06                                                  | -0.94%                                            |
|                                                                                                          |                                | On-site net gain is less than target set ▲             |                                                   |
| Off-site baseline                                                                                        | Area habitat units             | 0.00                                                   |                                                   |
|                                                                                                          | Hedgerow units                 | 0.00                                                   |                                                   |
|                                                                                                          | Watercourse units              | 0.00                                                   |                                                   |
| Off-site post-intervention<br>(Including habitat retention, creation & enhancement)                      | Area habitat units             | 422.15                                                 |                                                   |
|                                                                                                          | Hedgerow units                 | 0.00                                                   |                                                   |
|                                                                                                          | Watercourse units              | 0.00                                                   |                                                   |
| Off-site net change<br>(units & percentage)                                                              | Area habitat units             | 422.15                                                 | N/A                                               |
|                                                                                                          | Hedgerow units                 | 0.00                                                   | 0.00%                                             |
|                                                                                                          | Watercourse units              | 0.00                                                   | 0.00%                                             |
|                                                                                                          |                                | Zero baseline units - % cannot be calculated           |                                                   |
| Combined net unit change<br>(Including all on-site & off-site habitat retention, creation & enhancement) | Area habitat units             | -296.30                                                |                                                   |
|                                                                                                          | Hedgerow units                 | 0.00                                                   |                                                   |
|                                                                                                          | Watercourse units              | -0.06                                                  |                                                   |
| Spatial risk multiplier (SRM) deductions                                                                 | Area habitat units             | 0.00                                                   |                                                   |
|                                                                                                          | Hedgerow units                 | 0.00                                                   |                                                   |
|                                                                                                          | Watercourse units              | 0.00                                                   |                                                   |
| FINAL RESULTS                                                                                            |                                |                                                        |                                                   |
| Total net unit change<br>(Including all on-site & off-site habitat retention, creation & enhancement)    | Area habitat units             | -296.30                                                |                                                   |
|                                                                                                          | Hedgerow units                 | 0.00                                                   |                                                   |
|                                                                                                          | Watercourse units              | -0.06                                                  |                                                   |
| Total net % change<br>(Including all on-site & off-site habitat retention, creation & enhancement)       | Area habitat units             | -37.56%                                                | Total net gain achieved is less than target set ▲ |
|                                                                                                          | Hedgerow units                 | 0.00%                                                  |                                                   |
|                                                                                                          | Watercourse units              | -0.94%                                                 | Total net gain achieved is less than target set ▲ |
| Trading rules satisfied?                                                                                 | No - Check Trading Summaries ▲ |                                                        |                                                   |
| Unit Type                                                                                                | Target                         | Baseline Units                                         | Units Required                                    |
| Area habitat units                                                                                       | 0.00%                          | 788.86                                                 | 788.86                                            |
| Hedgerow units                                                                                           | 0.00%                          | 0.00                                                   | 0.00                                              |
| Watercourse units                                                                                        | 0.00%                          | 6.06                                                   | 6.06                                              |
|                                                                                                          |                                | Unit Deficit                                           | 296.30                                            |
|                                                                                                          |                                | No additional hedgerow units required to meet target ✓ |                                                   |

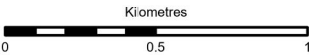
## Biodiversity Net Gain Figures



- Site Boundary
- BNGBoundary
  - Included
  - Excluded

The BNG Boundary includes habitats subject to temporary or permanent development impacts and habitats proposed for biodiversity enhancement. Unaffected habitats that do not contribute to BNG delivery are excluded.

