

H2Teesside Project

Planning Inspectorate Reference: EN070009/APP/5.5

Land within the boroughs of Redcar and Cleveland and Stockton-on-Tees, Teesside and within the borough of Hartlepool, County Durham

Document Reference: 5.5 Pipeline Statement

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



Applicant: H2 Teesside Ltd

Date: ~~March-September~~ 2024

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Appendix 1: Pipeline Statement

1.0 EXECUTIVE SUMMARY

- 1.1.1 H2 Teesside Limited (the Applicant), a bp company, is seeking development consent for the construction, operation (including maintenance where relevant) and decommissioning of H2Teesside. H2Teesside is an up to 1.2-Gigawatt Thermal (GWth) Carbon Capture and Storage (CCS) enabled Hydrogen Production Facility and associated connections (the Proposed Development) on land in Teesside in Redcar and Cleveland, Stockton-on-Tees, and Hartlepool on Teesside. The Hydrogen Production Facility together with the hydrogen gas (H₂) pipeline corridor network to deliver low carbon H₂ to offtakers who may potentially use the H₂ in the future, and the CO₂ export, natural gas, electricity, water, oxygen (O₂) and nitrogen (N₂) connections required for the facility to operate are herein referred to as the 'Proposed Development'. The hydrogen produced at the Hydrogen Production Facility will be transported via the Hydrogen Pipeline corridor network to deliver low carbon H₂ to offtakers who may potentially use the H₂ in the future. The proposed Production Facility will produce low carbon H₂ which is compliant with the UK Government's Low Carbon Hydrogen Standard (DESNZ, 2023) which defines what constitutes 'low carbon hydrogen' up to the point of production. The intent of the standard is to ensure new low carbon hydrogen production supported by government makes a direct contribution to the UK's greenhouse gas (GHG) emissions reduction targets.
- 1.1.2 The purpose of this document is to meet the requirements of Regulation 6(4) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, which requires the Applicant to provide certain details of pipelines forming part of the Proposed Development.
- 1.1.3 A gaseous phase hydrogen pipeline forms part of the Proposed Development ('the Hydrogen Distribution Network'), transporting the gaseous hydrogen (H₂) from the Hydrogen Production Facility at the Main Site to potential industrial offtakers across the Tees Valley. The pipeline will be up to 24" in diameter, with a Maximum Operating Pressure (MOP) of up to 55 barg and installed within a nominally 35 m wide construction corridor and an indicative easement of up to 12 m (6 m on either side of the pipeline centreline). The hydrogen pipelines are anticipated to run up to end-of-line Above Ground Installations (AGIs), including metering and pigging skids and tie-in points at the corresponding potential offtakers, with further AGIs located along the network for maintenance purposes. End-of-line AGIs are designed to be within the potential offtakers' site boundaries where possible. The final route will include a selected single route option to each potential offtaker, or a combination of route options where appropriate. A general arrangement of the pipeline route is shown on Figure 1.

2.0 INTRODUCTION

2.1 Overview

2.1.1 This Pipeline Statement (EN070009/APP/5.5) has been on behalf of H2 Teesside Limited (the Applicant), a bp company, to accompany an Application (the Application) to be made to the Secretary of State (SoS) for the Department of Energy Security and Net Zero (DESNZ). The Applicant is seeking a Development Consent Order (DCO) for the construction, operation (including maintenance where relevant) and decommissioning of H2Teesside. This Pipeline Statement has been prepared pursuant to Regulation 6(4) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (HM Government, 2009). The information specifically required in Regulation (4) is summarised in Appendix 1, Table A-1 (ES Volume III, EN070009/APP/6.4).

2.2 The Applicant

2.2.1 The Applicant is H2 Teesside Limited, a bp company, who will be the lead developer and operator for the Proposed Development. The Proposed Development will support the decarbonisation of industries currently fuelled by UK-produced natural gas landed in Teesside for use in industrial applications, this helping to achieve national targets in relation to net zero. It will also be a key contributor to restoring manufacturing jobs in the Tees Valley.

