

HyNet North West Hydrogen Pipeline

Delivering clean growth



Draft Environmental Statement

Non-Technical Summary

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Glossary

Term	Description
ALC	Agricultural Land Classification
Applicant	Cadent Gas Ltd
ASCV	Area of Special County Value
Associated Development	Development which is associated with the principal development (i.e. the pipeline)
AQMA	Air Quality Management Area
Best and Most Versatile (BMV)	The term BMV refers to the Best and Most Versatile agricultural land value from a soils and agriculture perspective.
Block Valve Installations (BVI)	These sites are separate facilities to the HAGIs and are required to control the flow and pressure of hydrogen at key points along the proposed pipeline.
Blue hydrogen	Hydrogen produced from natural gas and supported by carbon capture and storage. The CO ₂ generated during the manufacturing process is captured and stored permanently underground. The result is low-carbon hydrogen that produces no CO ₂ .
Carbon dioxide equivalent (CO₂e)	Carbon dioxide equivalent (CO ₂ e) is a term for describing different GHGs in a common unit. For any quantity and type of GHG, CO ₂ e represents the amount of CO ₂ which would have the equivalent global warming impact.
CCS	Carbon Capture and Storage
Construction Environmental Management Plan (CEMP)	Sets out how the construction process will avoid, minimise or mitigate effects on the environment and surrounding area.
CO₂	Carbon dioxide
DCO	Development Consent Order
EIA	Environmental Impact Assessment
EIA Regulations	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended)

Term	Description
Environmental Statement (ES)	A document produced in accordance with the EIA Regulations in which the process and results of an EIA are documented
GHG	Greenhouse gas
HAGI	Hydrogen Above Ground Installation
HGV	Heavy Goods Vehicle
HPP	Hydrogen Production Plant
HSE	Health and Safety Executive
HSF	Hydrogen Storage Facility
ICCI	In-combination Climate Change Impact
LEMP	Landscape and Ecology Management Plan
LVIA	Landscape and Visual Impact Assessment
NCN	National Cycle Network
NSIP	Nationally Significant Infrastructure Project
NTS	Non-Technical Summary
PEIR	Preliminary Environmental Information Report
(the) Project	HyNet North West Hydrogen Pipeline Project
PRoW	Public Rights of Way
Ramsar	Ramsar sites are designated under the International Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention)
Site of Special Scientific Interest (SSSI)	Sites designated at the national level under the Wildlife & Countryside Act 1981 (as amended) to protect the best examples of significant natural habitats and populations of species.
SNCB	Statutory Nature Conservation Body
Special Protection Area (SPA)	Sites designated to protect habitats of migratory birds and certain threatened birds under the Birds Directive
SPZ	Source Protection Zone

Term	Description
Stage One Consultation	Non-statutory consultation carried out by Cadent on the emerging plans and preferred route corridors for the Project
Stage Two Consultation	Statutory consultation on the proposed application carried out in accordance with the requirements of the Planning Act
WFD	Water Framework Directive

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1. Introduction

1.1 Overview

- 1.1.1 This document is a Non-Technical Summary (NTS) of the more detailed Draft Environmental Statement (ES), which is the written output of the Environmental Impact Assessment (EIA) undertaken to date for the HyNet North West Hydrogen Pipeline Project (hereafter referred to as ‘the Project’). The Draft ES builds on the Preliminary Environmental Information Report (PEIR) relating to the Project, which was published in September 2022.
- 1.1.2 The Project is proposed by Cadent Gas Ltd (the Applicant) (known as Cadent onwards) to construct and operate the UK’s first 100 percent hydrogen pipeline network at scale. It will deliver hydrogen – a low carbon energy source – to multiple industrial users and power generators, plus potential blending points to accommodate the use of a mix of hydrogen and natural gas into the existing gas network. The Project is part of the wider ‘HyNet North West’ programme that will produce, store and distribute hydrogen as well as capture and store carbon from industry in the North West of England and North Wales. This concept has the potential to reduce carbon dioxide emissions by millions of tonnes every year from 2030 (when the Project is expected to become operational) the equivalent of taking millions of cars off the road. By enabling a fuel transition to hydrogen, HyNet North West will create and maintain thousands of local jobs, enabling long-term sustainability for businesses and supporting financial security for communities across the region.
- 1.1.3 The Project includes the construction, operation and maintenance of approximately 100km of new pipeline to distribute hydrogen to industry and for blending with the gas network in the North West, and a number of Hydrogen Above Ground Installations (HAGIs) including Block Valve Installations (BVIs) required to control the flow and pressure of hydrogen at key points along the proposed pipeline. **Table 1.1** provides a summary of the contents of this NTS.

Table 1.1 What’s included in the NTS

Chapter	What is it about?
1. Introduction	This section provides a brief introduction to the Project, the Applicant, and the process of obtaining consent.
2. Pipeline route selection and alternatives	This section provides an overview of the work undertaken to select a route for the Pipeline and alternatives considered for some aspects of the project infrastructure.
3. What is being proposed?	This section provides a description of the Project and location.

Chapter	What is it about?
4. Approach to the Draft Environmental Statement	This section provides an overview of the approach taken in preparing the Draft ES.
5. Environmental assessment findings	This section provides a summary of the environmental impact assessment findings for each environmental topic scoped into the assessment.
6. Looking forward	This section outlines the next stages of the environmental assessment process.

1.2 The Project

1.2.1 The proposed key components of the Project are summarised in **Table 1.2** below and described in further detail in **Section 3**.

Table 1.2 Key Project components

Pipeline Corridor	Key components
West Corridor	- Hydrogen pipeline from Stanlow Hydrogen Production Plant (HPP) to Central Hub Hydrogen HAGI, incorporating Rocksavage HAGI. - Pipeline spur to customers at Interger, Rocksavage, and Runcorn HAGI.
North Corridor	- Hydrogen pipeline from Central Hub HAGI to St Helens, incorporating HAGIs at Higher Walton and Clock Face. - Pipeline spurs to customers at Ingevity, Warrington; Novelis, Warrington; NGF Europe Ltd., Clock Face; NSG Pilkington Greengate Works, St Helens; and Glass Futures, St Helens.
East Corridor	- Hydrogen pipeline from Central Hub HAGI to Partington HAGI, incorporating a HAGI at Warburton and BVI near Sworton Heath. - Pipeline spurs to Cadent AGI, Warburton; and customers at Partington Cadent AGI; and Basell Polyolefins. Work is ongoing with other potential customers in Partington who would construct their own pipelines to the HAGI.

Pipeline Corridor	Key components
South Corridor	- Hydrogen pipeline from Central Hub HAGI to Hydrogen Storage Facility (HSF) at salt caverns located north of Middlewich. - Incorporating a HAGI at the HSF and a BVI near the A556 (Chester Road).

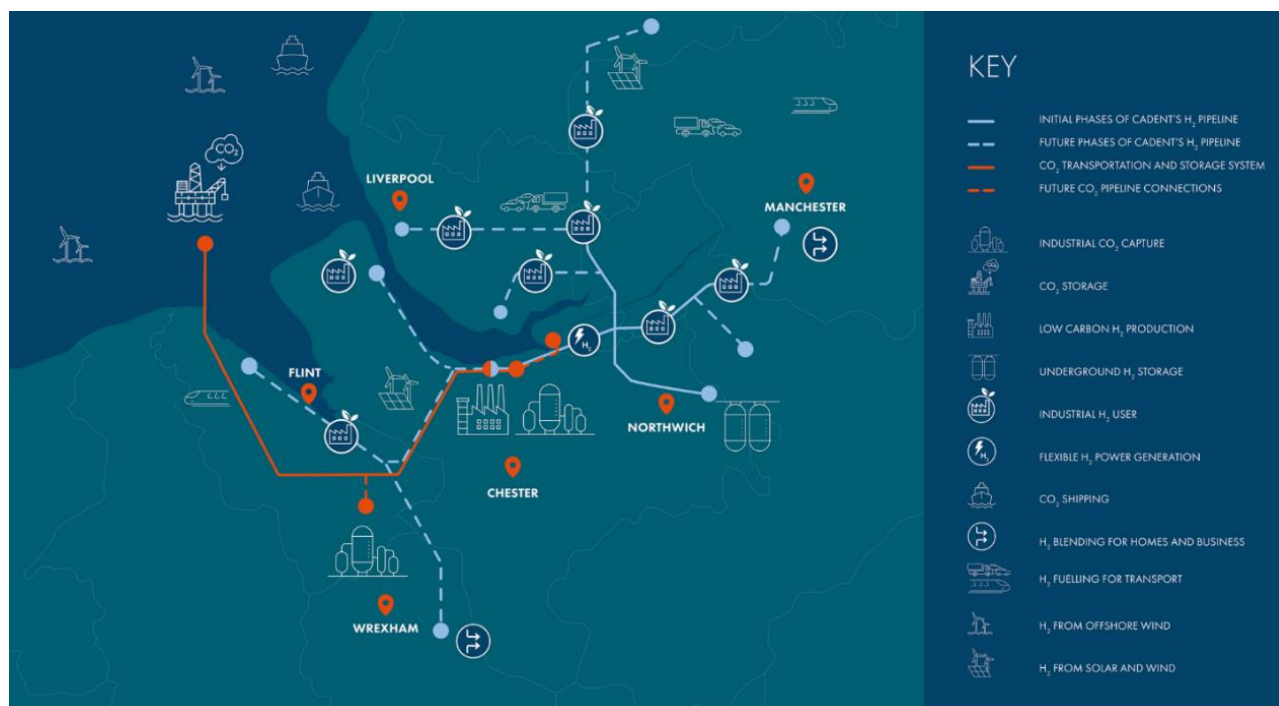
1.3 Who is Cadent?

- 1.3.1 Cadent owns, operates and maintains the gas distribution network serving 11 million homes and businesses throughout the North West, West Midlands, East Midlands, South Yorkshire, East of England and North London. Cadent does not produce gas and does not own the gas that flows through its pipes. It is solely responsible for its transportation and distribution.

1.4 Why is the Project Needed?

- 1.4.1 The UK Government has set legally binding net-zero carbon dioxide (CO₂) emissions targets in response to the global climate emergency. This means that by 2050, any CO₂ emissions to the atmosphere must be offset by equivalent emissions removal.
- 1.4.2 Hydrogen is a low-carbon energy source, and the 'HyNet North West' programme will produce, store and distribute hydrogen as well as capture and store carbon from industry in the North West of England and North Wales. The HyNet North West programme will enable a fuel transition to hydrogen, with the potential to reduce carbon dioxide emissions by millions of tonnes every year from 2030. The elements of the wider HyNet North West programme include:
- Production of 'blue' hydrogen by Vertex Hydrogen at the Hydrogen Production Plant (HPP) (located at Stanlow);
 - Development of Carbon Capture and Storage (CCS) infrastructure for capture, transport and storage of carbon dioxide from the HPP by Liverpool Bay CCS Ltd;
 - Development of a HSF by Inovyn at underground storage caverns in Cheshire to allow for fluctuations in demand.
- 1.4.3 It should be noted that other sources of hydrogen are currently being considered.
- 1.4.4 **Figure NTS 1.1** illustrates the pipeline element of the Project in the context of the wider HyNet North West programme.

Figure NTS 1.1 Illustration of the wider HyNet North West programme (Source: About HyNet - HyNet North West)



Note: the figure above is an illustrative representation of the wider HyNet North West programme only.

- 1.4.5 The Project is an integral part of the wider HyNet North West programme and the associated removal of carbon emissions. The Project proposes the construction and operation of the UK's first 100 percent hydrogen pipeline network at scale with up to 100km of new pipeline, delivering hydrogen to industrial users and power generators, and also to blending points so that hydrogen can be introduced into the existing gas network.

