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## TABLE OF CONTENTS

3.0	DESCRIPTION OF THE EXISTING ENVIRONMENT .....	2
3.1	Introduction .....	2
3.2	Proposed Development Site Location .....	2
3.3	Proposed Development Site Overview .....	2
3.4	Surrounding Area.....	3
3.5	Environmental Receptors .....	5
3.6	References.....	17

## TABLES

There are no tables in this chapter.

## PLATES

There are no plates in this chapter.

## VOLUME II: FIGURES (ES VOLUME II, EN070009/APP/6.3)

Figure 3-1: Environmental Constraints within 1 km of the Proposed Development Site Boundary.

Figure 3-2: Water Constraints within 5 km of the Proposed Development Site Boundary.

Figure 3-3: Non-Statutory Ecological Constraints within 1 km of the Proposed Development Site Boundary.

Figure 3-4: Statutory Designated Ecological Sites within 15 km of the Proposed Development Site Boundary.

## VOLUME III: APPENDICES (ES VOLUME III, EN070009/APP/6.4)

No appendices associated with this chapter.

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## 3.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

### 3.1 Introduction

3.1.1 This chapter of the Environmental Statement (ES) provides a summary of the existing environment at the Proposed Development Site and its surroundings. Further relevant details are presented within the baseline sections of each of the topic chapters as presented within this ES (refer to Chapters 8 to 22 (ES Volume I, EN070009/APP/6.2)) as such this chapter is not a fully comprehensive baseline description.

3.1.2 This chapter is supported by the following figures (ES Volume II, EN070009/APP/6.3):

- Figure 3-1: Environmental Constraints within 1 km of the Proposed Development Site;
- Figure 3-2: Water Constraints within 5 km of the Proposed Development Site;
- Figure 3-3: Non-Statutory Ecological Constraints within 1 km of the Proposed Development Site; and
- Figure 3-4: Statutory Designated Ecological Sites within 15 km of the Proposed Development Site.

### 3.2 Proposed Development Site Location

3.2.1 The Proposed Development Site boundary is shown on Figure 1-1: Proposed Development Location (ES Volume II, EN070009/APP/6.3). The Proposed Development Site boundary has been refined through on-going studies and by taking into account the responses to the Applicant's consultation. The Proposed Development Site boundary is the same as the Order limits for the purposes of the DCO Application.

3.2.2 The Hydrogen Production Facility will be located at the Main Site within the South Tees Development Corporation site, as shown in Figure 4-1: Proposed Development Site Boundary (including location of the Main Site) (ES Volume II, EN070009/APP/6.3).

3.2.3 The Proposed Development Site covers an area of 507 hectares (ha) and is located primarily within the administrative boundaries of Redcar and Cleveland Borough Council (RCBC) and Stockton-on-Tees Borough Council (STBC). The Hydrogen Pipeline Corridor (refer to Figure 4-4 in ES Volume II, EN070009/APP/6.3) extends further north-west to also include land within the administrative boundary of Hartlepool Borough Council (HBC).

### 3.3 Proposed Development Site Overview

3.3.1 The Proposed Development Site is split into the Main Site which is the location of the Hydrogen Production Facility together with the associated carbon capture and compression facilities, connections, and ancillary infrastructure (refer to Figure 4-1:

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- Proposed Development Site (including location of the Main Site), ES Volume II, EN070009/APP/6.3)).
- 3.3.2 In addition to the Hydrogen Production Facility, the Proposed Development includes:
- Hydrogen Pipeline Corridor (refer to Figure 4-4 in ES Volume II, EN070009/APP/6.3);
  - An Air Separation Unit (ASU) (located on the Main Site);
  - Oxygen (O<sub>2</sub>) and nitrogen (N<sub>2</sub>) supply pipelines (as an alternative to use of the proposed ASU) (Other Gases Connection Corridor) (refer to Figure 4-8 in ES Volume II, EN070009/APP/6.3);
  - Carbon dioxide (CO<sub>2</sub>) Export Corridor (refer to Figure 4-3 in ES Volume II, EN070009/APP/6.3);
  - Natural Gas Connection Corridor (refer to Figure 4-5 in ES Volume II, EN070009/APP/6.3);
  - Electrical Connection Corridor (refer to Figure 4-6 in ES Volume II, EN070009/APP/6.3);
  - Water Connections Corridor (including wastewater treatment and disposal infrastructure) (refer to Figure 4-7 in ES Volume II, EN070009/APP/6.3); and
  - Replacement land at Cowpen Bewley Woodland Park.
- 3.3.3 Further details regarding the Proposed Development are provided within Chapter 4: Proposed Development (ES Volume I, EN070009/APP/6.2).
- 3.3.4 Existing structures currently located within the Main Site will be demolished to clear the site (by South Tees Development Corporation (STDC)), prior to and irrespective of the commencement of works associated with the Proposed Development.
- 3.4 Surrounding Area
- 3.4.1 The area surrounding the Proposed Development Site is characterised by industrial land uses. The nearest main settlements are the towns of Redcar, Eston, Middlesbrough, Billingham (within Stockton-on-Tees) and Seaton Carew (within Hartlepool). There is a concentration of industrial land uses around the mouth of the River Tees both historically and in present usage through redevelopment. The operational Redcar Bulk Terminal (RBT) is located immediately adjacent to the west of the Main Site, on the south bank of the River Tees.
- 3.4.2 To the north-east of the Main Site lie the coastal areas of South Gare and Coatham Dunes (beyond areas of ongoing industrial redevelopment), which are local environment and community assets. To the south of the Main Site lies the Northumbrian Water Ltd Bran Sands effluent treatment works, operational lands of PD Ports Teesport, and the Wilton International Site chemical complex. The Proposed Development Site extends westward across the River Tees towards the industrial complex at Seal Sands, and industrial and residential areas at Billingham
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and Port Clarence. The proposed replacement land at Cowpen Bewley Woodland Park is currently in agricultural use.