2.3 The Proposed Development

2.3.1 The Proposed Development comprises the construction, operation (including maintenance) and decommissioning of an up to 1.2 GWth CCS enabled Hydrogen Production Facility with associated hydrogen transport pipeline network and utility connections, on land in Redcar and Cleveland, Stockton-on-Tees, and Hartlepool on Teesside.

2.3.2 The Proposed Development will export CO₂ to the Northern Endurance Partnership (NEP) offshore storage facility via NEP infrastructure on the adjacent Net Zero Teesside (NZN) site, including the high-pressure compression facility and the CO₂ export pipeline. The NZN application was granted consent on 16th February 2024.

2.3.3 The Proposed Development comprises the Hydrogen Production Facility together with the Hydrogen Distribution Network to deliver low carbon hydrogen to potential offtakers, and the CO₂ export, natural gas, electricity, water, O₂ and N₂ connections required for the facility to operate. The Hydrogen Production Facility will produce low carbon hydrogen which is compliant with the UK Government's Low Carbon Hydrogen Standard (DESNZ, 2023). The intent of the standard is to ensure new low carbon hydrogen production makes a direct contribution to the UK's greenhouse gas emissions reduction targets.

2.3.4 The Hydrogen Production Facility and infrastructure associated with its operation will be located on the Main Site. The Main Site is proposed to be located on land formerly part of the Redcar Steelworks.

2.3.5 The Hydrogen Distribution Network and the other Connection Corridors will cross other third-party land where required. Together, the land comprising of the Main Site, the Connection Corridors and temporary construction compound areas are referred to as the Proposed Development Site.

2.3.6 The DCO for the Proposed Development will authorise the works to be carried out, and authorise the necessary land powers for the works to be able to be carried out, operated and maintained in the future, and protected from future development.

2.4 The Purpose and Structure of this Document

2.4.1 The purpose of this document is to meet the requirements of Regulation 6(4) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009, which require the Applicant to provide certain details of pipelines forming part of the Proposed Development.

2.4.2 The document is structured to meet these requirements as follows:

- Section 3 – Sets out the proposed hydrogen pipeline, including the route and points of connection;
- Section 4 – Provides details on the design and build responsibilities;
- Section 5 – Outlines land ownership in respect of the land required for connection to the network;
- Section 6 – Provides information on the consent required for the connection works; and
- Appendix 1 – Provides the information specifically required by Regulation 6(4) of the APFP Regulations.

3.0 PROPOSED HYDROGEN DISTRIBUTION NETWORK AND CONNECTION OPTIONS

- 3.1.1 A gaseous phase Hydrogen Distribution Network forms part of the Proposed Development transporting the gaseous hydrogen (H₂) from the Hydrogen Production Facility at the Main Site to potential industrial offtakers across Teesside.
- 3.1.2 At this stage in the project development and design, the final definitive route for the Hydrogen Distribution Network has not been determined. However, the corridor that it will run in has been selected and this will evolve as design and commercial agreements progress during and after the DCO process. The hydrogen pipeline will be from 6" (150 mm) to up to 24" (600 mm) in diameter, with a Maximum Allowable Operating Pressure (MAOP) of up to 55 barg and installed within a nominally 35 m wide construction corridor and an indicative easement of up to 12 m (6 m on either side of the pipeline centreline), unless restrictions imposed by existing assets mean this is not possible. The hydrogen pipelines are anticipated to run up to end-of-line Above Ground Installations (AGIs), including metering and pigging skids and tie-in points at the corresponding potential offtaker, with further AGIs located along the network for maintenance purposes. End-of-line AGIs are designed to be within the offtakers' site boundaries where possible. Any works beyond the AGIs and tie-in points are assumed to be undertaken separately by the appropriate potential offtaker and are therefore not considered in this document.
- 3.1.3 The final route will include a selected single route option to each potential offtaker, or a combination of route options where appropriate.
- 3.1.4 The Hydrogen Distribution Network can be broken down into 6 sections, these are as follows:
- South Tees Development Corporation (STDC) and Seal Sands
 - Wilton International
 - North Tees
 - Greatham
 - Billingham Industrial Park
 - Transmission and Distribution Infrastructure Connection
- 3.1.5 These routes have been developed in light of likely end users of the hydrogen that is produced in and around the Teesside area, and to facilitate connections to the national gas networks.
- 3.1.6 The Hydrogen Distribution Network will be owned and operated by the Applicant. The total length of the Hydrogen Distribution Network as described in this Pipeline Statement is ~~310.762~~ 310.762 km.