1.5 The Consenting Process

- 1.5.1 Cadent is a gas transporter for the purposes of the Planning Act 2008. The Applicant intends to submit an application for a Development Consent Order (DCO) granting development consent for the Project pursuant to the Planning Act 2008; this application will include the pipeline spurs as associated development. The application will comprise details of all development proposals and will be accompanied by an Environmental Statement (ES) conforming to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) ('the EIA Regulations').
- 1.5.2 Before applying for a DCO, an applicant must consult interested parties on its preliminary assessment of likely environmental impacts (the PEIR) to allow an informed view to be made of the Project's likely significant effects identified to date, to support consultation. As such, a PEIR was submitted in September 2022.

- 1.5.3 Following publication of the PEIR and the Stage 2 Statutory Consultation, which ran from 12 September to 10 November 2022, the design has evolved further to account for consultation feedback and further environmental/engineering work. A Draft ES has now been prepared and presents the potential environmental effects arising from the Project as currently defined, to inform a second round of Statutory Consultation to be undertaken in Autumn 2024. A Final ES will be provided as part of the DCO application submission.

2. Pipeline Route Selection and Alternatives

2.1 Introduction

- 2.1.1 Cadent considered a number of alternatives to the design of the Project, including the route of the pipeline and the location of above ground infrastructure.
- 2.1.2 A summary of the alternatives considered to date and the reasons for the selections made are set out below. Further information on the alternatives considered can be found in **Chapter 2: The Project** of the Draft ES.

2.2 Pipeline Route Options

- 2.2.1 The end points of the pipeline routes, including the HPP at the Stanlow Refinery, the HSF, Carrington Power Station, the blending points and industrial operations in St Helens are fixed and therefore potential route options between these locations were developed.
- 2.2.2 Consideration was given to the likely length of the pipeline, potential for major crossings, proximity to settlements, planning policy and environmental constraints when developing route options.
- 2.2.3 Four Strategic Options were initially identified. Strategic Option A was selected because it avoided crossing the Mersey Estuary, which is designated on an international basis for nature conservation and avoided the need for a further hub.
- 2.2.4 Route corridors were then identified within Strategic Option A, including two options in the West Corridor and two in the South Corridor. Options for route corridors were also identified for the Runcorn/Rocksavage Spur and the Northwich Spur.
- 2.2.5 Subsequently, the Project has had regard to the consultation responses from the first Statutory Consultation period in 2022 and further landowner, environmental and engineering data generated following the publication of the PEIR. This process has resulted in the draft route alignment, as defined in **Chapter 3** of this NTS and assessed within the Draft ES. The Northwich Spur is no longer part of the Project.
- 2.2.6 Further details on how the design has evolved are provided in **Appendix 2B: Design evolution** of the Draft ES, and the **Design Evolution Report 2024**.

2.3 Hydrogen Above Ground Installations (HAGI)

- 2.3.1 Search areas for HAGIs were identified within the preferred route corridors. The locations were influenced by where the connections are required and sought to avoid important environmental designations and constraints where possible. A number of options were considered within the HAGI search areas. The preferred options selected, took account of specific environmental factors and feedback received during the Stage One Consultation.
- 2.3.2 At PEIR stage, the location of the HAGIs at Rocksavage, Higher Walton and the Central Hub were yet to be finalised with location options described within the PEIR.
- 2.3.3 Having regard to the consultation responses from the Stage Two Statutory Consultation period in 2022 and further information generated following the publication of the PEIR, there has been some refining of HAGI locations, although some optionality is still being considered within the Draft ES, as described in **Chapter 3** of this NTS.

2.4 Block Valve Installations (BVI)

- 2.4.1 Options for the location of BVIs have also been considered. Within the PEIR, three location options were considered for the East Corridor and five in the South Corridor. These have now been refined to a single preferred location for each of the BVIs, as detailed in **Chapter 3** of this NTS.

2.5 Refining the Project Design

- 2.5.1 Where optionality is retained in the Draft ES, feedback received during the Stage Three Statutory Consultation, along with the results of the environmental assessment and ongoing engineering design work, will help to influence which of the remaining design options will be selected to include in the final DCO application.

3. What is Being Proposed?

3.1 Key Components of the Project

3.1.1 The key components of the Project include:

- Construction, operation and eventual decommissioning of up to 100km of new pipelines to distribute hydrogen to industry and power stations and support opportunities for blending with the existing natural gas network in the North West (if approved by Government);
- Four main pipeline corridors connected at a Central Hub;
- Nine HAGIs and two BVIs along the pipeline to control the flow and pressure of hydrogen at key points along the proposed pipeline; and
- Smaller pipelines, known as spurs, branching off the main HAGIs to connect identified customers for the hydrogen.

3.1.2 The key components of the Project are shown in **Figure NTS3.1** and are summarised in the following sections.

3.1.3 At this stage, some flexibility remains in relation to the route of the pipeline in the corridors, and the location of some of the HAGIs. Further work will be carried out to review these options as part of the ongoing design, assessment and consultation process. The final design will be presented in the DCO application and assessed in the accompanying ES.

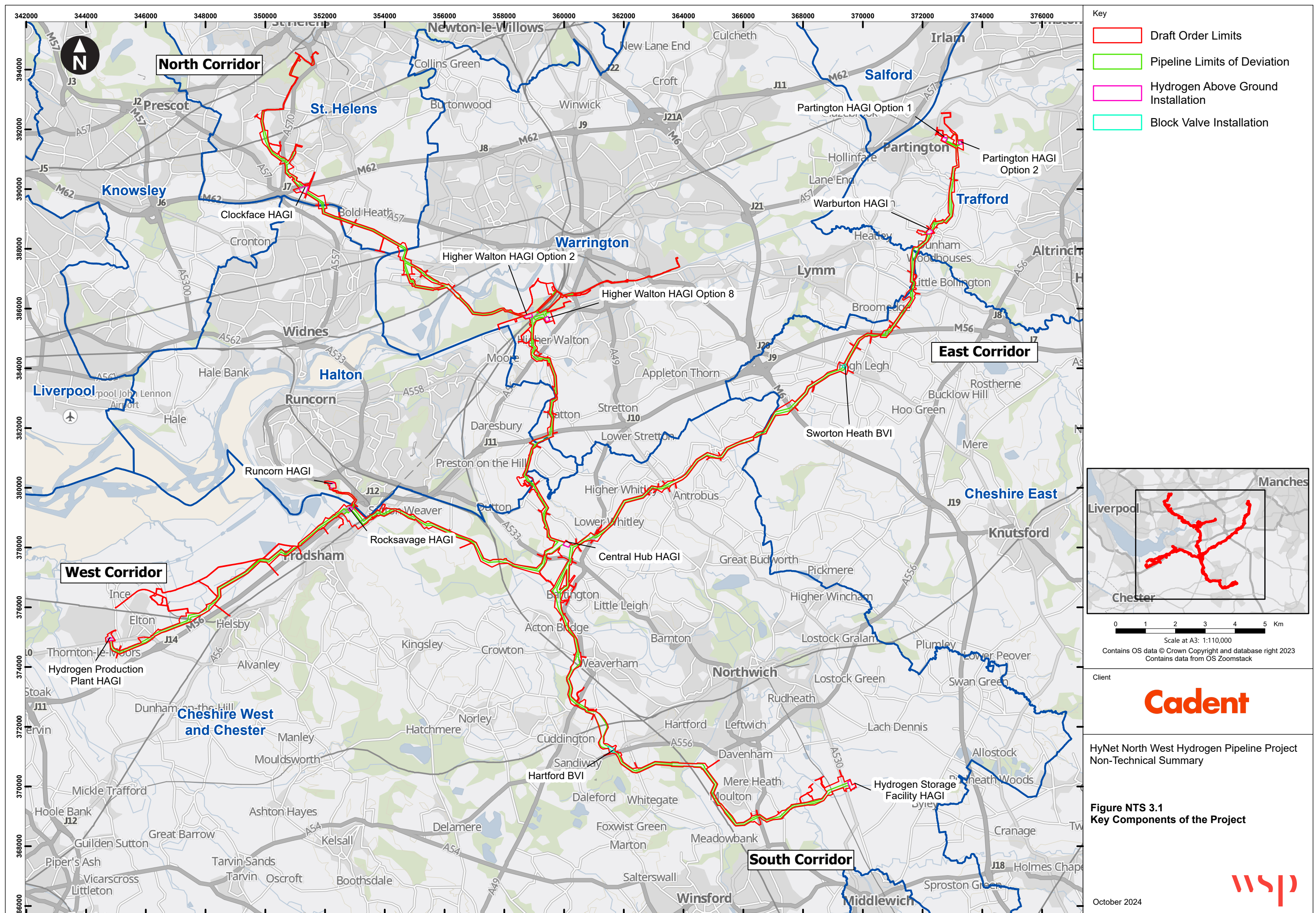
Pipeline Corridors

3.1.4 The Project has four Pipeline Corridors (West, North, East and South) each connecting to the Central Hub HAGI. The four corridors are illustrated in **Figure NTS3.1**.

3.1.5 The pipeline would be buried along the entire route apart from short sections within secure compounds at locations where HAGIs and BVIs are required.

3.1.6 The pipes that make up the network would vary in diameter between approximately 8" and 42" dependent on which corridor or spur they are on. The pressure of the pipeline is independent of its size. The Project will include carbon steel and polyethylene pipelines.

3.1.7 The majority of the pipeline would be placed in open cut trenches, but at key locations such as major roads and rivers, the pipeline would be installed using trenchless techniques. The construction techniques are described further in **Section 3.2**.



West Corridor

- 3.1.8 The West Corridor would start at the HPP HAGI at Stanlow and run approximately 9.7km northeast to the Rocksavage HAGI and then approximately 9.7km southeast to the Central Hub HAGI.
- 3.1.9 The West Corridor is typically characterised by open fields with hedgerows and tree lines separating them. The pipeline would be between approximately 1.5km and 2km from the Mersey Estuary Special Protection Area (SPA) and Ramsar site at the nearest point.
- 3.1.10 The pipeline would be High Pressure (up to 85 bar) and the diameter is anticipated to be 42". It is anticipated that eleven or twelve trenchless crossings would be required in the West Corridor, depending on the final options chosen.

North Corridor

- 3.1.11 The North Corridor would start at the Central Hub HAGI and run approximately 9.2km north to the Higher Walton HAGI and then approximately 9.7km northwest to the Clock Face HAGI.
- 3.1.12 The North Corridor is typically characterised by open fields with hedgerows and tree lines separating them before Sutton Heath where the route is more typically adjacent to residential areas and proceeds to the more industrial setting around Ravenhead.
- 3.1.13 The pipeline would be High Pressure from the Central Hub HAGI to the Higher Walton HAGI (two locations currently being considered north and south of the Manchester Ship Canal) and Clock Face HAGI. The pipeline would then be an Intermediate Pressure pipeline from the Clock Face HAGI to the customers in St Helens. The pipeline would be High Pressure and the diameter is expected to be between 10" and 18". It is anticipated that nine trenchless crossings would be required in the North Corridor.
- 3.1.14 There are two pipeline route options at Fiddler's Ferry.

East Corridor

- 3.1.15 The East Corridor would start at the Central Hub HAGI with the pipeline running approximately 18km northeast to the Warburton HAGI. The pipeline would then continue northeast for approximately 3.8km to the Partington HAGI. There are two options for the location of the Partington HAGI, east and west of Sinderland Road.
- 3.1.16 The East Corridor is typically characterised by open fields with hedgerows and tree lines separating them.
- 3.1.17 The pipeline diameter is expected to be 30" and High Pressure. The East Corridor is expected to include eight trenchless crossings.