3.4.3 The Teesside Wind Farm is located off-shore approximately 2.3 km north of the Main Site and is oriented north-west to south-east, parallel with the shoreline at Coatham Sands.

3.4.4 Rail lines to and from the RBT, which lies to the west of the Main Site, run east-west along the southern boundary of the Main Site.

#### Net Zero Teesside (NZE) Site

3.4.5 Net Zero Teesside will be the UK's first commercial scale, full chain Carbon Capture and Storage (CCS) project and will initially capture up to 4 million tonnes of carbon dioxide (CO<sub>2</sub>) emissions per annum,. The NZE site is adjacent to the Proposed Development site, to the east of the Main Site. The Proposed Development will export carbon dioxide (CO<sub>2</sub>) to the Northern Endurance Partnership (NEP) offshore storage facility via NEP infrastructure on the adjacent NZE site, including the high-pressure compression facility and the CO<sub>2</sub> export pipeline.

#### HyGreen Site

3.4.6 HyGreen comprises of the construction, operation and maintenance of an 80 MW electrical power (MWe) low carbon electrolytic hydrogen Production Facility and associated development. HyGreen, together with H2Teesside, will create a low-carbon hydrogen hub with potential synergies across the two projects, including utilities, infrastructure, operations, and off-takers, allowing for greater resilience and flexibility. Hygreen's Main Site lies within the H2T Main Site boundary, and the red line boundary (RLB) for Hygreen largely sits within the RLB of the Proposed Development .

#### Existing Road Network

3.4.7 The Main Site is located approximately 2 km north-west of Redcar and will be accessed via the existing roundabout junction with the A1085 and West Coatham Lane. The Connection Corridors cover land to the north and south of the River Tees as shown on Figures 4-1 to 4-8 (ES Volume II, EN070009/APP/6.3).

3.4.8 The A1085 Trunk Road is a dual/single carriageway road running east to west between Redcar and the A1053 Tees Dock Road and in the vicinity of the Proposed Development, is subject to a 60mph Speed Limit. The carriageway is street lit and a shared footway/cycleway is provided on either side of the road.

3.4.9 Travelling west from the site access, the A1085 provides a link to the A1053 which in turn connects to the A174 to the south and the A66 to the north. The A1053 and A174 are part of National Highways strategic network. All other routes are managed by RCBC.

3.4.10 On the north side of the River Tees, the access to the works would be centred around the A178 Seaton Carew Road, which is a single carriageway road subject to a 60mph speed limit and provides the main north – south route within the vicinity

of the works. An unnamed road would then provide a direct access from a roundabout with Seaton Carew Road directly into the Seal Sands area.

3.4.11 Access to the wider network and the A19 to the west would be via either the A1185, which heads towards the A689 Wolviston interchange in the north or via the A1046 Haverton Hill Road or B1275 Belasis Avenue to access the A19 in the south. Although there is a low bridge (4.6m 15' 3") on the A146 which may restrict some HGV movements.

### 3.5 Environmental Receptors

3.5.1 A number of environmental receptors have been identified within and in the vicinity of the Proposed Development Site (pursuant to the Study Areas as outlined in the various technical chapters in ES Volume I, EN070009/APP/6.2). All distances presented in this chapter are the shortest distance between the receptor and the closest point of the relevant part of the Proposed Development Site boundary.