3.2 South Tees Development Corporation (STDC) and Seal Sands

- 3.2.1 The South Tees Development Corporation (STDC) and Seal Sands section of the Hydrogen Distribution Network will transport hydrogen from Hydrogen Production Facility on the Main Site west, to where the pipeline branches into the Billingham Industrial Park branch of the network. This section of the Hydrogen Distribution Network is anticipated to distribute hydrogen to all other branches of the pipeline and is therefore the mainline of the distribution network. The pipeline travels through both the south and north Tees areas of the network and includes a crossing of the River Tees.
- 3.2.2 After exiting the Main Site, the pipeline is routed east along the South Tees Development Corporation (STDC) 'Blue Main' road, before a 90-degree right turn south along the Bran Sands corridor. Another 90-degree right turn is then made before the route heads west along the existing Linkline corridor parallel with the Dabholm Gut towards the River Tees crossing. The pipeline will be of buried construction to the Blue Main road crossing, and above ground through ~~out~~ the Bran Sands corridor section. This section ~~and~~ is approximately 1.9 km long, with a pipe diameter of 24". The Bran Sands corridor contains the CATS pipeline and three existing above ground pipelines and a planned NEP CO2 pipeline. There is a DCO granted to Anglo American The York Potash DCO for which includes -an above ground conveyor system through the corridor, including large foundations for the conveyor towers. The proposed route considers these existing and proposed services, and the pipeline routing route is has been known to be congested and will require multiple crossings of existing services and pipelines, which will be developed following engagement with the owners of existing apparatus.
- 3.2.3 Following the Bran Sands corridor, the mainline pipeline section is routed west along the Linkline corridor parallel to the Dabholm Gut until it meets the southern bank of the River Tees. The pipeline will be above ground on either supports, racking and/or pipe bridges until the shaft of the proposed River Tees crossing.
- 3.2.4 The pipeline then crosses the River Tees. The design work for all crossings is ongoing, however it is proposed that the crossing under the Tees would be constructed using trenchless crossing methodology such as microtunneling (MBT) or Horizontal Directional Drilling (HDD) ~~or a combination of the two, thereby minimising disturbance during construction~~. The current pipeline routing has been based upon a microtunnel construction as a reference case. A tunnel crossing from this location will be approximately 750 m in length with launch and receiver shafts up to 60 m deep either side of the river. Due to the location of the shafts, which are limited by available land, thereit will be necessary for the tunnel to cross will be multiple existing services and tunnels crossed as part of the Tees crossing. The launch shaft for this crossing is likely to will be located near the existing Northumbrian Water Facility to the north of Dabholm Gut on the southern bank of the river. The pipeline will land at a shaft on Navigator Terminal land to the north side of the river after which the pipeline will re-enter the Linkline corridor near to the No.2 Tunnel head house.