South Corridor

- 3.1.18 The South Corridor would start at the Central Hub HAGI with the pipeline running approximately 17.9km south to an HSF. The HSF and associated infrastructure are subject to a separate consent application by Inovyn. It has previously received consent for natural gas storage.
- 3.1.19 The South Corridor is typically characterised by open fields with hedgerows and tree lines separating them, with more built-up areas located to the east (Weaverham, Northwich) and south (Winsford).
- 3.1.20 The pipeline is expected to be High Pressure and 42" in diameter. The South Corridor is anticipated to include thirteen trenchless crossings.
- 3.1.21 Two route options are being considered where the corridor crosses the Trent and Mersey Canal near Bartington.

Spurs

- 3.1.22 Spurs are smaller pipelines branching off the four pipeline corridors providing connections from the pipeline network to customers. The proposed spurs are described below.

Runcorn/Rocksavage Spur

The Runcorn/Rocksavage spur would start at the Rocksavage HAGI and run north to the Runcorn HAGI. From the Runcorn HAGI it would connect to Intergeren (Rocksavage).

- 3.1.23 The Runcorn/Rocksavage Spur would also facilitate a connection to Inovyn, Runcorn for which the pipeline connection would be provided by the customer.
- 3.1.24 The Rocksavage HAGI to Runcorn HAGI spur would include 1.3km of 24" diameter pipeline and one trenchless crossing. There would be an approximately 0.4km 24" High Pressure spurline from Runcorn HAGI to Intergeren (Rocksavage), with no major crossings required.

Warrington Spurs

- 3.1.25 The Warrington spurs would be approximately 6km in length and include two trenchless crossings. They would start at the Higher Walton HAGI and run northeast. A High Pressure 8" spurline would provide a connection to Ingevity, Warrington.
- 3.1.26 A second spurline of 10" diameter Medium Pressure (between 75 mbar and 2 bar) pipeline would run towards the railway with two options, prior to connecting to Novelis, Warrington.

Clock Face Spur

- 3.1.27 The Clock Face spur would start at the Clock Face HAGI and run approximately 4.8km northeast to connect to NGF Europe Ltd.
- 3.1.28 This Medium Pressure spur would be 8" diameter. There would be one trenchless crossing.

St Helens Spurs

- 3.1.29 The St Helens spurs would start at the Clock Face HAGI and connect to the following customers:
- Pilkington UK's Greengate Works; and
 - Glass Futures.
- 3.1.30 The spurline to Pilkington UK's Greengate Works would run approximately 0.25km along Burtonhead Road. The Intermediate Pressure spur would be 8" diameter.
- 3.1.31 The Intermediate Pressure Glass Futures 8" diameter spur would run along Burtonhead Road with Ravenhead Nature Park to the southwest then turn north and cross the A570 (St Helen's Linkway) into the Glass Futures site to the north of Sherdley Road Industrial Estate. This would be approximately 0.85km of spur.

Warburton Spur

- 3.1.32 The Warburton spur would start at the Warburton HAGI and run approximately 0.2km west to connect to the existing Cadent AGI to facilitate Hydrogen Injection Blending (HIB) of the hydrogen supply into the wider gas supply (if blending is approved by Government).
- 3.1.33 This spur is expected to be 8" diameter. No trenchless crossings are anticipated.

Partington Spurs

- 3.1.34 The Partington spurs would start at the Partington HAGI and would connect to the following customers:
- Partington Cadent AGI; and
 - Basell Polyolefins.
- 3.1.35 The Partington Spur would also facilitate a connection to ESB Power, for which the pipeline connection would be provided by the customer.
- 3.1.36 The High Pressure spur would run northwest to the existing Cadent AGI at Partington and is expected to be approximately 0.3km and up to 8" diameter pipeline. This would facilitate HIB of the hydrogen supply into the wider gas supply.
- 3.1.37 The High Pressure spur to Basell Polyolefins would run north for approximately 0.4km and is expected to be up to 8" diameter.

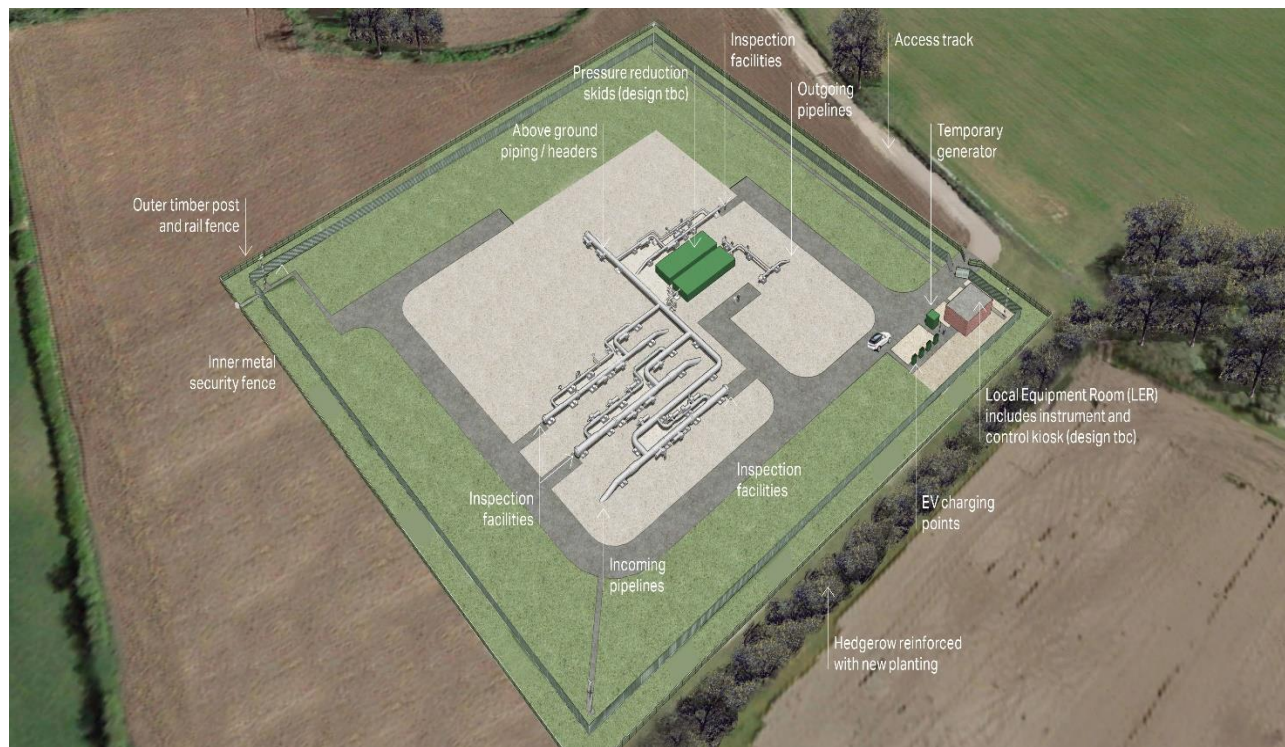
HAGIs

- 3.1.38 HAGIs would be located at certain points along the pipeline route. HAGIs are required to:
- Provide connections to the network producers, customers and storage; and
 - To be able to monitor, operate and maintain and inspect the network during operation.

- 3.1.39 HAGI sites would include a range of permanent above ground components. This infrastructure would typically be approximately up to 3m in height, subject to final design. Other features include security fencing (typically 2.4 – 3.6m in height), general telecommunications equipment, lighting (3-5m in height), parking and access tracks off the highway. The HAGIs will require connection to the local electrical distribution and telecommunication systems. Alternative sources of power including use of renewables are currently under consideration, including hydrogen generators. The HAGI sites would range in area from 0.5 – 1.5 hectares.
- 3.1.40 A photo of an example above ground installation as part of the existing gas network is shown in **Figure NTS 3.2** with typical above ground components shown in **Figure NTS 3.3**.

Figure NTS 3.2 Photo of existing Above Ground Installation that is indicative of a HAGI



Figure NTS 3.3 Indicative visualisation of equipment at a HAGI

3.1.41 Nine HAGIs are proposed within the Corridors, and some of these retain flexibility of their final location:

- HPP HAGI¹;
- Rocksavage HAGI;
- Runcorn HAGI;
- Central Hub HAGI;
- Higher Walton HAGI (two options);
- Clock Face HAGI;
- Warburton HAGI;
- Partington HAGI (two options); and
- HSF HAGI.

3.1.42 The proposed location of these HAGIs is shown on **Figure NTS 3.1**.

3.1.43 A description of the infrastructure included in the HAGI sites is provided below.

Pressure Reduction Units

3.1.44 Pressure Reduction Units consist of above ground components including pipework and would control the flow or pressure into the network.

¹ Note that the HPP itself does not form part of this DCO Project (a separate permission has been received by another applicant/developer).

- 3.1.45 The above ground pipework, metering and facilities would vary in diameter with the maximum piping sizes approximately the same diameter as the adjacent buried pipeline, but many of the associated pipes would be much smaller.

Metering facilities

- 3.1.46 Metering facilities consist of above ground pipework and components. They are would be required to take volume measurements of the hydrogen gas flow. Metering facilities would only be required at the HPP and HSF HAGIs.
- 3.1.47 The metering facilities would be installed on a 15m length of pipeline above ground, measuring approximately 4m in width and up to 2.5m in height.

Inspection facilities

- 3.1.48 Inspection facilities support the future inspection of the pipeline network and work by passing an In-line Inspection Tool through the pipeline. The inspection facilities include above ground pipework and operating equipment including valves.

Instrumentation and Control Kiosks

- 3.1.49 Instrumentation and Control Kiosks would house the equipment that monitors the pipeline performance including the flow, pressure and temperature. These kiosks would be approximately 2.4m in height.

Block Valve Installations (BVIs)

- 3.1.50 BVIs are separate facilities to the HAGIs and would be located in a compound less than 0.5ha in size, with fencing approximately 2.4m high, an access track, facilities for turning vehicles. and an access gate. Access would be required for maintenance vehicles. The main valve would be located in-line with the buried pipeline and some ancillary valves and pipework will be above ground. The valve actuator would be approximately 1.5m above ground. The sites would also have an Instrumentation and Control Kiosk (see description above).
- 3.1.51 Two BVIs are required as part of the Project; the Sworton Heath BVI would be located on the East Corridor and the Hartford BVI would be located on the South Corridor.

Cathodic Protection

- 3.1.52 A Cathodic Protection system would be required as part of the pipeline system. This protects the pipeline from corrosion by imposing a small electrical current, which stops the process of corrosion. Equipment to produce and control this electrical current would be placed at strategic locations around the network. These would typically be included at the HAGI sites but they could also be installed on the street within a typical telecommunications cabinet.
- 3.1.53 Cathodic Protection monitoring points would be installed at regular intervals along the pipeline (approximately every 1 - 2km). These are housed within Marker Posts typically at selected road or footpath crossings and do not require any other above ground infrastructure such as a compound or kiosk.