3.5.2 The Main Site comprises 86 ha of former industrial land that was used for steel production, including a mix of industrial buildings. As of March 2024, much of the site infrastructure including industrial buildings and overhead pipes has either been demolished or is in the process of being dismantled. A combination of hardstanding and road networks remain on the Main Site, surrounded by informal vegetation (primarily grass), with occasional shrubs and small trees.

3.5.3 The topography of the Main Site is relatively flat, with typical ground levels being between 6 - 8 m Above Ordnance Datum (AOD).

3.5.4 The following environmental resources and receptors have been identified in the vicinity of the Main Site and the wider Proposed Development Site.

#### Residential and Amenity

3.5.5 Residential receptors are shown on Figure 3-1: Environmental Constraints within 1 km of the Proposed Development Site (ES Volume II, EN070009/APP/6.3). There are no residential receptors within 500 m of the Main Site. The closest residential properties (individual receptors) to the Main Site are those at Marsh House Farm, Warrenby located approximately 1.3 km to the east and Dormanstown located approximately 2.3 km to the south-east.

3.5.6 There are no residential receptors within the Proposed Development Site boundary. There are a number of residential receptors located in close proximity to the Proposed Development Site boundary in the following areas:

- Warrenby, located approximately 1.3 km to the east;
- Dormanstown, located approximately 640 m to the east;
- Redcar, located approximately 2.3 km to the north-east;
- Kirkleatham, located approximately 600 m to the east;
- Billingham, located approximately 1.4 km to the west;
- Grangetown, located approximately 970 m to the south; and

- Greatham, located approximately 2.3 km north-west.
- 3.5.7 The Hydrogen Pipeline Corridor extends into the Cowpen Bewley Woodland Park and designated open space and replacement land is included within the Red Line Boundary.
- 3.5.8 Potential effects on residential and amenity receptors associated with the Proposed Development are considered in Chapter 8: Air Quality, Chapter 11: Noise and Vibration, Chapter 12: Terrestrial Ecology, Chapter 15: Traffic and Transport, Chapter 16: Landscape and Visual Amenity, Chapter 22: Human Health, and Chapter 23: Cumulative and Combined Effects (ES Volume I, EN070009/APP/6.2).

#### Air Quality

- 3.5.9 There are no Air Quality Management Areas (AQMAs) within the Proposed Development Site boundary as no AQMAs have been declared in the administrative areas of RCBC, STBC and HBC. The nearest AQMA is located in Scarborough which is over 20 km away from the Proposed Development Site.
- 3.5.10 RCBC conducts local air quality monitoring with one continuous monitoring station located in Dormanstown to monitor emissions from industrial development along the River Tees. Annual means in 2019 of pollutant concentrations of Nitrogen Dioxide (NO<sub>2</sub>), Nitrogen Oxides (NO<sub>x</sub>) and Particulate Matter (PM<sub>10</sub>) were below the relevant air quality objectives.
- 3.5.11 RCBC also undertakes monitoring of NO<sub>2</sub> at roadside locations, the results of which indicate that air quality in the borough is of a good quality, and well below the annual Air Quality Assessment Level (AQAL).
- 3.5.12 Further information on air quality within the vicinity of the Proposed Development Site is presented in Chapter 8: Air Quality (ES Volume I, EN070009/APP/6.2).

#### Hydrology and Flood Risk

- 3.5.13 The nearest designated watercourse to the Main Site is the River Tees, located approximately 840 m to the west of the Main Site (at its closest point). The River Tees is designated by the Environment Agency as a Main River.
- 3.5.14 The Proposed Development Site crosses the River Tees in one place to allow the construction of Hydrogen Pipeline Corridor under the Tees, as can be seen in Figure 4-4: Hydrogen Pipeline Corridor (ES Volume II, EN070009/APP/6.3). The River Tees is tidal with the normal tidal limit approximately 14 km upstream at the Tees Barrage.
- 3.5.15 The North Sea is located approximately 680 m to the north of the Main Site, though the Proposed Development Site has no direct interaction with this receptor.
- 3.5.16 There are five Water Framework Directive (WFD) designated surface water bodies within a 1 km radius of the Proposed Development Site, as follows:
- Tees Coastal Water (coastal waterbody);
  - Tees Transitional Waterbody (Greatham Creek - estuarine waterbody);