- 3.2.5 Following the River Tees crossing, the pipeline follows the Linkline pipeline corridor, heading south before a right turn west towards Billingham. Two new pipe bridges are required as the pipeline heads south as the current infrastructure is not fit for service in this area. This next section, running west towards Billingham, runs entirely within the Linkline corridor, with spurs to potential offtakers located to the south and north respectively. The pipeline is expected to utilise existing pipe bridges to cross existing infrastructure and to use existing culverts for all road crossings within this section of the route. Where there is no existing infrastructure, such as pipe bridges, the pipeline will be supported by ground level concrete supports.
- 3.2.6 The final section of the pipeline leaves the Linkline corridor in Saltholme and heads north towards an end-of-line AGI. The pipeline will be buried until reaching the receiver AGI location, crossing two buried gas pipelines.
- 3.2.7 Indicative pipeline parameters and a summary of the crossings for the mainline section are provided in Table 3-1: and Table 3-2 respectively.

Table 3-1: Hydrogen Distribution Network Section Routeing Parameters – South Tees Development Corporation (STDC) and Seal Sands

CONNECTION TYPE	SOUTH TEES DEVELOPMENT CORPORATION (STDC) AND SEAL SANDS
Pipeline External Diameter (")	24
Pipeline External Diameter (mm)	600
Pipeline Length: Above Ground (km)	8.65
Pipeline Length: Below Ground (km)	3.16
Overall Pipeline Length (km)	11.81
Potential Offtakers	N/A

Table 3-2: Hydrogen Distribution Network Crossing Summary – South Tees Development Corporation (STDC) and Seal Sands

CROSSINGS SUMMARY	SOUTH TEES DEVELOPMENT CORPORATION (STDC) AND SEAL SANDS
Road Crossings	24
Rail Crossings	2
Infrastructure Crossings (Pipelines)	11
Watercourse Crossings (minor / major)	2

Total	39
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3.3 Wilton International

3.3.1 The Wilton International section of the Hydrogen Distribution Network branches off the mainline pipeline at the southern end of the Bran Sands corridor. This section distributes hydrogen to potential offtakers within the Wilton International complex.

3.3.2 This connection branch leaves the mainline pipeline route and continues to head southeast, using existing Linkline corridor pipe bridges to cross existing infrastructure and access roads and also crossing under the Tees Valley Line and the A1085 Trunk Road. There is an AGI located here for the start of the Wilton International section of the line.

~~3.3.2~~ The pipeline then continues east, using an existing pipe bridge, which has sufficient space for the new pipeline, and crosses a site road using an existing culvert. Upon entering the Wilton International ~~site~~, the pipeline route runs south along the eastern perimeter, within existing pipe corridors for 2.4 km. There are no major crossings within this section of the route, however infrastructure crossings will be required at multiple points along the corridor, which will be developed in engagement with asset owners.

3.3.3 The pipeline will then make a 90-degree turn heading west through the Wilton site. ~~There are, off of which there will be~~ two branches from the main Wilton section line. One branch is approximately 230 m heading south ~~from the main Wilton section line,~~ with a metering AGI at its end. The other branch requires a small spur line to meet the tie in metering AGI, which sits approximately 10 m from the main section line. The pipeline continues before a further two 90-degree turns are made north and then east, ending ~~with the pipeline facing northeast to connect to an~~ final AGI- for this Wilton section line.

3.3.4 Within the Wilton International branch, the pipeline is to be installed above ground in existing pipeline corridors utilising existing infrastructure where possible. All road crossings within the Wilton International site will utilise existing culverts apart from the final road crossing where new infrastructure is required. The design of this crossing is currently assumed to be high level supports or a pipe bridge. Throughout this branch, new ground level concrete supports will be required and these supports should be placed every 9 m at this line size where no existing support or infrastructure can be used.

3.3.5 In all total there are five AGI facilities in the Wilton International pipeline section. All will contain isolation valves. The Start and End AGI will house temporary PIG traps used during pigging and maintenance.

~~3.3.4~~

3.3.6 Indicative pipeline parameters and a summary of the crossings for the Wilton International section are provided in

~~3.3.5~~3.3.8 Table 3-3 and Table 3-4 respectively.