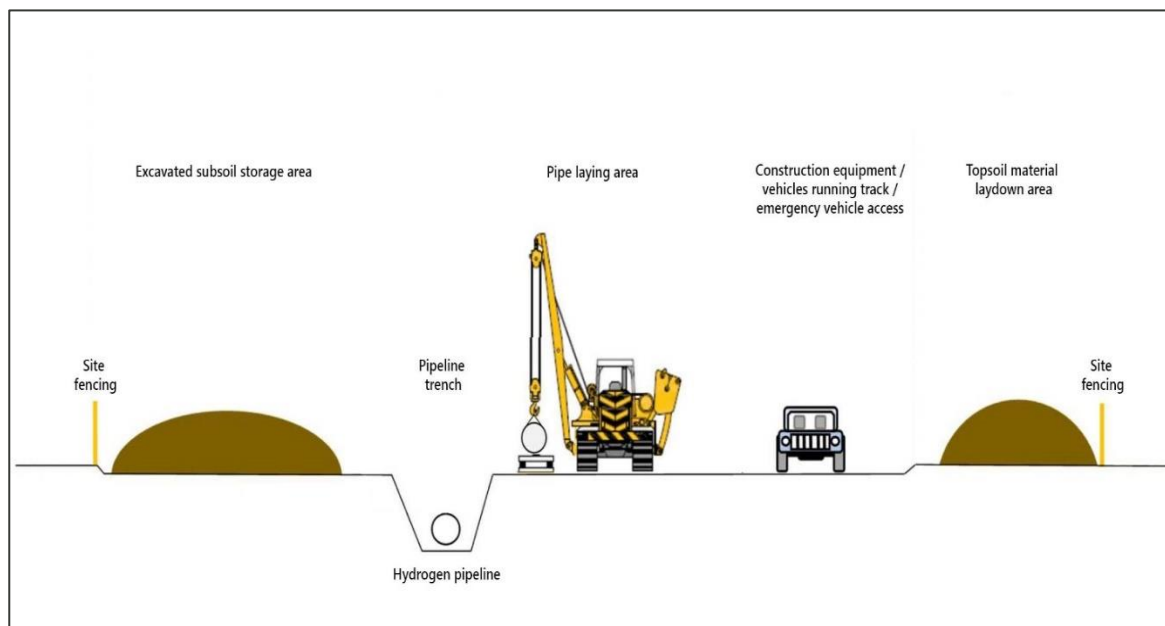
Marker Posts

- 3.1.54 Marker Posts would be required at crossings and field boundaries. These are small posts typically made of plastic and approximately 1m high. Aerial markers would also be required to assist in ease of route identification during aerial surveys of the pipeline. These are typically made of plastic and approximately 2m high.

3.2 Construction

- 3.2.1 This section provides an overview of the construction process for the Project.
- 3.2.2 Site preparation works would include the installation of site fencing, Public Rights of Way crossing points, access track creation, site clearance and minor earthworks.
- 3.2.3 The pipeline would predominantly be constructed using an open cut installation technique which involves the excavation of a trench and the installation of the pipeline in the trench. Some trenchless construction would be required where the pipeline crosses key features, such as rivers and major roads. The key parts to the installation include trench excavation, de-watering (if required), testing and commissioning.
- 3.2.4 The working width of construction along the pipeline will vary along the route depending on the constraints, the diameter of the pipeline being installed and the method of installation. **Figure NTS 3.4** presents a cross-section of a typical layout of working width for pipe laying.

Figure NTS 3.4 Typical layout of working width for pipe laying



- 3.2.5 Following the installation of the pipeline, the working area would be reinstated by re-establishing previous land uses where possible, landscaping and drainage works.

Crossing techniques

- 3.2.6 At certain points along the pipeline route, crossings of features such as roads and rivers are likely to be required.
- 3.2.7 Some of these features such as minor roads, tracks, streams and ditches are likely to be crossings using the open cut installation method described above.
- 3.2.8 Other features, such as major roads, rivers or railways are likely to require trenchless crossings. A number of different trenchless crossing techniques may be used, including Horizontal Directional Drilling, auger boring, micro-tunnelling and direct pipe. Trenchless techniques install the pipeline beneath the barrier (e.g. major road or river) without disturbing the surface. The choice of technique adopted would be determined with consideration of third-party needs, ground conditions and the length/depth of the crossing.

Above Ground Infrastructure

- 3.2.9 The construction of a HAGI are likely to require similar site preparation works and earthworks as described above in relation to the pipeline. Mechanical equipment, pipelines, electrics, Instrumental and Control Kiosks, Pressure Reduction Units, metering facilities and inspection facilities would then be installed. Construction of BVIs would follow a similar procedure.

Temporary Construction Compounds

- 3.2.10 Temporary construction compounds would be established to support the construction of the pipeline, HAGIs and BVIs. The construction site for a HAGI would typically include the necessary temporary construction compound to be co-located for maximum convenience.
- 3.2.11 The temporary construction compounds would typically include:
- Secure fencing;
 - Hard surfacing and drainage;
 - Temporary connections to utilities;
 - Welfare facilities;
 - Site offices to safely administer the works
 - Vehicle/plant storage and associated fuels;
 - Storage for pipes in stacks, equipment and materials; and
 - Lighting.
- 3.2.12 Smaller temporary compounds would also be established at BVI locations to enable construction of these installations. Once the pipeline has been constructed and reinstated, the temporary construction compounds would be removed and land reinstated to its former condition.

3.3 Operation and Maintenance

- 3.3.1 The HAGIs would generally be monitored and operated remotely from an Energy Control Centre located off-site. The HAGIs would be operational 24 hours a day. Periodic maintenance of the HAGIs would take place during the life-time of the pipeline network and would typically include the following:
- Planned periods of maintenance every 6 months;
 - Pipeline inspection operations every 1 to 5 years. Inspection operations involve an internal examination of the pipe undertaken by an inline inspection tool, which travels inside the pipeline from one HAGI to the next; and
 - Infrequent breakdown or urgent visits with access on a 24/7 basis if required.
- 3.3.2 The pipeline would be subject to aerial surveys by helicopter, drone and/or vantage surveys so access onto private land is not normally required. Aerial surveys are typically undertaken every two weeks, but their frequency will be determined during further design development and engagement with the Health and Safety Executive. Access to private land along the pipeline may be required infrequently (every 2-7 years) for closer inspection of the pipeline and for maintenance.

3.4 Decommissioning

- 3.4.1 The design life of the project infrastructure is 40 years, but the actual life of the Pipeline could extend well over 40 years, depending on its ongoing condition that we monitor, as over time parts are likely to be maintained or upgraded.
- 3.4.2 Once the use of the pipelines ceases, it would be left in situ and filled in sections to avoid any environmental effects associated with removal. The HAGIs and Block Valves would be removed, with materials being reused or recycled where possible or disposed of in accordance with relevant waste disposal requirements. Land would then be restored to its former use.

3.5 What is the Timeline for the Project?

- 3.5.1 The construction of the Project is expected to start in early 2027 and with the pipeline fully operational in mid-2030.
- 3.5.2 Pipeline construction is generally focused on the spring and summer months (March to September) with the aim to reduce impacts on agricultural land. Based on the current programme, two pipelaying seasons, in 2027 and 2028, are currently expected for the Project. The works for crossings and pipelines in the streets may occur outside the typical pipelaying season and throughout the year. The Applicant will work with consultees e.g., Statutory Nature Conservation Bodies (SNCBs) to determine the timing of sensitive works. It is expected that each pipeline corridor would take 12-18 months to construct.

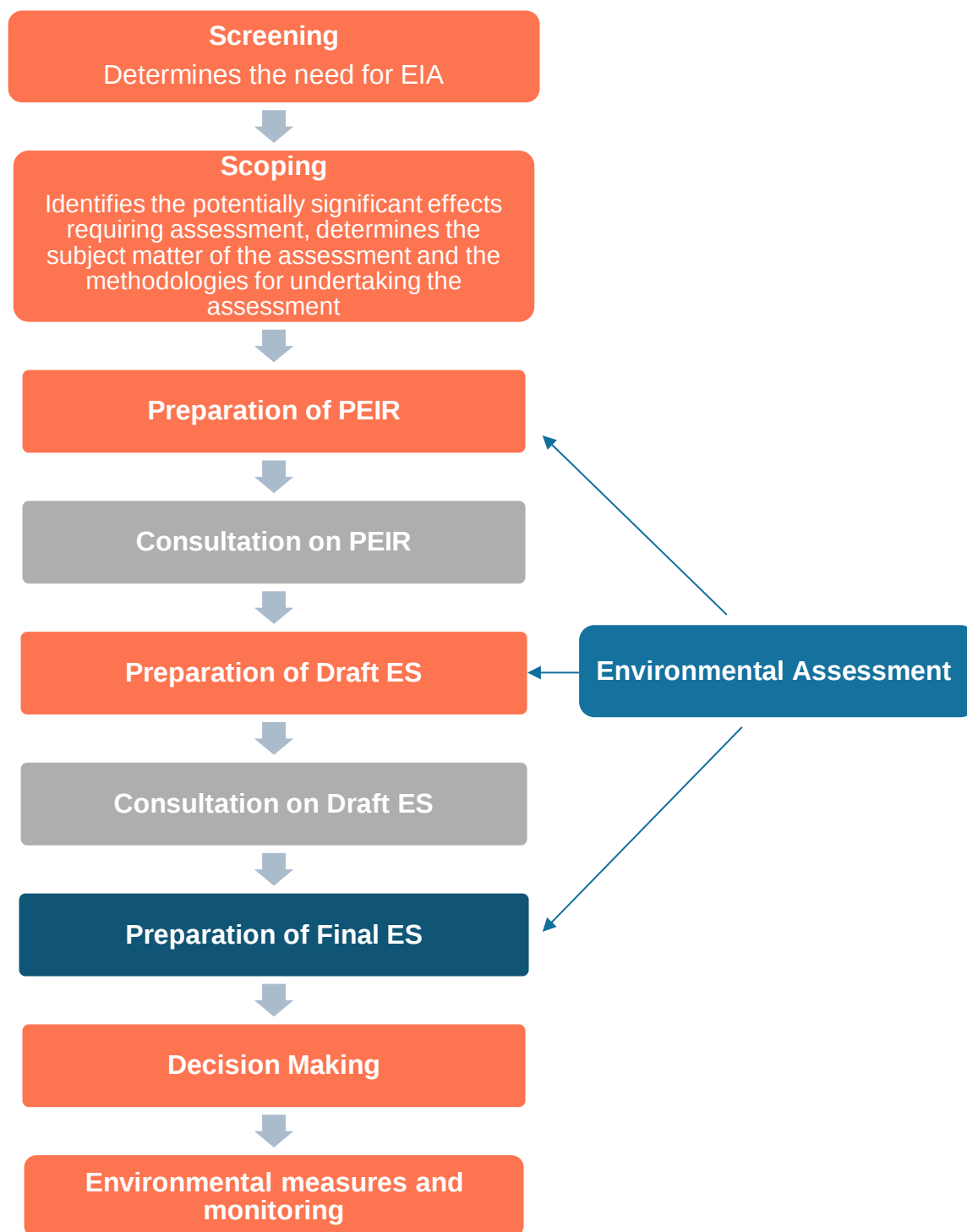
- 3.5.3 The construction of a HAGI would typically take from six to twelve months and may be in progress at any point during the year, subject to any local constraints. The construction of BVIs would typically take up to four months.
- 3.5.4 Standard construction working hours would be 10 hours per day (08:00 to 18:00) from Monday to Saturday, with no works on Sundays or Bank Holidays. There would be the need for continuous (24-hour) working for some activities. Such activities include Tunnelling and Horizontal Directional Drilling, pipe pulling at trenchless crossings, and pipeline testing.
- 3.5.5 A number of the works described above would be expected to occur in parallel, however, the exact phasing of the works has yet to be determined. Further details of the construction programme and phasing will be developed for the ES.
- 3.5.6 The removal of the HAGIs following the end of the Project is anticipated to take the same amount of time as construction (six to twelve months), although this is indicative and may vary.