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| P01 | 03/09/26 | ACAR | CESL | MSAN | KCOB |
|-----|----------|------|------|------|------|

| Rev | Date | By | Chkd | Appd | Authd |
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Drawing Title  
**Figure 1  
Proposed Development and BNG  
Boundary**

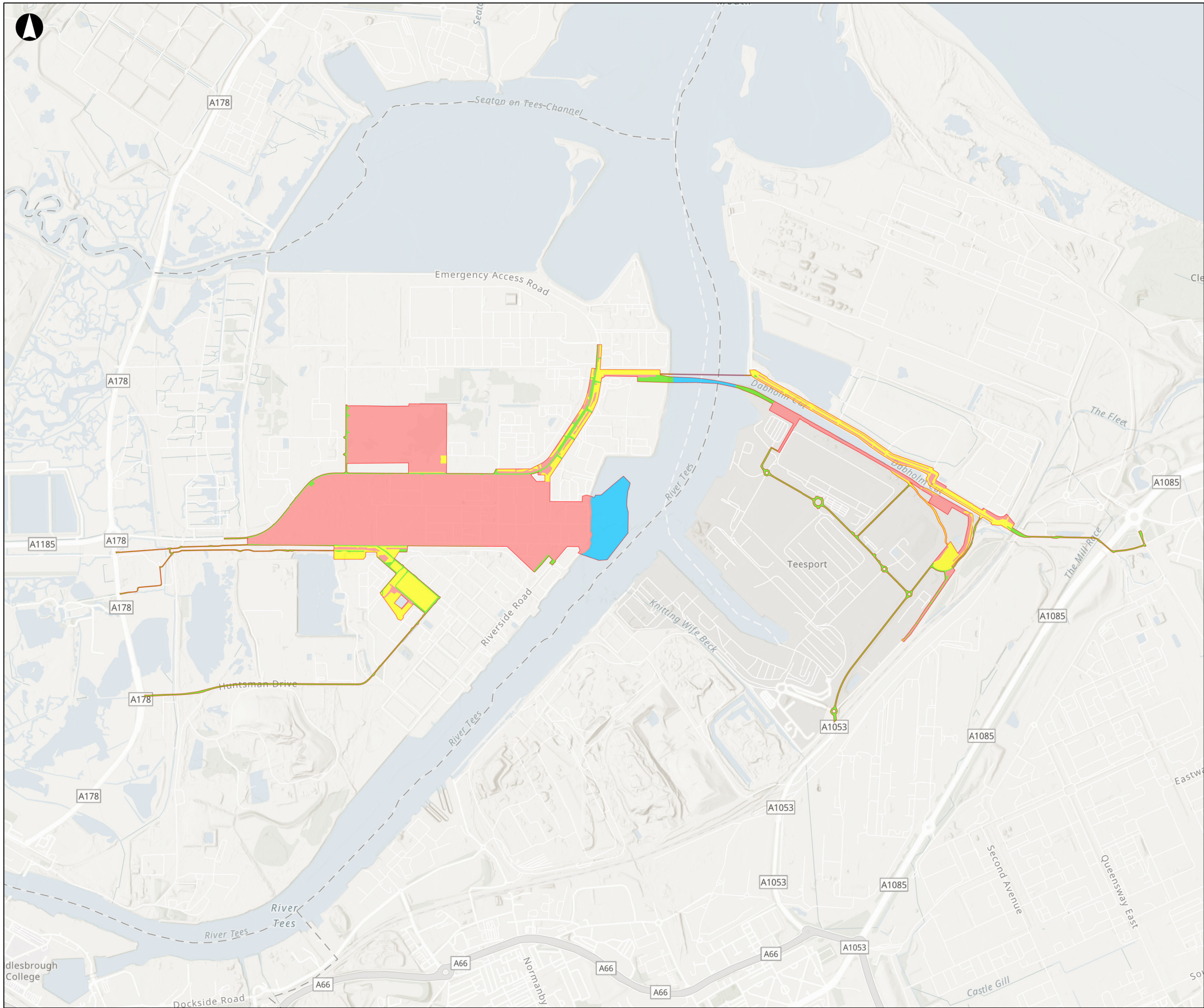
Client  
**LGF Projects Ltd.**

Project Name  
**Lighthouse Green Fuels**

Scale at A3  
**1:25,000**

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| Project Number<br><b>306732-00</b> | Rev<br><b>P01</b> |
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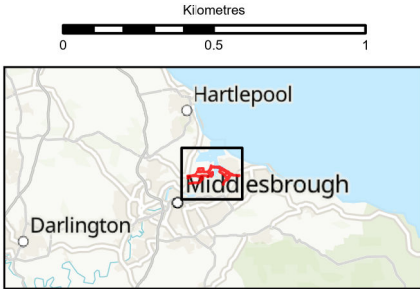
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**EN0110025/5.8**  
**APFP Reg. 5(2)(a), 5(2)(l) and EIA Reg. 14**