Table 3-3: Hydrogen Distribution Network Section Routeing Parameters – Wilton International

CONNECTION TYPE	WILTON INTERNATIONAL
Pipeline External Diameter (“)	162
Pipeline External Diameter (mm)	4300
Pipeline Length: Above Ground (km)	7.67
Pipeline Length: Below Ground (km)	N/A
Overall Pipeline Length (km)	7.67
Potential Offtakers	43

Table 3-4: Hydrogen Distribution Network Crossing Summary – Wilton International

CROSSINGS SUMMARY	WILTON INTERNATIONAL
Road Crossings	15
Rail Crossings	2
Infrastructure Crossings (Pipelines)	15
Watercourse Crossings (minor / major)	N/A
Total	32

3.4 North Tees

- 3.4.1 The North Tees section of the Hydrogen Distribution Network branches off the mainline pipeline in North Tees, heading south.
- 3.4.2 The length of this pipeline section is to be installed above ground within existing pipeline corridors. Six crossings have been identified within this pipeline section, consisting of 3 road crossings and 3 infrastructure crossings over an existing above ground pipeline corridor.
- 3.4.3 The section will require around 141 new supports based on a new support every 6.4 m at the pipeline diameter size, and these are anticipated to be low level concrete supports following the existing pipeline corridor.
- 3.4.4 Two AGI locations have been identified along the pipeline section. The immediate tie-in AGI location from the mainline will house a double block and bleed arrangement, acting as isolation for both the line and temporary PIG trap during pigging and maintenance. The second AGI location sits at the end of the pipeline and

will house the temporary PIG receiver and a double block and bleed isolation arrangement at the end-of-line.

3.4.5 Pipeline parameters and a summary of the crossings for the North Tees section are provided in Table 3-5 and Table 3-6 respectively.

Table 3-5 – Hydrogen Distribution Network Section Routeing Parameters – North Tees

CONNECTION TYPE	NORTH TEES
Pipeline External Diameter (")	8
Pipeline External Diameter (mm)	200
Pipeline Length: Above Ground (km)	0.91
Pipeline Length: Below Ground (km)	N/A
Overall Pipeline Length (km)	0.91
Potential Offtakers	1

Table 3-6 – Hydrogen Distribution Network Crossing Summary – North Tees

CROSSINGS SUMMARY	NORTH TEES
Road crossings	3
Rail crossings	N/A
Infrastructure crossings (pipelines)	3
Watercourse crossings (minor / major)	N/A
Total	6

3.5 Greatham

3.5.1 The Greatham section of the Hydrogen Distribution Network branches off the mainline pipeline in Seal Sands heading north. This section has two trenchless crossings consisting of:

- a single crossing of Seal Sands Road, a disused railway line and the Linkline corridor; and
- a separate crossing of the Greatham Creek water course (a main river);

3.5.2 Two AGI locations have been identified along the Greatham section of the pipeline. The first AGI will be located to the south of the mainline corridor. The second AGI

location is at the northern end of the pipeline. They will house the temporary PIG launcher and receiver and have double block and bleed isolation arrangements.

~~3.5.23.5.3~~ The pipeline will initially head east ~~back along the southern edge of the mainline corridor~~ before turning 90 degrees ~~left~~ and heading north ~~towards and past the brine fields~~. Here the pipeline will be required to cross the Linkline corridor, ~~before crossing the~~ public road and disused railway line within the SABIC land, which is proposed to be a single trenchless crossing. ~~For this second crossing over the public road, a trenchless crossing is being proposed and this is expected to be~~ approximately ~~240-500~~ m in length.

~~3.5.33.5.4~~ Heading north from the HDD ~~entry-exit~~ point, the pipeline will be buried and routed along the east side of the disused railway that runs north-south through the SABIC land running to the west of SABIC’s surface infrastructure associated with brine extraction. As the pipeline runs north, it will need to cross several below ground pipelines running east west. The design of the ~~eseis~~ crossings ~~isare~~ currently assumed to be of ~~buried open cut~~ construction.