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- Cowbridge Beck from Source to North Burn (Main River);
  - North Burn from Source to Claxton Back (Main River); and
  - River Tees (S Bank) (Main River).
- 3.5.17 In addition, there are two WFD designated groundwater bodies within a 1 km radius of the Proposed Development Site, as follows:
- Tees Mercia Mudstone and Redcar Mudstone; and
  - Tees Sherwood Sandstone.
- 3.5.18 There are numerous localised drains and ditches, pools / surface water bodies and areas of marshy ground within the Proposed Development Site.
- 3.5.19 Designated Bathing Waters at Coatham Sands are located approximately 1.6 km north of the Proposed Development Site, whilst those at Seaton Carew North Gare, Seaton Carew Centre and Seaton Carew North are located approximately 2.7 km, 3.6 km and 3.9 km north of the Proposed Development Site respectively.
- 3.5.20 The Main Site is located in Flood Zone 1 (area has less than 0.1% annual probability of flooding from rivers or the sea) as shown in Figure 9-3: Fluvial Flood Risk (ES Volume II, EN070009/APP/6.3).
- 3.5.21 Within the Proposed Development Site (outside the Main Site), the Pipeline Corridor to the south of the River Tees is predominantly located in Flood Zone 1 (low risk of flooding from fluvial and/or tidal sources). The exceptions to this are small sections of the Electrical Pipeline, Water Connection, Hydrogen Pipeline and Other Gases connection corridors which extend into Flood Zone 2 (medium risk of flooding from fluvial and/or tidal sources) and Flood Zone 3a (high risk of flooding from fluvial and/or tidal sources) as they cross or are in proximity to Dabholm Gut..
- 3.5.22 Flooding is more extensive to the north bank of the River Tees and a significant amount of the Hydrogen Pipeline Corridor is located within Flood Zones 2 (medium risk of flooding) and 3 (high risk of fluvial flooding), however, flooding in this area is predominantly from tidal sources. There are, however, ordinary watercourses, such as the Mucky Fleet, Swallow Fleet and Belasis Beck that could pose a risk to small sections of the Hydrogen Pipeline Corridor, predominantly where the connection corridor passes over a watercourse/drain.
- 3.5.23 The Main Site and the associated connection corridors are generally at very low risk (<0.1% AEP event) of flooding from surface water. There are isolated areas of high, medium and low flood risk where water is seen to pond during more significant rainfall events, however, these areas are constrained to low spots in the local topography within the Proposed Development Site boundary. The Main Site is located within Flood Zone 1 for surface water flooding, as shown in Figure 9-4: Surface Water Flood Risk (ES Volume II, EN070009/APP/6.3). There are small, isolated areas of the Hydrogen Pipeline Corridor, Water Connections Corridor and Electrical Connection Corridor that are located in Flood Zones 2 and 3 for surface water.
- 3.5.24 The main locations of identified surface water flooding are:
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- approximately 275 m to the south east of the Main Site where water is seen to flood around the A1085/Broadway East roundabout junction. Land in this area is identified at low to high risk of surface water flooding; and
  - land located to the west between the A1085 and Cowpen Bewley Road, approximately 8 km to the west of the Main Site. Land in this area is identified at low to medium risk of surface water flooding.
- 3.5.25 Further information on hydrology and flood risk receptors located in the vicinity of the Proposed Development Site is presented in Chapter 9: Surface Water, Flood Risk and Water Resources (ES Volume I, EN070009/APP/6.2) and illustrated on Figure 3-2 and Figures 9-1 to 9-5 (ES Volume II, EN070009/APP/6.3).

#### Geology and Hydrogeology

- 3.5.26 Made Ground is widespread across the Main Site associated with the reclamation of the land from the River Tees using available waste materials (including slag) and the long historical industrial use of the site.
- 3.5.27 The Proposed Development Site is underlain by superficial deposits including:
- Peat;
  - Tidal Flat Deposits;
  - Alluvium (Clay, Silt, Sand and Gravel);
  - Blown Sand;
  - Devensian Glaciolacustrine Deposits (Clay and Silt); and
  - Devensian Glacial Till (Boulder Clay).
- 3.5.28 The bedrock geology underlying the Proposed Development Site comprises:
- Redcar Mudstone Formation;
  - Penarth Group;
  - Mercia Mudstone Group; and
  - Sherwood Sandstone Group.
- 3.5.29 The Sherwood Sandstone Group is designated as a Principal Aquifer; the Redcar Mudstone Formation is designated as Secondary (Undifferentiated) aquifer; the Penarth Formation is designated as a Secondary (Undifferentiated)/Secondary B aquifer; whilst the Mercia Mudstone bedrock is designated as Secondary B aquifer.
- 3.5.30 There are no Groundwater Dependent Terrestrial Ecosystems or Source Protection Zones, Drinking Water Protected Areas, or Drinking Water Safeguard Zones that could potentially be impacted by the Proposed Development.
- 3.5.31 Further information on geology and hydrogeology receptors located in the vicinity of the Proposed Development Site is presented in Chapter 9: Surface Water, Flood Risk and Water Resources, Chapter 10: Geology, Hydrogeology and Contaminated



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Land (ES Volume I, EN070009/APP/6.2) and illustrated on Figures 9-1 to 9-5 and Figures 10-1 to 10-23 (ES Volume II, EN070009/APP/6.3).