- Site Boundary
- Post-Development Impacts**
  - Lost/Deteriorated Habitat
  - Temporarily Lost/Deteriorated Habitat
  - Unimpacted/Retained Habitat Excluded from Baseline
  - Subtidal Habitat Excluded from Baseline

Coordinate System: British National Grid

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Drawing Title  
**Figure 2  
Proposed Development Impacts**

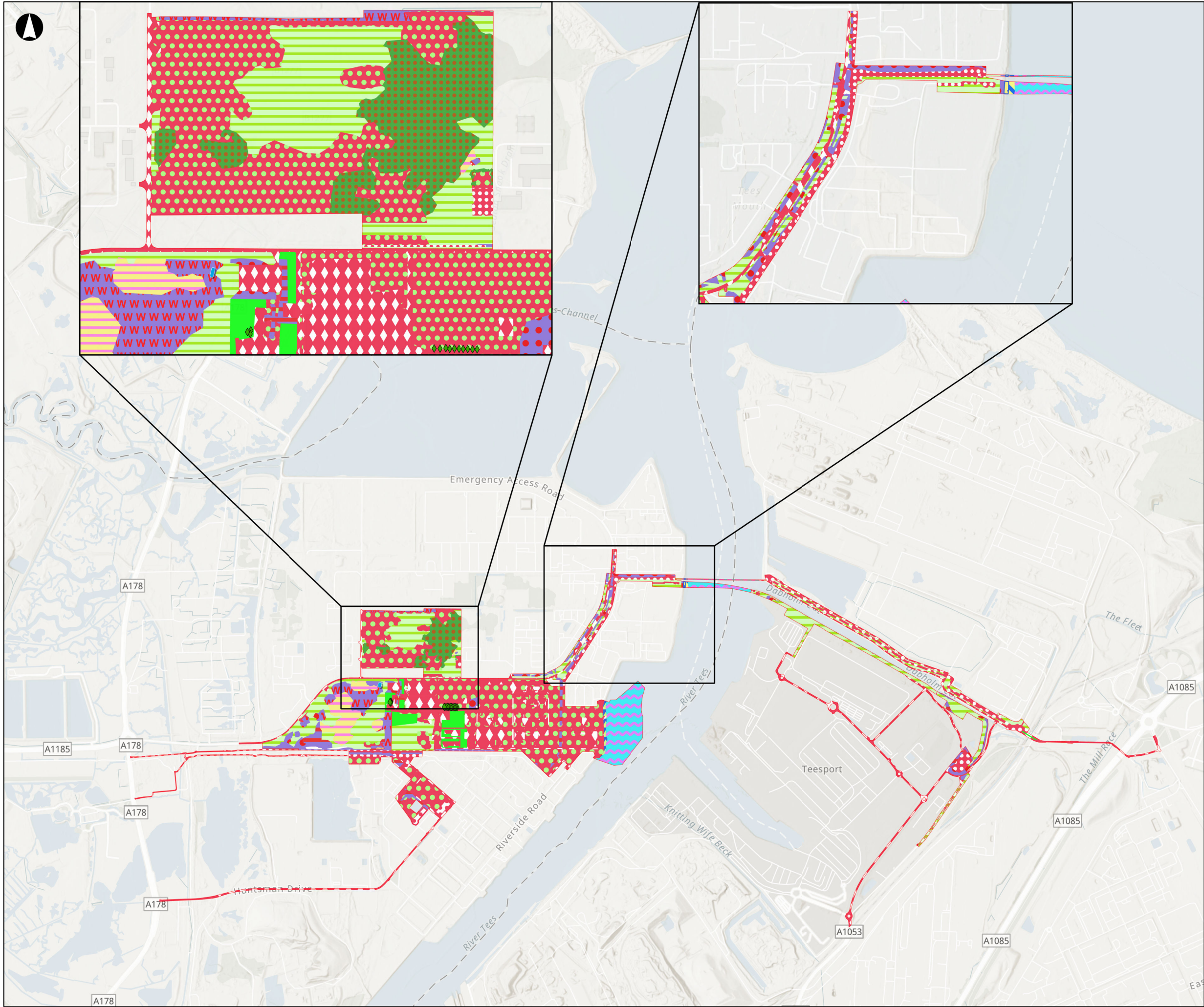
Client  
**LGF Projects Ltd.**

Project Name  
**Lighthouse Green Fuels**

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| Project Number<br><b>306732-00</b> | Rev<br><b>P01</b> |
|------------------------------------|-------------------|

Drawing Number  
**EN0110025/5.8**  
**APFP Reg. 5(2)(a), 5(2)(l) and EIA Reg. 14**



- Site Boundary

Baseline Habitats - Individual Trees

Individual Tree

Baseline Habitats - Watercourses