4. Draft Environmental Statement

4.1 What is the Draft Environmental Statement?

- 4.1.1 Environmental Impact Assessment (EIA) is a process for identifying the likely significant environmental effects (positive and negative) of a project to inform the decision-making process of whether an order granting development consent should be made. The Environmental Statement (ES) reports the findings of the EIA process.
- 4.1.2 The findings presented in the Draft ES reflect the current stage in the design process of the Project and understanding of baseline conditions, allowing for conclusions as to the likely significant effects to be drawn. Where the design is still evolving or further information on baseline conditions is still to be obtained, a precautionary approach is applied to ensure that a likely worst-case (based on current knowledge) is assessed in the Draft ES.
- 4.1.3 The purpose of the Draft ES is to inform the consultation with the public and other stakeholders before finalisation of the DCO application. The Draft ES presents a level of assessment appropriate to enable consultees to develop an informed view of likely significant environmental effects of the Project and help inform their consultation responses, during the statutory consultations completed as part of the pre-application stage. This then enables both the design of the Project and the EIA to take into consideration comments received through consultation.
- 4.1.4 The Final ES will then provide a full assessment of the likely significant effects associated with the Project during its construction, operation and decommissioning phases, presenting the full findings of the EIA process. The Final ES accompanies the DCO application.
- 4.1.5 The EIA process and where the Draft ES fits into this process, is summarised in **Figure NTS 4.1**.

Figure NTS 4.1 The EIA process



4.2 Scoping and Engagement

- 4.2.1 The scoping of the EIA is intended to inform a proportionate and robust approach to assessment through initial evaluation and reporting of identified likely significant effects in a Scoping Report.

Early engagement

- 4.2.2 The Scoping Report for the Project was submitted on 26 January 2022 to the Planning Inspectorate who administer the EIA process on behalf of the Secretary of State. The Scoping Report contains conclusions made on whether an effect should be considered significant and requires assessment. A Scoping Opinion was subsequently adopted on 08 March 2022, which included statutory consultee responses, to inform the assessment work and further design evolution undertaken to date.

Informal consultation and engagement

- 4.2.3 The Applicant has held informal engagement with the key prescribed consultees, as appropriate, to refine the Project and the EIA, and to assist in the development of any required mitigation. Such engagement will continue up to submission of the application.

4.3 Embedded Environmental Measures

- 4.3.1 The environmental chapters within the Draft ES include a description of the “*measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment*”, in accordance with the EIA Regulations. For each environmental topic, the EIA process will identify impacts and effects, taking into consideration environmental measures that the Project will adopt.
- 4.3.2 These environmental measures include avoidance, best practice and design commitments, which are classified into primary or tertiary measures. Embedded environmental measures are primary (inherent) measures, and are modifications to the location, design or operation of the Project made during the pre-application phase that are an inherent part of the Project and do not require additional action to be taken.
- 4.3.3 Opportunities for embedded design measures will be identified through the evolution of the design of the Project and the EIA process. Good practice measures will also be identified. Primary and tertiary measures will both be integrated into the overall design strategy as embedded measures.
- 4.3.4 Following the application of embedded measures, where the potential for a significant environment effect remains, ‘additional measures’ will be considered to avoid, reduce or compensate this effect. Monitoring measures may also be required in relation to any significant negative effects on the environment.

4.4 Reporting EIA Assessment Results

4.4.1 There are two stages of reporting environmental information for a DCO:

- The PEIR, to inform the consultation with the public and other stakeholders of preliminary findings; and
- The ES, to accompany the DCO application.

4.4.2 The EIA process will culminate in the provision of a Final ES, written in accordance with the EIA Regulations, which will accompany the DCO application and help inform the determination of the DCO application for the Project. The Final ES will provide a full assessment of the likely significant effects associated with the construction, operation and decommissioning phases of the HyNet North West Hydrogen Pipeline Project.

5. Draft Environmental Assessment

5.1 Introduction

- 5.1.1 The Draft ES includes a number of environmental topic sections setting out the results of the draft environmental assessment. A summary of these assessments is provided below.

5.2 Biodiversity

How biodiversity effects have been assessed

- 5.2.1 The biodiversity assessment methodology adopted is consistent with the standard industry guidelines and the requirements of planning policy. The results of the draft assessment are based on publicly available information and field surveys. There has also been consultation with ecological consultees such as Natural England and the local Wildlife Trusts, which has fed into the assessment.
- 5.2.2 Ecological features such as designated sites, habitats and species that could be sensitive to the Project have been identified and potential effects on them set out. Habitat surveys of hedgerows, trees, vegetation and watercourses are being carried out. Species surveys are currently being undertaken to understand the presence of bats, great crested newt, otters and water voles, badgers, breeding and winter birds, aquatic ecology and other relevant priority species. The surveys are partially complete and these results are reported in the Draft ES. Surveys will remain ongoing during 2024.
- 5.2.3 Full details of the biodiversity assessment can be found in **Chapter 5: Biodiversity** of the Draft ES.

Baseline environment

- 5.2.4 Land covered by and surrounding the Project includes sites and habitats protected for the importance of their ecology. Some important species have been identified and will be confirmed within the Final ES once the surveys are complete.

Embedded environmental measures

- 5.2.5 A range of embedded environmental measures have been included in the Project to avoid or reduce potential negative effects. These include best practice measures as well as measures specific to certain habitats and species. In addition, the Outline Construction Environmental Management Plan will set out how habitats and species should be protected during construction. The Project will also seek to deliver Biodiversity Net Gain.
- 5.2.6 These measures will be developed as the design of the Project progresses and final survey data is collected.

Likely significant effects

- 5.2.7 The assessment considered effects on ecology due to disturbance and habitat loss, fragmentation and degradation due to the Project.
- 5.2.8 At this stage, negative effects on some ecological features have been identified. There is potential for a significant effect on one non-statutory designated biodiversity site.

Next steps

- 5.2.9 The assessment will be reviewed based on responses received during the statutory consultation and after the ecology surveys have finished. Further environmental measures may be defined depending on the results of the surveys.
- 5.2.10 The Applicant will continue to engage with Natural England and other key stakeholders when finalising the assessment.

5.3 Historic Environment

How historic environment effects have been assessed

- 5.3.1 The assessment of significant effects on the historic environment involved analysing records about buried archaeological remains, historic buildings and historic landscapes. The following methods were used for data collection:
- Archaeological desk study, including remote sensing (aerial photographs and LiDAR);
 - Targeted geophysical survey;
 - Geoarchaeological desk study;
 - Geoarchaeological monitoring of GI works.
- 5.3.2 Site visits were also carried out to examine features identified in the desk study, as well as assets identified as potentially affected by change to their settings. The assessment considered policy requirements and took on board feedback from consultees, such as local authorities and Historic England.
- 5.3.3 The purpose of the analysis was to identify all historic features close to the Project to understand how they could be affected. Full details of the Historic Environment assessment can be found in **Chapter 6** of the Draft ES.

Baseline environment

- 5.3.4 The pipeline route and the areas where other infrastructure such as the HAGIs would be located include areas where there is potential for archaeological remains.
- 5.3.5 There are listed buildings, scheduled monuments, conservation areas and non-designated heritage assets within and close to the Project, which may be affected.

Embedded environmental measures

- 5.3.6 The project design process involved selecting locations for the pipeline and HAGIs to avoid impacts on heritage assets, where possible. A programme of archaeological evaluation (trial trenching) and mitigation is set out within a Draft Outline Written Scheme of Investigation (**Appendix 6G**). This also describes the overarching research aims and approach to evaluation/mitigation and is to be agreed with consultees and submitted as part of the DCO application.

Likely significant effects

- 5.3.7 The assessment considered whether there would be disturbance to heritage assets and change to the settings of heritage assets. Negative effects on some of these features have been predicted during construction and operation due to disturbance of the ground and working within the settings of heritage assets.

Next steps

- 5.3.8 Further geophysical surveys will be undertaken and the draft assessment will be updated in response to feedback received during the statutory consultation, for example from Historic England, and with the updated archaeological survey results.

5.4 Water Environment

How water environment effects have been assessed

- 5.4.1 The water environment assessment is based on a detailed review of publicly available information, including existing watercourses, water quality and water use in the area. The assessment is also supported by a hydromorphology desk-based study and associated site surveys. A standalone Water Framework Directive (WFD) assessment is provided.
- 5.4.2 A Draft ES Flood Risk Assessment (**Appendix 7F**) has been prepared, which assesses the risk of flooding where the Project is located and is supported by an Outline Drainage Strategy and modelling for HAGIs. The assessment is informed by consultation responses and stakeholder engagement, including with the Environment Agency.
- 5.4.3 Full details of the water assessment can be found in **Chapter 7: Water environment** of the Draft ES.

Baseline environment

- 5.4.4 A number of rivers, watercourses and canals are located in the Project area. The key main rivers are the Rivers Weaver, Dane, Bollin and Mersey, plus the Manchester Ship Canal. The WFD river water and other water bodies across the Study Area are presented with 2022 Cycle 3 data and WFD status described.

- 5.4.5 There are also a number of aquifers, groundwater abstractions and protected sources of public drinking water supplies Source Protection Zones (SPZ) within the Study Area. The vulnerability of groundwater within aquifers in the vicinity of the Project are described and areas of shallow groundwater identified.
- 5.4.6 The water environment within the Study Area connects with some nature conservation sites, including the Mersey Estuary (Ramsar and Special Protection area (SPA)) and the Woolston Eyes and Pettypool Brook Valley Site of Special Scientific Interest (SSSIs). The potential hydraulic connection between conservation sites and the Project areas are described.
- 5.4.7 Areas of the Project are located in Flood Zones 1, 2 and 3. However, as the Project is classified as 'Essential Infrastructure', it is compatible with Flood Zone 1 and 2. The Project will be considered compatible with Flood Zone 3a and 3b if it passes the Exception Test, which provides a method of how the Applicant will manage the flood risk at the Project. It must also be demonstrated that the Project will be in a suitable location for its lifetime, in the context of flood risk, and won't increase flood risk elsewhere.

Embedded environmental measures

- 5.4.8 Appropriate measures will be incorporated into the Project to reduce the likelihood of significant effects on the water environment during construction. This includes measures relating to the project design, such as burying infrastructure to avoid flood risk, surface water and silt runoff management, as well as pollution protection. Flood protection and drainage measures will also be incorporated as appropriate.
- 5.4.9 Watercourse crossing areas were identified as areas of potential impacts and are mitigated to minimise impacts on flows, morphology, water quality and aquatic habitat at trenched locations and to manage groundwater risk during Horizontal Directional Drilling.
- 5.4.10 Related best practice construction measures will be included in a number of management plans included in the Final ES, such as the Outline Construction Environmental Management Plan and Outline Drainage Strategy, which will be supported post-submission by Drainage Management Plan, Pollution Prevention Plan, Materials Management Plan, Flood Emergency Response Plan and Watercourse Crossing Plan.
- 5.4.11 During the operational phase, mitigation will be through the periodic inspection and maintenance of flood protection and drainage measures. It is anticipated that measures equivalent to those implemented during construction would also be effective in mitigating effects on the water environment during decommissioning.

Likely significant effects

- 5.4.12 The Draft ES assessment considers the potential effects on watercourses and flood risk. At this stage, negative significant effects have been identified near material storage areas at Acton Bridge and at Eastford Road where material storage area of High Sensitivity at Acton Bridge coincides with Flood Zone 2 and 3 associated with the River Weaver.

- 5.4.13 In the event of a flood, these material storage areas could become inundated. Stored materials, changes in ground level and erection of impermeable fencing may obstruct flow paths and displace flood plain storage, leading to increased flood risk at the site. In addition, stored materials, vehicles and machinery may become mobilised and pose a hazard to site staff and construction equipment.
- 5.4.14 Any displacement of flood plain storage would need to be compensated for on a level by level basis, in line with Environment Agency guidance. Materials, including loose aggregates and excavates, would need to be stored to avoid mobilisation.