#### Noise

- 3.5.32 The residential areas as detailed above are considered to be noise sensitive receptors (NSRs). The nearest residential NSRs to the Proposed Development Site are identified as NSRs H1 – H3, and H5 – H6 on Figure 11-1: Noise Sensitive Receptors (ES Volume II, EN070009/APP/6.3).
- 3.5.33 There are areas of public and private amenity close to the Proposed Development Site that are also defined as NSRs. This includes a golf course (Cleveland Golf Links) located immediately to the east at Coatham, as well as employment locations, including offices as identified as NSR H4 on Figure 11-1: Noise Sensitive Receptors (ES Volume II, EN070009/APP/6.3).
- 3.5.34 As outlined in Chapter 12: Ecology and Nature Conservation (including Aquatic Ecology) (ES Volume I, EN070009/APP/6.2), the Teesmouth and Cleveland Coast Special Protection Area (SPA), Ramsar Site and Site of Specific Scientific Interest (SSSI) is located to the immediate north of the Main Site (at its closest point). In addition, as outlined in Chapter 13: Ornithology and Chapter 14: Marine Ecology and Nature Conservation (ES Volume I, EN070009/APP/6.2), the Proposed Development has the potential to impact on sensitive receptors relevant to these topics. The ecological receptors identified in these chapters are sensitive to noise, and this has been considered in each respective assessment.
- 3.5.35 Further information on NSRs located in the vicinity of the Proposed Development Site is described in Chapter 11: Noise and Vibration (ES Volume I, EN070009/APP/6.2).

#### Ecology

- 3.5.36 Within 15 km of the Proposed Development Site there are:
- Three Special Protection Areas (SPAs) as follows:
    - Teesmouth and Cleveland Coast SPA, located immediately north of the Main Site and which the Hydrogen Pipeline Corridor lies within;
    - North York Moors SPA located approximately 12 km and 8 km to the south of the Main Site and the Proposed Development Site (Hydrogen Pipeline Corridor) respectively; and
    - Northumbria Coast SPA located approximately 13 km and 11 km to the north of the Main Site and the Proposed Development Site (Hydrogen Pipeline Corridor) respectively.
  - Two Ramsar sites:
    - Teesmouth and Cleveland Coast Ramsar Site located approximately 163 m north of the Main Site and which the Hydrogen Pipeline Corridor partly lies within; and

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- Northumbria Coast Ramsar Site located approximately 13 km and 11 km to the north-west of the Main Site and the Proposed Development Site (Hydrogen Pipeline Corridor) respectively.
  - Three Special Areas of Conservation (SACs):
    - North York Moors SAC located approximately 12 km and 8 km south of the Main Site and the Proposed Development Site (Hydrogen Pipeline Corridor) respectively;
    - Durham Coast SAC located approximately 13 km and 11 km north of the Main Site and the Proposed Development Site (Hydrogen Pipeline Corridor) respectively; and
    - Castle Eden Dene SAC located approximately 14 km north-west of the Proposed Development Site (Hydrogen Pipeline Corridor).
  - Three National Nature Reserves (NNRs):
    - Teesmouth NNR located approximately 1.7 km west and immediately adjacent to the Main Site and Proposed Development Site (Hydrogen Pipeline Corridor) respectively;
    - Durham Coast NNR located approximately 12 km and 10 km north-west of the Main Site and the Proposed Development Site (Hydrogen Pipeline Corridor) respectively; and
    - Castle Eden Dene NNR located approximately 14 km north-west of the Proposed Development Site (Hydrogen Pipeline Corridor).
  - 20 Sites of Special Scientific Interest (SSSIs):
    - Teesmouth and Cleveland Coast SSSI, which the Proposed Development Site lies within;
    - Lovell Hill Pools SSSI, located approximately 6.5 km and 2.5 km south-east of the Main Site and Proposed Development Site (Hydrogen Pipeline Corridor) respectively;
    - Briarcroft Pasture SSSI, located approximately 7.7 km west of the Proposed Development Site (Hydrogen Pipeline Corridor);
    - Roseberry Topping SSSI, located approximately 12 km and 8 km south of the Main Site and Proposed Development Site (Electrical Connection Corridor);
    - North York Moors SSSI, located approximately 12 km and 8 km south-east of the Main Site and Proposed Development Site (Hydrogen Pipeline Corridor) respectively;