~~3.5.43.5.5~~ The pipeline continues to run buried before turning ~~west-east~~ and following alongside an access track, the pipeline then turns north again towards Greatham Creek. A long trenchless crossing constructed using HDD techniques, approximately 630 m in length is proposed to cross Greatham Creek to avoid direct habitat loss within the Teesside and Cleveland Coast SPA, Ramsar and SSSI site. After crossing Greatham creek, the pipeline will run buried up to the second AGI location.

~~3.5.51.1.1~~ ~~The second AGI location will house the temporary PIG receiver and a double block and bleed isolation arrangement.~~

3.5.6 A standard 12 m (40 ft) easement width, centred on the pipeline centreline, has been recommended for this section. Pipeline parameters and a summary of the crossings for the Greatham section are provided in Table 3-7 and Table 3-8 respectively.

Table 3-7: Hydrogen Distribution Network Section Routeing Parameters – Greatham

CONNECTION TYPE	HYDROGEN PIPELINE – GREATHAM
Pipeline External Diameter (")	86
Pipeline External Diameter (mm)	±2050
Pipeline Length: Above Ground (km)	N/A
Pipeline Length: Below Ground (km)	3.47
Overall Pipeline Length (km)	3.47
Potential Offtakers	1

Table 3-8: Hydrogen Distribution Network Crossing Summary – Greatham

CROSSINGS SUMMARY	HYDROGEN PIPELINE – GREATHAM
Road Crossings	11
Rail Crossings	2
Infrastructure Crossings (Pipelines)	4
Watercourse Crossings (minor / major)	2
Total	19

3.6 Billingham Industrial Park

3.6.1 The Billingham Industrial Park section of the Hydrogen Distribution Network branches from the west end of the mainline to respective potential offtaker locations. There is also the potential to connect to the National Gas Grid AGI near Billingham Industrial Park. This would provide a connection to ‘Project Union’ and the natural gas national transmission system.

3.6.2 It is anticipated that the majority of this pipeline section will be routed above ground. The pipeline will leave the AGI near the Saltholme National Grid sub-station and run south, crossing two buried gas main pipelines. The pipeline will then turn 90-degrees right due west and run above ground, following the existing pipeline corridors on the southern side. The decision to route on the south corridor was made due to congestion in the larger corridor to the north. The pipeline will cross three public roads within this section and these crossings will utilise existing culverts. The pipeline will then cross a further road, Belasis Avenue, via an existing pipe bridge. There will be an hydrogen AGI located near the National Gas AGI for the Project Union connection. ~~before entering the Billingham Industrial Park.~~

3.6.3 South of Belasis Avenue is a crossing of the public railway to enter ~~before entering the Billingham Industrial Park.~~ The railway crossing and much of the pipework ~~A large section of this pipeline is routed through the~~ within -Billingham Industrial Park. ~~Much of the pipework~~ will be required to be installed “at height” on existing pipe racks which are approximately 5 m in height, which ~~within the Billingham Industrial Park and~~ will require additional construction considerations. As much of the pipeline routeing is to be on existing pipe racks, crossing points within the Billingham Industrial Park have not been highlighted. There is an AGI within Billingham Industrial Park.

3.6.4 Exiting the site, the pipeline will cross a disused railway line using an existing pipe bridge and then will continue to run at ground level until reaching New Road. It has been judged that there is sufficient space for the new pipeline on the top level of a pipe bridge to cross the road and enter the adjacent site.

3.6.5 Pipeline parameters and a summary of the crossings for the Billingham Industrial Park section are provided in

~~3.6.5~~3.6.6 Table 3-9 and Table 3-10 and respectively.