Next steps

- 5.4.15 The draft assessment will be updated in response to feedback received during the statutory consultation and ongoing stakeholder engagement, for example with the Environment Agency. Additional measures to mitigate the identified effects at the Acton Bridge and at Eastford Road will also be investigated.

5.5 Landscape and Visual

How landscape and visual effects have been assessed

- 5.5.1 The Draft Landscape and Visual Impact Assessment (LVIA) has been undertaken in accordance with established methodologies and considers an area within 1km of the pipeline corridors, HAGIs and BVIs. Publicly available information has been used in the assessment, together with site survey information and photographs from selected viewpoints.
- 5.5.2 Full details of the LVIA can be found in **Chapter 8** of the Draft ES.
- 5.5.3 In addition to the LVIA, an Arboricultural Impact Assessment (AIA) has been undertaken in accordance with BS5837:2012 to evaluate the specific impacts on trees and woodlands as a result of the Project. The assessment, in **Appendix 8C** of the Draft ES, considers the tree and hedgerow removal and proposed mitigation and reinstatement planting to preserve and enhance the landscape.

Baseline environment

- 5.5.4 There are no national landscape designations such as National Parks or National Landscapes within the LVIA Study Area. There are four local landscape designations in the Study Area. The Weaver Valley Area of Special County Value (ASCV) (separated into two sections, the Lower Weaver and Mid Weaver) and the Helsby and Frodsham ASCV lie within the Cheshire West and Chester Council administrative area. The Bollin Valley Local Landscape Designation (LLD) also coincides with the LVIA Study Area and lies within the Cheshire East administrative area. The relevant National and Local Landscape Character Areas have also been identified as part of the assessment.
- 5.5.5 There are many places within the study area where the Project would be visible including settlements, national and regional cycle routes, footpaths, canals and rivers.

- 5.5.6 The tree survey recorded 1,693 individual trees, 1,059 groups of trees, 49 woodlands and 558 hedges inside or within influencing distance of the Draft Order Limits.

Embedded environmental measures

- 5.5.7 The Outline Construction Environmental Management Plan includes measures to help protect existing vegetation and to minimise effects on the landscape and views. These measures may include visual screening such as tree planting and measures to minimise light disturbance. Outline landscape planting proposals have also been prepared for the HAGIs and BVIs and embedded into the design of the Project. Further details, including those relating to tree reinstatement, can be found in the Outline Landscape and Ecological Management Plan (LEMP).

Likely significant effects

- 5.5.8 The assessment contained within the Draft ES considers the impacts of the Project on the surrounding landscape and views. It concludes that there is the potential for significant negative effects on some Landscape Character Areas during the construction of the Project. A small number of localised significant effects on landscape character may remain during the operation of the Project, where some of the HAGI sites (Runcorn and Rocksavage) result in the long-term loss of trees. However, it is noted that replacement planting will be provided where works have necessitated tree removal and where feasible. For other HAGI and BVI sites where localised significant effects are predicted during the first year of operation (Central Hub, Higher Walton (WHW8), Warburton, Partington (PH2) and Sworton Heath), the proposed planting around the sites would reduce the effects and the Year 15 assessments conclude Not Significant landscape effects.
- 5.5.9 Some settlements may experience significant visual effects during the construction of the Project. Significant negative visual effects of a localised nature may remain in Dunham Woodhouses during the first year of operation. The assessment of the longer-term effects in Year 15 of operation concludes that the significant effects will reduce as a result of the screening provided by the planting proposed around the Warburton HAGI.
- 5.5.10 The users of some canals and rivers may experience significant negative visual effects during the construction of the Project, but the effect would only remain significant during the first year of operation for users of the Manchester Ship Canal and Weaver Navigation. Longer-term effects would not be significant due to the screening provided by proposed planting.

Next steps

- 5.5.11 The draft assessment is based on information obtained to date. It will be updated in response to comments received during Stage 3 Statutory Consultation and the final design/location of the HAGIs and BVIs and further project photomontages.

5.6 Air Quality

How air quality effects have been assessed

- 5.6.1 The air quality assessment is based on a detailed review of publicly available information, including air quality monitoring data and other data relating to Air Quality Management Areas (AQMAS). The assessment is informed by consultation responses and stakeholder engagement.
- 5.6.2 The assessment has been undertaken following best practice guidance and methodologies and has considered effects on people and their health in the vicinity of the Project. Effects on other ecological receptors are considered in **Chapter 5: Biodiversity** of the Draft ES. The study area for the assessment is based on how far construction road traffic emissions and construction dust may travel. No operational air quality impacts are expected.
- 5.6.3 Full details of the air quality assessment can be found in **Chapter 9: Air Quality** of the Draft ES.

Baseline environment

- 5.6.4 There are four AQMAS within 50m of routes that project construction traffic is expected to use. Air quality monitoring data was obtained from the six local authorities to understand the air quality within 10km of the Project.

Embedded environmental measures

- 5.6.5 Appropriate measures would be incorporated into the Project to ensure that there would be no significant air quality effects on people or ecology.
- 5.6.6 The Construction Environmental Management Plan will include good practice air quality measures to prevent construction dust impacts and emissions from construction vehicles.

Likely significant effects

- 5.6.7 The assessment concludes that there will be no significant air quality effects on people and their health in the vicinity of the Project, once the embedded environmental measures are in place.

Next steps

- 5.6.8 The assessment is based on information obtained to date. It will be updated in response to comment received during the statutory consultation, ongoing stakeholder engagement, the final design of the Project and final information on traffic flows.

5.7 Noise and Vibration

How noise and vibration effects have been assessed

- 5.7.1 A draft assessment of potential noise and vibration effects created by the Project has been undertaken in accordance with standard methodologies, guidance and planning policy.
- 5.7.2 The assessment considers the noise generation from construction activity and road traffic during the construction phase; and noise generation from the operation of the HAGIs. The assessment looked at potential noise impacts within a distance of 300m of construction activities, including noise from roads with construction traffic.
- 5.7.3 A range of publicly available data sources were used in the assessment. Noise and vibration levels have been predicted at this stage, using standard methodologies and guidance and will be supplemented with baseline noise monitoring survey results, once this has been undertaken.

Baseline environment

- 5.7.4 Land use in the noise study area is predominantly rural, however it does also include more built-up urban areas. The main existing sources of noise are major transportation routes, including major motorways and the west coast mainline railway, with industrial sites also adding to the noise baseline.

Embedded environmental measures

- 5.7.5 A number of embedded environmental measures are proposed to reduce the potential for noise and vibration impacts. Best practice measures for the construction phase will be included in the Construction Environmental Management Plan. This will include the need to use plant and machinery with noise reducing measures. During operation, equipment at HAGIs will be installed with suitably specified noise reducing measures built into the design to ensure no significant effects at nearby receptors.

Likely significant effects

- 5.7.6 The assessment considers the impact on residential, community, commercial and leisure receptors during construction.
- 5.7.7 Assessments concluded that the majority of noise effects would not be significant. However, unmitigated noise associated with the machinery used for trenchless crossings during construction may result in significant negative effects and therefore additional mitigation may be required. Residual (i.e. with mitigation) effects for this activity will likely be negative, but temporary and not significant. The mitigation for the trenchless crossing works will be a combination of management measures and temporary acoustic screening to be secured as part of the DCO.

Next steps

- 5.7.8 A baseline sound level survey will be undertaken at a location representative of the residential receptors at Clock Face HAGI site to inform the final assessment; this was not undertaken previously due to poor weather conditions.
- 5.7.9 The assessment of the construction phase effects will be reviewed and updated when final information on construction activities is available. This will help to develop the environmental measures for the trenchless crossings.
- 5.7.10 The assessment of operational phase sound from the HAGIs will be assessed and reported in the Final ES.
- 5.7.11 Screening of the potential for significant effects resulting from construction vibration as well as the potential for noise and vibration effects upon the water environment will also be undertaken.

5.8 Traffic and Transport

How traffic and transport effects have been assessed

- 5.8.1 A draft assessment of potential traffic and transport effects due to the Project has been undertaken, in accordance with standard methodologies and guidance, plus planning policies. A range of publicly available information has been used to inform the assessment and a site survey of the local road network has been completed. Traffic data was obtained from the Department for Transport and automatic traffic counts were carried out in seven locations to collect more data. Discussions have been held with stakeholders, including local highways authorities and National Highways.
- 5.8.2 The assessment considers the construction phase only, as limited traffic generation is anticipated during the operational phase.

Baseline environment

- 5.8.3 Due to the scale of the Project many roads, both local and strategic highways, are located in the topic study area. Public transport services operate throughout the study area including buses.
- 5.8.4 The Project crosses a number of Public Rights of Way (PRoW), including some key walking trails. It also crosses some elements of the Sustrans National Cycle Network (NCN).
- 5.8.5 The pipeline would cross 14 railways and 11 navigable waterways, although these would be crossed using trenchless construction techniques, or are open cut in ground that a rail line bridges over, and therefore the use of the railways and waterways would not stop during construction.
- 5.8.6 The predicted baseline traffic (including heavy goods vehicles (HGVs)) within the study area has been calculated using historic traffic data and established traffic models.
- 5.8.7 Accident data on roads within the study area has also been obtained.

Embedded environmental measures

- 5.8.8 A key embedded environmental measure is the crossing of railways, navigable waterways and certain roads using trenchless construction techniques to avoid the closure of these key transportation routes during the construction phase. A Construction Traffic Management Plan (CTMP) will be produced to manage construction traffic access, including HGV access. A PRow Management Plan (PRowMP) will be in place to manage impacts on PRow.

Likely significant effects

- 5.8.9 The draft assessment has identified certain sections of roads surrounding the Project which may be affected by construction traffic. Additional measures have been proposed in certain locations to address these significant negative effects, including limiting construction traffic movements at peak times and identifying specific HGV routes. With these measures in place, no significant effects are predicted. The additional measures are summarised in the Draft ES **Chapter 11** and set out within the Draft Outline Construction Traffic Management Plan (**Appendix 11B**) and Draft Outline PRow Management Plan (**Appendix 11C**).

Next steps

- 5.8.10 The draft assessment is based on information obtained to date. It will be updated in response to comments received during the Stage Three Statutory Consultation and continued engagement with the local and strategic highways authorities.

5.9 Ground Conditions

How ground conditions effects have been assessed

- 5.9.1 The assessment has considered the likely significant effects of the Project on ground conditions, including land contamination, geohazards such as unstable ground conditions, and geodiversity, which includes, for example, Geological Sites of Special Scientific Interest (SSSI). Potential effects which have been assessed include construction activities on land affected by contamination and pollution resulting from the presence of construction equipment/machinery.
- 5.9.2 Information on existing ground conditions is based on data requests from a number of sources, including the Ordnance Survey, British Geological Society (BGS), government and local authority records, and through consultation with the Environment Agency and relevant local authorities.
- 5.9.3 The assessment has considered the geographical area in which there could be impacts from the Project on ground conditions which could affect human health, the groundwater and surface water environment and geological sites (known as the Study Area) during the construction, operation and decommissioning phases.

Baseline environment

- 5.9.4 Much of the Project is being constructed on land that has been, and remains, in agricultural use. The remainder is being constructed on land which has a long history of industrial use, in particular around Ellesmere Port, Stanlow, Northwich and Partington. In these areas, there is a likelihood that the land will have been impacted by contamination including from historical landfills and other waste sites, oil gas and chemical works, sewage works and other industrial/manufacturing processes.
- 5.9.5 The geology in the study area varies, is made up a mix of near surface deposits including sand, gravel and clay with a predominantly sandstone and mudstone bedrock. Peat and coal seams are also present, including at depth, in a number of places. However, there are no SSSIs or other sites which are designated for their geological interest.
- 5.9.6 Environment Agency data indicated there are a number of existing groundwater abstractions and source protection zones (SPZs) in the study area alongside a number of main rivers and waterways (including canals).