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- Saltburn Gill SSSI, located approximately 11 km and 8 km south-east and east of the Main Site and Proposed Development Site (Hydrogen Pipeline Corridor) respectively;
  - Whitton Bridge Pasture SSSI, located approximately 8 km west of the Proposed Development Site (Hydrogen Pipeline Corridor);
  - Langbaugh Ridge SSSI, located approximately 12 km and 8 km south of the Main Site and Proposed Development Site (Electrical Connection Corridor) respectively;
  - Cliff Ridge SSSI, located approximately 13 km and 9 km south of the Main Site and Proposed Development Site (Electrical Connection Corridor) respectively;
  - Durham Coast SSSI, located approximately 12 km and 9.8 km north-west of the Main Site and Proposed Development Site (Hydrogen Pipeline Corridor) respectively;
  - Hart Bog SSSI, located approximately 14 km and 10 km north-west of the Main Site and Proposed Development Site (Hydrogen Pipeline Corridor) respectively;
  - Pike Whin Bog SSSI, located approximately 10 km north-west of the Proposed Development Site (Hydrogen Pipeline Corridor);
  - Kildale Hall SSSI, located approximately 11 km south-east of the Proposed Development Site (Hydrogen Pipeline Corridor);
  - Hulan Fen SSSI, located approximately 12 km north-west of the Proposed Development Site (Hydrogen Pipeline Corridor);
  - Castle Eden Dene SSSI, located approximately 14 km north-west of the Proposed Development Site (Hydrogen Pipeline Corridor);
  - Pinkey and Gerrick Woods SSSI, located approximately 13 km south-east of the Proposed Development Site (Hydrogen Pipeline Corridor);
  - Fishburn Grassland SSSI, located approximately 13 km north-west of the Proposed Development Site (Hydrogen Pipeline Corridor);
  - Charity Land SSSI, located approximately 13 km north-west of the Proposed Development Site (Hydrogen Pipeline Corridor);
  - Newton Ketton Meadow SSSI, located approximately 14 km west of the Proposed Development Site (Hydrogen Pipeline Corridor); and
  - Boulby Quarries SSSI, located approximately 14 km east of the Proposed Development Site (Hydrogen Pipeline Corridor).

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- 3.5.37 There are no proposed Ramsar Sites or potential SPAs within 15 km of the Proposed Development Site.
- 3.5.38 All the above statutory designated ecological sites are illustrated on Figure 12-1: Statutory Designated Ecological Sites within 15 km of the Proposed Development Site (ES Volume II, EN070009/APP/6.3).
- 3.5.39 There are 21 Local Wildlife Sites (LWSs) within 2 km of the Proposed Development Site. These non-statutory designated ecological sites are shown on Figure 12-2: Non-Statutory Designated Sites (ES Volume II, EN070009/APP/6.3).
- 3.5.40 Ecological receptors located in the vicinity of the Proposed Development Site include:
- Amphibians – habitats within the Proposed Development Site may support amphibians including Great Crested Newt (GCN) and common toad (*Bufo bufo*);
  - Reptiles – habitats within the Proposed Development Site support common reptile species such as common lizard (*Zootoca vivipara*);
  - Fish – watercourses within the Proposed Development Site may support fish;
  - Birds – habitats within and adjacent to the Proposed Development Site may support breeding and non-breeding birds (Including Schedule 1 species);
  - Bats – habitats within the Proposed Development Site support foraging and commuting bats;
  - Water vole – watercourses within the Proposed Development Site support water vole (*Arvicola amphibius*);
  - Otter – watercourses within the Proposed Development Site are used by foraging and commuting otter (*Lutra lutra*);
  - Brown Hare – habitats within the Proposed Development Site have suitability for brown hare (*Lepus europaeus*);
  - Hedgehog – hedgerows, woodland and grassland habitats are suitable for hedgehog (*Erinaceus europaeus*);
  - Aquatic macroinvertebrates and macrophytes – present within watercourses; and
  - Invasive non-native species – within the Proposed Development Site and along watercourses.
- 3.5.41 Further information on ecological receptors is presented in Chapter 12: Ecology and Nature Conservation (including aquatic ecology), Chapter 13: Ornithology and Chapter 14: Marine Ecology (ES Volume I, EN070009/APP/6.2) and their associated figures in ES Volume II, EN070009/APP/6.3.