Habitat Code (UK Habitat Version 2)

r1 - Standing open water and canals

Baseline Habitats - Area Habitats

UK Habitat Code (V2)

f2e - Reedbeds

g1c - Bracken

g3c - Other neutral grassland

g4 - Modified grassland

h3c6 - Other sea-buckthorn scrub

h3d - Bramble scrub

h3h - Mixed scrub

h3j - Willow scrub

r2a - Rivers (priority habitat)

r2b - Other rivers and streams

t1d - Estuarine rocky habitats

t2d5 - Intertidal mudflats and sandflats (H1140)

t2e - Sheltered muddy gravels

u1b5 - Buildings

u1b6 - Other developed land

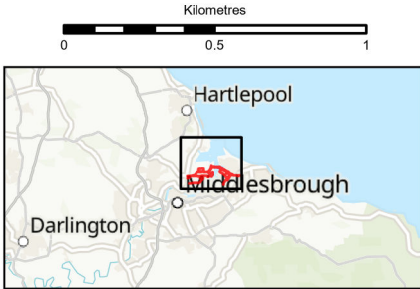
u1c - Artificial unvegetated, unsealed surface

u1f - Sparsely vegetated urban land

w1g - Other broadleaved woodland

Coordinate System: British National Grid

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| Rev | Date | By | Chkd | Appd | Authd |
|-----|------|----|------|------|-------|