Embedded environmental measures

- 5.9.7 A range of environmental measures, which relate to ground conditions are embedded as part of the project design to remove or reduce significant environmental effects as far as possible. Examples of these measures include the following with all information present in **Table 12.7** within **Chapter 12: Ground conditions** of the Draft ES:
- Avoiding sensitive or potentially contaminated sites by the project footprint where practical.
 - Implementation of best practice pollution prevention measures during construction as part of the Construction Environmental Management Plan.
 - Ensuring that the land used for the Project is suitable for the proposed use with respect to the potential for soil and groundwater contamination and, where necessary, undertake risk-based remediation.

Likely significant effects

- 5.9.8 Based on the routing of the Pipeline and proposed locations of permanent infrastructure, plus the incorporation of appropriate embedded environmental measures, no significant effects have been identified for ground conditions during the construction, operation and decommissioning phases of the Project.

5.10 Agriculture and Soil Resources

How agriculture and soil resource effects have been assessed

- 5.10.1 The assessment for the Draft ES updates the assessment in the PEIR (2022) based on site-specific Agricultural Land Classification (ALC) using the Natural England approved methodology to assign ALC grades to land, and peat survey data, review of publicly available information and the use of best practice methodologies and guidance. The assessment has also been informed by consultation responses and stakeholder engagement.
- 5.10.2 Whilst ALC surveys are on-going, in this Draft ES, publicly available ALC information has been used to inform the assessment, along with the initial ALC survey results, where available. ALC grades identified in the ALC survey, will be confirmed in the updated baseline information in the Final ES and the relevant areas of each ALC grade will be described with other site specific (e.g. flood and drainage) information and used in the assessment in the Final ES.
- 5.10.3 To provide a conservative assessment of the area of Best and Most Versatile Land that may be affected by the Project in this Draft ES, in the absence of other baseline data, it has been assumed that all provisionally mapped Grade 3 areas are Subgrade 3a i.e. Best and Most Versatile Land.
- 5.10.4 Full details of the agriculture and soil resources assessment can be found in **Chapter 13: Agriculture and soil resources** of the Draft ES.

Baseline environment

- 5.10.5 The soil resource in the Study Area includes topsoil and subsoil. In addition, seven areas have been identified where deep peaty soil is likely to be present.
- 5.10.6 The Draft Order Limits avoids areas of near-natural peatland habitat with established peat vegetation and avoids all peatland with conservation designations. However, targeted ALC and peat surveys completed to date have identified three points within Helsby Marshes in the Draft Order Limits, where deep peat is present.
- 5.10.7 Provisional ALC mappings indicates that the ALC classifications are varied within the Draft Order Limits; 23% is Grade 2 and 61% is Grade 3. This indicates that up to 85% of the land within the Draft Order Limits could be Best and Most Versatile agricultural land. The assessment will be updated in the Final ES based on site-specific ALC survey information.

Embedded environmental measures

- 5.10.8 Appropriate measures will be incorporated into the Project to minimise effects on agriculture and soil resources. This will include minimising disturbance to soil and peat. Where soil needs to be excavated and reinstated this would be done in accordance with best practice. An Outline Soil Management Plan and an Outline Peat Management Plan will be produced to set out how soil and peat would be protected during the construction phase. These will be used with and will interact with a Materials Management Plan which will ensure the protection of excavated soil resources, to maximise their reuse within the Project and avoid or minimise them becoming waste. The Project will apply the peat hierarchy in order to minimise effects associated with the excavation of peat. A Drainage Management Plan, building on the Outline Drainage Strategy provided as **Appendix F, Annex 7F6** of the Draft ES, will include measures to protect soil from any water runoff.

Likely significant effects

- 5.10.9 The assessment concludes that, during construction, the effects of soil compaction, soil erosion, damage to soil and damage to land drainage systems would be significant and negative. In addition, the permanent loss of agricultural land and soil resources would result in significant negative effects.
- 5.10.10 Damage to peat and its permanent loss is also concluded to result in a significant negative effect at this stage.
- 5.10.11 These assessments use the maximum worst-case extents for the permanent and temporary development associated with the Project, and only limited site-specific survey data has been available to inform the assessment in the Draft ES. The assessment will be updated in the Final ES using all available site-specific information and the latest design information, which is likely to significantly reduce the areas of land potentially affected by the development.

Next steps

- 5.10.12 Further site-specific ALC data will be obtained through field survey by qualified soil scientists. Landowners and other Persons with Interest in Land (PILs) will be consulted as required to obtain relevant information on flooding and drainage to inform the ALC grading. Further information on the presence of deep peat within the Draft Order Limits will also be obtained during the ALC survey. The potential for the reuse of excavated peat that cannot be reinstated will be considered through discussions with stakeholders and consultants involved in the other environmental topics, notably biodiversity.
- 5.10.13 The assessment will be updated in the Final ES to incorporate the updated baseline information obtained from the further ALC and peat surveys.

5.11 Land Use

How land use effects have been assessed

- 5.11.1 There is no standard guidance on how to assess the topics identified for the Land Use chapter, and the assessment methodology therefore utilises the standard EIA methodology identified for the Draft ES, tailored to suit the subjects of relevance. The assessment is based on a review of publicly available information, which follows common practice. The assessment has also been informed by consultation responses, ongoing technical engagement and a site meeting with Sandiway Golf Club.
- 5.11.2 A study area was established based on the extent of the potential impacts on natural resources and tourism/recreation receptors, using information from other EIA subjects such as noise and vibration and land scape and visual.
- 5.11.3 Full details of the land use assessment can be found in **Chapter 14: Land Use** of the Draft ES.

Baseline environment

- 5.11.4 Minerals safeguarding areas, policy allocations supporting minerals extraction and reserves of salt, sandstone and aggregate sand/gravel have been identified in the Study Area.
- 5.11.5 A number of recreational receptors are located in the study area, including sport facilities, public open spaces and businesses offering recreational activities.

Embedded environmental measures

- 5.11.6 A number of embedded environmental measures are proposed to reduce the potential impacts on land use. This includes, amongst others, avoiding project infrastructure being located within areas, where possible, the use of trenchless construction techniques across main rivers and canals will help to avoid impacts on the recreational use of these watercourses and the consideration of re-use of any minerals extracted elsewhere within the Project's construction activities.

Likely significant effects

- 5.11.7 The draft assessment concludes that there would be significant negative effects on the minerals safeguarding areas at Aston Grange, Bold Heath, Lower Whitley, Dunham Massey, Partington, Acton Bridge and Sandiway minerals safeguarding areas during the construction and the operational phases.
- 5.11.8 With the additional mitigation identified, significant negative effects would occur on True Fit golf course and the allotments at Central Bridge, Warrington during the construction phase.
- 5.11.9 The effects on all other natural resources and tourism/recreation receptors are not anticipated to be significant.

Next steps

- 5.11.10 The draft assessment will be updated in response to ongoing discussions with the owners of True Fit golf course, feedback received during the statutory consultation and ongoing stakeholder engagement.

5.12 People and Communities

How people and communities effects have been assessed

- 5.12.1 The people and communities assessment for the Draft ES is based on a review of publicly available information, which follows accepted practice. No site survey work is anticipated. The assessment has also been informed by consultation responses.
- 5.12.2 Full details of the people and communities assessment can be found in **Draft ES Chapter 15: People and Communities**.

Baseline environment

- 5.12.3 Data on population, employment, education, earnings, economy and business, unemployment, tourism, the housing market, life expectancy and mental health has been obtained and used to describe the characteristics of the six local authority areas the Project passes through.

Embedded environmental measures

- 5.12.4 A Skills and Employment Strategy will be produced and submitted with the Final ES. The Strategy will set out how the local workforce will be used and upskilled as part of the Project.
- 5.12.5 The Construction Environmental Management Plan will include standard best practice construction measures to minimise potential effects on local businesses and tourism/recreational facilities.
- 5.12.6 The Applicant intends to establish mechanisms to promote the use of local supply chains, whilst the scale of construction is such that the associated workforce is unlikely to require temporary accommodation in significant numbers (relative to other large NSIP projects).

Likely significant effects

- 5.12.7 Disruption related to travel/access and to the experience of people and communities in the area has the potential for significant effects, which will be confirmed in the Final ES. However, the embedded environmental measures should contribute to the reduction of effects.
- 5.12.8 There are significant beneficial effects from the Project because it enables the supply and use of hydrogen for decarbonisation in the North West and is an economic catalyst for industry.

- 5.12.9 All other potential effects on people and communities are not anticipated to be significant at this stage.

Next steps

- 5.12.10 The assessment will be updated in the Final ES to incorporate further information on noise and vibration and on economic employment and Gross Value Added (GVA).
- 5.12.11 The people and communities assessment will continue to be refined as the project details are finalised for the Final ES.

5.13 Major Accidents and Disasters

How major accidents and disasters effects have been assessed

- 5.13.1 The draft assessment is based on a review of publicly available information which follows accepted practice. No site survey work has been undertaken or is anticipated. The assessment has also been informed by consultation responses. Study Areas have been established on the basis of professional judgement and standard guidance in relation to major accidents and disasters, and who/what may be affected by these.

Baseline environment

- 5.13.2 A number of establishments which hold hazardous material have been identified in the study area. In addition, one site regulated by the Office of Nuclear Regulation has been identified and reviewed, despite the fact it is located outside of the study area.
- 5.13.3 Potential disasters, such as those associated with extreme weather and flooding have been identified. People and public facilities, plus environmental receptors such as sites protected for biodiversity reasons, land, soil/water resources, material assets, cultural heritage and landscape that could be affected by disasters have been identified.
- 5.13.4 Full details of the major accidents and disasters assessment can be found in **Chapter 16: Major Accidents and Disasters** of the Draft ES.

Embedded environmental measures

- 5.13.5 The Project would need to be constructed and operated in accordance with various health and safety legislation and regulations. The design of the Project would also follow relevant design standards and good practice to avoid the risk of hazards. The Construction Environmental Management Plan will include measures to reduce the risk of major accidents and disasters on people and environmental features.

- 5.13.6 The route of the pipeline and the placement of infrastructure will seek to avoid, or safely cross in accordance with industry standards, transport networks and any hazardous sites. The route and design have also been optimised to minimise the risk to people in the event of a release.
- 5.13.7 There are specific regulations which apply to Major Accident Hazard Pipelines, which are actively enforced by the Health and Safety Executive and will apply to this project. The Applicant will comply with these regulations in full.

Likely significant effects

- 5.13.8 Hydrogen industry at this scale is relatively new, and therefore there are ongoing research programmes and planned tests intended to enhance the understanding of the potential risks from hydrogen infrastructure. As a result, the draft assessment has been undertaken based on conservative or 'worst-case' assumptions. The draft assessment concludes that, due to the current uncertainties around risk from hydrogen infrastructure, and the current stage of the Project design, there is potential for significant effects arising from the release of hydrogen from HAGI sites on people or other environmental features as a result of the Project.
- 5.13.9 It should be recognised that the transportation of hydrogen by pipeline is not wholly new and that there are currently hydrogen pipelines in operation at a smaller scale in the UK and the USA, and other Nationally Significant Infrastructure Projects which are currently going through the DCO Process. The Health and Safety Executive (HSE) will be consulted on the Project as a Statutory Consultee in the course of the Development Consent Order application. If HSE is not satisfied with the Project, then the Project may be modified to address their concerns.
- 5.13.10 The Applicant will also be required to provide design information and a Case for Safety to HSE for review before the pipeline can be operated. If HSE does not accept this Case for Safety, then the Project could not be legally operated. The project design would then be modified to reduce the risk in the areas of concern.