Table 3-9 – Hydrogen Distribution Network Section Routeing Parameters – Billingham Industrial Park

CONNECTION TYPE	HYDROGEN PIPELINE – BILLINGHAM INDUSTRIAL PARK
Pipeline External Diameter (")	168
Pipeline External Diameter (mm)	4200
Pipeline Length: Above Ground (km)	4.80
Pipeline Length: Below Ground (km)	N/A
Overall Pipeline Length (km)	4.80
Potential Offtakers	32

Table 3-10: Hydrogen Distribution Network Crossing Summary – Billingham Industrial Park

CROSSINGS SUMMARY	HYDROGEN PIPELINE – BILLINGHAM INDUSTRIAL PARK
Road Crossings	6
Rail Crossings	2
Infrastructure Crossings (Pipelines)	2
Watercourse Crossings (minor / major)	N/A
Total	10

3.7 Transmission and Distribution Infrastructure Connection

~~3.7.1~~ — In collaboration with National Gas Transmission and Northern Gas Networks, ~~two alternative-a~~ location ~~s~~ for this connection to the gas distribution network ~~have has~~ been identified, ~~at the Cowpen Bewley AGI or at a tie in at Saltholme which would allow a connection to 'Project Union', the national transmission system and the local distribution system. This :~~

- ~~• Option A,~~ considers the pipeline branching from the end of the South Tees Development Corporation (STDC) and Seal Sands branch of the hydrogen pipeline to the Northern Gas Networks' (NGN) Cowpen Bewley site, ~~and~~
- ~~• 3.7.1 Option B,~~ considers a spur from the Greatham branch to an alternative NGN site located to the west of the Greatham branch near the A178 Seaton Carew Road, ~~;~~

~~3.7.2~~ — It is necessary to maintain optionality in the routeing of the Hydrogen Distribution Network in these areas through the DCO process as bp progresses technical and

~~commercial discussions with the relevant parties to allow selection of the preferred option.~~

Option A

~~3.7.3~~3.7.2 For Scenario A, the route of the pipeline consists of ~~a two~~ trenchless HDD crossings ~~s~~ consisting of several buried gas mains and a public railway line.

~~3.7.4~~3.7.3 From the existing end of line AGI near Saltholme National Grid sub-station, the pipeline will head northwest through arable land approximately parallel to the A1185 road to avoid the Teesmouth and Cleveland Coast SPA/Ramsar site on the eastern side of the road and overhead power lines running along the road. There are two route sub-options considered at this point of the pipeline section to avoid impacting upon habitat enhancements within the Royal Society for the Protection of Birds' (RSPB) Saltholme Nature Reserve – to either pass to the east or the west of the RSPB enhancements.

~~3.7.5~~3.7.4 Within the section, taking the east option the pipeline crosses a minor track and stream. These are intended to be crossed via open-cut construction methodology. ~~The pipeline will be required to cross two buried gas mains, with the design of this crossing assumed to be trenchless buried construction using auger boring.~~ Taking the west option, the pipeline crosses the same minor track and stream, along with an additional stream. These are intended to be crossed via open-cut construction methodology.

~~3.7.5~~ The pipeline will be required to cross ~~two~~ ~~three~~ buried gas mains, with the design of this crossing assumed to be trenchless buried construction using auger boring. As the pipeline continues north a further track is crossed ~~via an auger bore.~~ The ~~final route of the pipeline route~~ turns west along the railway line ~~towards the Cowpen Bewley AGI crossing another track and buried pipelines again using an auger bored crossing.~~ The pipeline continues until turning north towards existing Cowpen Bewley AGI. To reach this site the pipeline must cross the public railway (Durham Coast Line) using a trenchless crossing.

3.7.6 The pipeline must also pass through a woodland area (part of Cowpen Bewley Woodland Park) before reaching the Cowpen Bewley AGI site boundary. This section of the pipeline will be of buried construction. The very final section of the pipeline within the AGI will be above ground.

3.7.7 A standard 12 m (40 ft) easement width, centred on the pipeline centreline, has been recommended for this section.

3.7.8 Pipeline parameters and a summary of the crossings for the Transmission and Distribution Infrastructure Connection ~~(Option A)~~ are provided in Table 3-11 and

~~3.7.8~~ 3.7.9 Table 3-12 respectively.