Drawing Title

**Figure 3**

**Baseline Habitats**

Client

**LGF Projects Ltd.**

Project Name

**Lighthouse Green Fuels**

Scale at A3

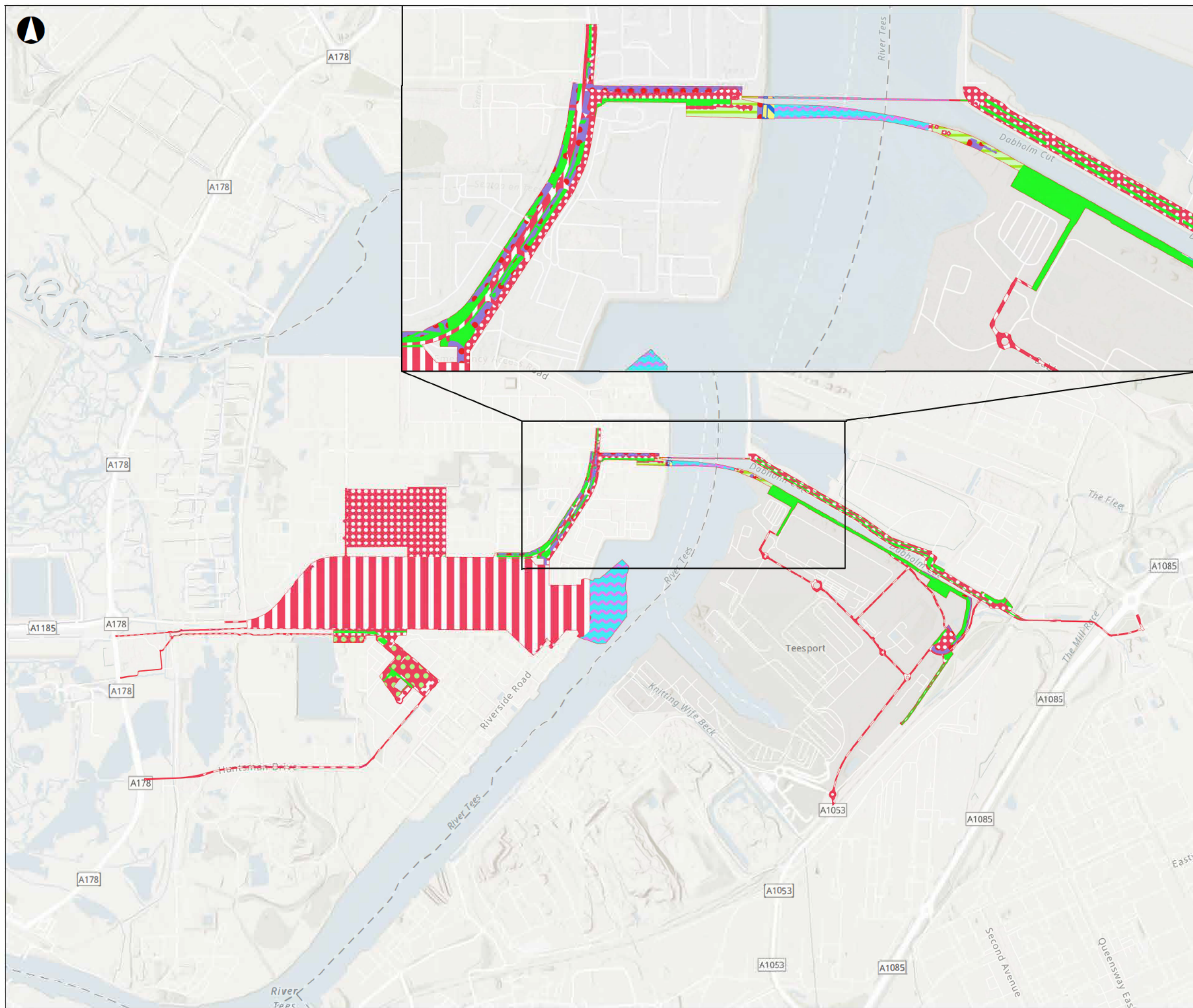
**1:25,000**

|                  |            |
|------------------|------------|
| Project Number   | Rev        |
| <b>306732-00</b> | <b>P01</b> |

Drawing Number

**EN0110025/5.8**

**APFP Reg. 5(2)(a), 5(2)(l) and EIA Reg. 14**



- Site Boundary**
- Post-Development Habitats - Area Habitats**
- UK Habitat Code (V2)**
- g3c - Other neutral grassland
  - g4 - Modified grassland
  - h3d - Bramble scrub
  - r2a - Rivers (priority habitat)
  - r2b - Other rivers and streams
  - t2d5 - Intertidal mudflats and sandflats (H1140)
  - t2e - Sheltered muddy gravels
  - u1b - Developed land; sealed surface
  - u1b5 - Buildings
  - u1b6 - Other developed land
  - u1c - Artificial unvegetated, unsealed surface
  - u1f - Sparsely vegetated urban land

Coordinate System: British National Grid

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Kilometres

0 0.5 1



| P01 | 03/09/26 | ACAR | CESL | MSAN | KCOB  |
|-----|----------|------|------|------|-------|
| Rev | Date     | By   | Chkd | Appd | Authd |



Drawing Title

**Figure 4**

**Post-Development Habitats**

Client

**LGF Projects Ltd.**

Project Name

**Lighthouse Green Fuels**

Scale at A3

**1:25,000**

Project Number

**306732-00**

Drawing Number

**EN0110025/5.8**

**APFP Reg. 5(2)(a), 5(2)(l) and EIA Reg. 14**



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