#### Traffic and Transport

- 3.5.42 There are no adopted highways within the Main Site.
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- 3.5.43 The Proposed Development Site extends across a number of transport routes (both highways and railways), including:
- A1185;
  - A178 (Seaton Carew Road, Tees Road);
  - A1046 (Haverton Hill Road);
  - A1053 (Tees Dock Road);
  - A1053 (T) (Greystone Road);
  - A66;
  - A1085 (Trunk Road);
  - Durham Coast Railway Line; and
  - Tees Valley Railway Line.
- 3.5.44 The Main Site is not crossed by any Public Rights of Way (ProW); however, the Teesdale Way long distance route runs adjacent to the northern boundary of the Main Site.
- 3.5.45 There are nine ProW (six footpaths, two bridleways and one byway) within the Proposed Development Site which may be affected by the Hydrogen Pipeline Corridor and other connection corridor routes, including:
- Footpaths 102/2A/1, 102/2A/2, 116/31/1, 116/31/2 and 116/31/3, which run adjacent to the Teesport Estate and Tees Dock Road;
  - Bridleways 116/9/1 and 116/9/2 (located within the Proposed Development Site) and footpaths 102/2/1, 102/2/2 and 102/2/3 (located immediately adjacent to the Proposed Development Site), are located to the south of the above footpaths and the Teesport Estate, and form part of the Teesdale Way long distance footpath and the King Charles III England Coast Path (Filey Brigg to Newport Bridge);
  - Footpath 31, which connects Cowpen Lane and Seal Sands Link Road; and
  - Byway 30, partially located within and running adjacent to the Proposed Development Site, north of Wolviston Back Lane. Bridleway 102/194/2 is located adjacent to the Proposed Development Site in Grangetown.
- 3.5.46 Bridleways 116/10/1 and 116/10/2, located within 100 m to the east to south-east of the Proposed Development Site, run along the eastern boundary of the Wilton International Site in Kirkleatham.
- 3.5.47 Footpaths 116/1/1, 116/1/2, 116/2/1, 116/37/1, 116/38/1 and 116/39/1 and bridleways 116/32/1, 116/33/1 and 116/36/1 are located to the north-east of the Proposed Development Site, in Warrenby and Coatham. Bridleways 116/32/1 and 116/36/1 are the closest of this group to the Proposed Development Site; at their closest point (where they connect to the Teesdale Way long distance route), they are located approximately 250 m north-east of the Proposed Development Site.
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Bridleways 116/32/1 and 116/33/1 are part of the King Charles III England Coast Path (Filey Brigg to Newport Bridge).

- 3.5.48 The King Charles III England Coast Path runs through the Proposed Development Site to the south and east of the Main Site. Some of the Proposed Development Site is located within access land in the England Coastal Margin. Public access for industrial areas in South Tees is currently restricted under the Countryside and Rights of Way Act (HM Government, 2000) on the grounds of public safety until 21 July 2027 (Case Number 20140873571) after which date the restriction will be reviewed.
- 3.5.49 The potential amenity effects of the Proposed Development are considered in Chapter 16: Landscape and Visual Amenity and Chapter 18: Socio-Economics and Land Use (ES Volume I, EN070009/APP/6.2). ProW in the vicinity of the Main Site and the Proposed Development Site are presented on Figure 16-1: Landscape Context (ES Volume II, EN070009/APP/6.3). ProW that are not within the Main Site are illustrated on Figure 3-1 (ES Volume II, EN070009/APP/6.3).
- 3.5.50 Further information on receptors relevant to traffic and transportation located in the vicinity of the Proposed Development Site is presented in Chapter 15: Traffic and Transport (ES Volume I, EN070009/APP/6.2).

#### Landscape and Visual Amenity

- 3.5.51 The Proposed Development Site is located within National Character Area (NCA) 23: Tees Lowlands NCA. This forms a broad, open plain dominated by the meandering lower reaches of the River Tees and its tributaries, with wide views to distant hills. The large conurbation around the Lower Tees and Teesmouth contrasts with the rural area to the south and west, which is largely agricultural in character.
- 3.5.52 At a regional scale the area in which the Proposed Development Site is located to the north of the River Tees is characterised within the Stockton-on-Tees Landscape Character Assessment (LCA) (WYG Environment, 2011), with the Proposed Development Site being located within the East Billingham to Teesmouth LCA. The Redcar Flats LCA is located immediately north of the Main Site, with part of the Proposed Development Site being located within this LCA. The coastal zone of the LCA is classified as Sensitive Landscape.
- 3.5.53 There are no Landscape Character Designations covering the industrial complexes along the banks of the River Tees. However, the RCBC Landscape Character Supplementary Planning Document (March 2010) notes that this industry has a strong influence on neighbouring landscape character areas.
- 3.5.54 The effects of the Proposed Development on landscape and visual amenity are considered in Chapter 16: Landscape and Visual Amenity (ES Volume I, EN070009/APP/6.2).

#### Cultural Heritage

- 3.5.55 There are no designated heritage assets within the Proposed Development Site.