Next steps

- 5.13.11 The embedded measures, particularly the design engineering processes, have the aim of reducing the risk of all potential major accidents to 'As Low As Reasonably Practicable' (as required by Health & Safety at Work Act 1974) meaning that there would not be a not significant effect. Following further refinement of the design a more detailed description of how the design of the Project has embedded risk reductions, in the risk of major accidents, will be set out within the Final ES.
- 5.13.12 The assessment will be updated to reflect the above, and any further relevant information that arises from the surveys due to be carried out for other environmental topics.
- 5.13.13 Further technical engagement will be undertaken with key stakeholders to inform the assessment.

5.14 Climate Change – Greenhouse Gas (GHG) Emissions

- 5.14.1 The Greenhouse Gas (GHG) assessment has considered GHG emissions resulting from the construction, operation and decommissioning of the HyNet North West Hydrogen Pipeline Project (the Project) across its lifetime. This is the system boundary for this GHG assessment.
- 5.14.2 GHGs are a group of seven gases that trap heat energy from the Sun in the Earth's atmosphere causing a warming effect (impact on global warming). Each GHG has a different warming impact. In order to more easily understand these different impacts they are measured in terms of a single common unit referred to as carbon dioxide equivalent (CO₂e).
- 5.14.3 The GHG assessment as part of the Draft ES considers GHG emissions from the construction, operation and decommissioning of the HyNet North West Hydrogen Pipeline Project (the Project). This is the system boundary for the current GHG assessment. It is noted that, following the ruling in *R (on the application of Finch on behalf of Weald Action Group) (Appellant) v Surrey County Council and others (Respondent) ("Finch")*, it may be appropriate that the impacts beyond the project system boundary are considered. The implications of this ruling will be duly considered in the Final ES at DCO submission. This may include assessing the net benefits or indirect effects of the wider HyNet North West Programme as a major element of decarbonisation efforts in the North West of England. The Final ES will consider the nature and implications of this relationship for the GHG assessment.
- 5.14.4 The GHG emissions associated with the lifecycle stages of the Project include:
- The construction phase - the raw materials and manufacturing process of the construction materials, the transport of materials and staff to site, the transportation of waste removal from site and other construction processes such as plant/equipment use.
 - The operational phase of the Project - electricity use at the Hydrogen Above Ground Infrastructure (HAGI) sites.
 - The decommissioning related GHG emissions have been estimated based on the removal of HAGIs and Block Valve Installations (BVIs).
- 5.14.5 The GHG assessment identifies the GHG emissions at each stage of a Project, and it is compared against the carbon budgets for the UK and for the sector allocation, in this case, fuel supply. It also highlights where mitigation measures to reduce GHG emissions should be targeted. These areas are reflected in the embedded measures and full details of the GHG Emissions assessment can be found in **Chapter 17** of the Draft ES.

Baseline environment

- 5.14.6 The fourth carbon budget (2023 to 2027) of 1,950MtCO₂e and the Committee on Climate Change's recommended carbon budget sector allocations for fuel supply of 148MtCO₂e.

- 5.14.7 The current baseline for the Project is 'nil' in terms of GHG emissions as this refers to the scenario of the 'without Project' case, in which the Project is not constructed. The approach to the assessment of the baseline may need to be revisited in the Final ES, as part of the consideration of the nature and implications of the Project's relationship with the wider HyNet North West Programme.

Embedded environmental measures

- 5.14.8 The Outline Construction Environmental Management Plan produced for the Project will include measures to help reduce GHG emissions associated with the construction phase, particularly those associated with construction traffic, plant and machinery.
- 5.14.9 Disturbance to peat will be avoided where possible and a Peat Management Plan will be produced to set out how peat will be protected during the construction phase.
- 5.14.10 The design will continue to be optimised to reduce the raw materials needed and the operational running requirements of the HAGIs and BVIs. The design continues to investigate opportunities to reduce the GHG emissions associated with energy use during the operation of the project e.g. reduce high-energy consuming installations, use low or zero-carbon energy sources, for example use of hydrogen in electricity generation for HAGIs.
- 5.14.11 The design has identified carbon hotspots associated with materials used and has investigated ways to reduce the embodied carbon of the materials e.g. a higher recycled content, an alternative material with lower embodied carbon. The use of local suppliers will be prioritised to reduce emissions associated with the transport of materials to the project construction sites.
- 5.14.12 Furthermore, the design will continue to integrate circular economy principles (ways to avoid generation of waste and keep materials in use) to enable ease of maintenance, replacement and decommissioning, which will reduce the need for raw materials or generating waste, e.g. standardised components, plan for ease of maintenance, plan for ease of component replacement and plan for ease of material segregation at end of life.

Likely significant effects

- 5.14.13 The majority of the GHG emissions (80%) associated with the Project are resulting from the construction of the Project. A limited proportion (2%) is related to the operational energy use of the HAGIs and BVIs, whilst the remaining 18% is estimated to be part of the decommissioning phase.
- 5.14.14 The GHG assessment concludes that there would be a minor adverse effect and therefore there are no significant effects resulting from GHG emissions. The Project would be in line with the Government's carbon budgets/targets.

Next steps

- 5.14.15 The results of the ground investigation and potential peat deposits will be fed into this assessment. The assessment will also be reviewed in light of any design changes to the Project.
- 5.14.16 The Project is one component of the wider HyNet Programme, which drives decarbonisation efforts for the region. The effects of the wider Programme, are currently outside the boundaries of this assessment. The extent to which it is necessary and appropriate to take account of those effects in light of recent caselaw is under consideration and will be addressed within the Final ES.
- 5.14.17 The GHG assessment will continue to be refined as the project details are finalised for the Final ES.

5.15 Climate Change – Climate Change Resilience

How climate change effects have been assessed

- 5.15.1 Climate change resilience is slightly different to other environmental assessments within the Draft ES in that it is the potential effects of the environment (future climate) on the Project that are being assessed, rather than the effects of the Project on the environment.
- 5.15.2 The vulnerability of the Project to climate change has been assessed by looking at the potential future climate change trends and hazards that could impact the Project assets, across the design life of the Project. Measures as part of the design and operation of the Project were developed to improve the resilience of the assets to climate change. With these measures in mind, the likelihood and consequence of the impacts were assessed to identify any likely significant effects.
- 5.15.3 The impact of climate change on the environmental receptors within other topic assessments when coupled with the reported effects have been considered, to ensure that the ability of the natural environment to adapt to climate change is not compromised due to the presence of the Project. This is the In-Combination Climate Change Impact Assessment (ICCI).

Baseline environment

- 5.15.4 The current baseline climate has been explored to set the context of the climate variables for the Study Area. Future climate change projection data were used to highlight and describe the trends in climate change and associated hazards across the design life, when compared to the current baseline. This includes variables such as temperature, rainfall, sea level rise, storms and snow. The climate change trends considered in the assessment include:
- Increase in mean temperatures.
 - Increased frequency and intensity of heatwave events.
 - Increase in winter precipitation.
 - Increase in intensity of summer and winter rainfall events.

- Increased risk of wildfire events.
- Decrease in falling and lying snow.
- Rise in mean sea level.
- Increased frequency and intensity of storm events.

Embedded environmental measures

- 5.15.5 The Project assets have been designed to a Basis of Design and Materials Specifications, which draw on climate change projections to set out the operating conditions and requirements of the assets or materials.
- 5.15.6 During the operation of the Project, operation and maintenance (O&M) procedures are in place to inspect and maintain sensitive equipment, particularly following climate change events. The procedures also reduce the risk on O&M staff to plan maintenance work around climate change events.
- 5.15.7 Measures associated with flood risk to the Project is detailed separately.

Likely significant effects

- 5.15.8 Due to the adoption of embedded design and control measures, the resilience of the Project assets to climate change has been improved, so that no likely significant effects are demonstrated.
- 5.15.9 The ICCI assessment has demonstrated no increase in the significant of effects reported in this Draft ES.

Next steps

- 5.15.10 Nature-based solutions will continue to be investigated throughout the EIA process to deliver climate change adaptation benefits, as well as benefits to biodiversity and the water environment.

5.16 Cumulative Effects

How cumulative effects have been assessed

- 5.16.1 The draft assessment for cumulative effects has considered both inter-project and intra-project effects, The inter-project effects assessment follows best practice guidance and has used publicly available data from relevant local planning authorities to identify other development which may interact with the Project. Inter-project and intra-project effects are defined as:
- Inter-project (combined with other development) effects: effects resulting from the Project combining with the same topic-related effects generated by other developments to affect a common receptor.

- Intra-project (within the Project) effects: individual environmental topic effects resulting from the Project, which are not significant in their own right, but could combine with other environmental topic effects from the same development to create effects that are significant.

- 5.16.2 Where sufficient assessment has been undertaken in each specific topic area, the **assessment of cumulative (inter-project) effects** section in each Draft ES technical topic chapter (**Chapters 5-18**) considers where significant cumulative inter-project effects may occur. This section assesses the technical topic assessment for the Project and the agreed list of other development, included in **Appendix 3A: Cumulative Effects Assessment: Long List and Short List**.
- 5.16.3 **Chapter 19: Intra-Project Effects** presents a draft assessment of such effects on residential receptors across the Project. Non-residential and recreational receptors are considered in **Chapter 14: Land Use** and **Chapter 15: People and Communities**.

Baseline environment

- 5.16.4 The relevant baseline environment to cumulative effects is considered in each technical topic chapter (**Chapters 5-18**).

Embedded environmental measures

- 5.16.5 The intra-project cumulative effects assessment relies on existing embedded environmental measures defined in relevant technical topic chapters (**Chapters 5-18** and **Appendix 3C: Register of Environmental Actions and Commitments**).

Likely significant effects

- 5.16.6 **Chapter 19: Intra-Project Effects** identifies receptor locations where there is a pathway for likely significant intra-project effects during the construction phase, as a result of the combination of noise and vibration, landscape and visual and traffic and transport effects.

Next steps

- 5.16.7 The inter-project and intra-project effects assessments will be refined in the Final ES, once all assessments have been completed and thus full consideration can be given to potential cumulative effects on common receptors.

6. Looking Forward

6.1 What Happens Next?

- 6.1.1 This NTS forms part of the Draft ES, which has been prepared for statutory consultation. Stakeholders, local communities and members of the public can comment on the draft assessments undertaken and the conclusions reached. All comments will be considered and responses provided in the form of a Consultation Report, which will be submitted with the DCO application.

6.2 What If I Would Like Further Information?

- 6.2.1 If you would like further information (for example the Applicant's Draft ES documents, this NTS and other documents accompanying the Stage Three Consultation) the consultation documents will be available to review and comment on between 14th October to 19th November 2024.
- 6.2.2 These documents are available on the project website at the following address: **<https://www.hynethydrogenpipeline.co.uk/our-current-proposals/knowledge-hub/>**. Details of in-person consultation events, online events and information points are provided on the website.

6.3 How Can I Comment?

- 6.3.1 During the Stage Three Consultation stakeholders, including the public, will be able to submit feedback in a number of ways:
- Via the interactive map on the Project website;
 - Online feedback form on the Project website;
 - Paper feedback forms available on request and at in-person events, and can be submitted via the Freepost address or by email;
 - Email: info@hynethydrogenpipeline.co.uk; and
 - Letter: FREEPOST HYNETH NWHP.

HyNet North West Hydrogen Pipeline

Delivering clean growth

Cadent
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