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- 3.5.56 There are 26 Scheduled Monuments within 5 km of the Proposed Development Site, including:
- Claxton medieval moated site, located approximately 2.4 km north-west of the Proposed Development Site;
  - Eston Nab hill fort, palisaded settlement and beacon, located approximately 2.4 km south of the Proposed Development Site;
  - World War I early warning acoustic mirror 650 m north-west of Bridge Farm, located approximately 3 km north-east of the Proposed Development Site;
  - Ring cairn, on Eston Moor 1.3 km north of Mill Farm, located approximately 3.6 km south of the Proposed Development Site;
  - Stockton market cross immediately south of Town Hall, located approximately 3.6 km south-west of the Proposed Development Site;
  - Medieval farmstead and irregular open field system at High Burntoft Farm, located approximately 3.9 km north-west of the Proposed Development Site;
  - Fishpond 550 m east of Acklam Park, located approximately 4.5 km south of the Proposed Development Site;
  - Manorial settlement, dovecote and fragment of field system, immediately north of Marske Inn Farm, located approximately 4.7 km east of the Proposed Development Site; and
  - Approximately 18 Bronze Age bowl barrows or collections of barrows, relating to a prehistoric settlement and funerary landscape located near to Eston to the south of the Proposed Development Site.
- 3.5.57 There are 506 listed buildings within 5 km of the Proposed Development Site, 10 of which are Grade I, 455 of which are Grade II and 41 of which are Grade II\*. The closest Grade I listed building is Entrance screen loggias forts flat and outhouses to Sir William Turners Hospital, located approximately 0.5 km south-east of the Proposed Development Site. The closest Grade II listed building is Hall's Farmhouse, located approximately 62 m west of the Proposed Development Site in Billingham. The closest Grade II\* listed building is Ivy House located approximately 132 m west of the Proposed Development Site. There is a cluster of approximately 24 listed buildings at Kirkleatham, five of which are Grade I and six of which are Grade II\* and all are within 1 km of the Proposed Development Site.
- 3.5.58 One of these listed buildings is Marsh House Farm, a Grade II listed building located approximately 200 m east of the Proposed Development Site. In addition to being considered within the heritage assessment, this receptor has also been scoped in as a Noise Sensitive Receptor for the purposes of the noise assessment. Further information can be found within Chapter 11: Noise and Vibration (ES Volume I, EN070009/APP/6.2).
- 3.5.59 There are 20 Conservation Areas within 5 km of the Proposed Development Site, the closest of which include the Cowpen Bewley Conservation Area, part of which
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lies within the Proposed Development Site and the Kirkleatham Conservation Area, which is located approximately 285 m from the Proposed Development Site.

3.5.60 There are two registered parks and gardens within 5 km of the Proposed Development Site as follows:

- Grade II listed Albert Park, Middlesborough, located approximately 3.2 km south-east of the Proposed Development Site; and
- Grade II\* listed Ropner Park, Stockton-on-Tees, located approximately 4.6 km south-west of the Proposed Development Site.

3.5.61 Further information on cultural heritage receptors located in the vicinity of the Proposed Development Site is presented in Chapter 17: Cultural Heritage (ES Volume I, EN070009/APP/6.2) and illustrated on Figure 3-1, and Figures 17-1 to 17-4 (ES Volume II, EN070009/APP/6.3).

#### Major Accidents and Disasters

3.5.62 The Teesside area is a significant industrial hub, with chemical manufacturing and oil and gas facilities in Wilton, Seal Sands and Billingham. Hartlepool nuclear power station is located on the northern bank of the River Tees.

3.5.63 There are a number of Control of Major Accident Hazards (COMAH) (HM Government, 2015) regulated sites within a 5 km radius of the Proposed Development Site, comprising:

- bulk and fine chemical installations, with operations including: manufacture / production, disposal, storage / warehousing and distribution;
- fuel processing and storage installations, including refining and distribution;
- waste storage, treatment and disposal sites;
- wastewater and sewage collection, supply and treatment; and
- power generation, supply and distribution.

3.5.64 An existing network of buried pipelines is present within a 5 km radius of the Proposed Development Site, including major hazard pipelines regulated in accordance with the Pipelines Safety Regulations (PSRs) 1996 (HM Government, 1996).

3.5.65 There is also significant infrastructure associated with the transmission and distribution of energy including high voltage (HV) 400 kV overhead power lines present within a 5 km radius of the Proposed Development Site.

3.5.66 Further information on major accidents and disasters risks in the vicinity of the Proposed Development Site is presented in Chapter 20: Major Accidents and Disasters (ES Volume I, EN070009/APP/6.2).



### 3.6 References

- HM Government (1996). *The Pipeline Safety Regulations 1996 (SI 1996/825)*.
- HM Government (2000). *Countryside and Rights of Way Act 2000, c.37*.
- HM Government (2015). *The Control of Major Accident Hazards Regulations 2015 (SI 2015/483)*.
- Redcar and Cleveland Borough Council (RCBC) (2010). *Landscape Character Supplementary Planning Document*.
- WYG Environment (2011). *Stockton-on-Tees Landscape Character Assessment*.