Table 3-11: Hydrogen Distribution Network Section Routeing Parameters – Transmission and Distribution Infrastructure Connection (~~Option A~~)

CONNECTION TYPE	HYDROGEN PIPELINE— OPTION A
Pipeline External Diameter (")	14
Pipeline External Diameter (mm)	350
Pipeline Length: Above Ground (km)	N/A
Pipeline Length: Below Ground (km)	2.06
Overall Pipeline Length (km)	2.06
Potential Offtakers	1

Table 3-12: Hydrogen Distribution Network Crossing Summary – Transmission and Distribution Infrastructure Connection (Option A)

CROSSINGS SUMMARY	HYDROGEN PIPELINE— OPTION A
Road Crossings	4
Rail Crossings	1
Infrastructure Crossings (Pipelines)	4
Watercourse Crossings (minor / major)	1
Total	10

Option B

~~3.7.9 For Option B, the route of the pipeline will branch off the Greatham line near the brine fields in Saltholme. As mentioned previously the Greatham line starts from the AGI located to the south of the mainline corridor. The pipeline initially heads east back along the southern edge of the mainline corridor before turning 90 degrees left and heading north towards and through the SABIC brine fields. Here the pipeline will be required to cross the Linkline corridor before crossing the public road and railway line, requiring the use of the Greatham HDD crossing. The Option B pipeline will travel west from a junction with the Greatham line travelling west to the alternative AGI tie-in location at the existing NGN compound located to the east of the A178 Seaton Carew Road near the SABIC brinefields. This pipeline section is proposed to be approximately 0.9 km long.~~

~~3.7.10 Pipeline parameters and a summary of the crossings for the Transmission and Distribution Infrastructure Connection (Option B) are provided in Table 3-13 and Table 3-14 respectively.~~

Table 3-13 – Hydrogen Distribution Network Section Routeing Parameters – Transmission and Distribution Infrastructure Connection (Option B)

CONNECTION TYPE	HYDROGEN PIPELINE— OPTION B
Pipeline External Diameter (")	14
Pipeline External Diameter (mm)	350
Pipeline Length: Above Ground (km)	N/A
Pipeline Length: Below Ground (km)	0.9
Overall Pipeline Length (km)	0.9
Potential Offtakers	1

~~Table 3-14 – Hydrogen Distribution Network Crossing Summary – Transmission and Distribution Infrastructure Connection (Option B)~~

CROSSINGS SUMMARY	HYDROGEN PIPELINE – OPTION B
Road Crossings	0
Rail Crossings	0
Infrastructure Crossings (Pipelines)	0
Watercourse Crossings (minor / major)	1
Total	0

4.0 RESPONSIBILITIES FOR DESIGNING AND BUILDING THE –HYDROGEN DISTRIBUTION NETWORK

4.1 Design

- 4.1.1 The Applicant’s chosen EPC contractor(s) will undertake the detailed design, engineering and construction of the selected hydrogen pipeline network route.
- 4.1.2 This design of the hydrogen pipelines are anticipated to run up to end-of-line Above Ground Installations (AGIs), including metering and pigging skids and tie-in points-.

4.2 Build

- 4.2.1 The chosen Hydrogen Pipeline Corridor route will be constructed by qualified contractor(s) with tie-in and connection works coordinated with potential offtakers.
- 4.2.2 The works to construction the pipelines are as described in Chapter 5: Construction Programme and Management of the ES ~~(ES Volume 1, EN070009/APP/6.2)~~.

4.3 Operation and Maintenance

- 4.3.1 The Applicant will be responsible for the operation and maintenance of the hydrogen pipeline and associated equipment including all AGIs.
- 4.3.2 Pipeline inspection plans will be prepared and if required, pig launching and receiving facilities for intelligent pigging operations will be considered.

5.0 LAND REQUIREMENTS

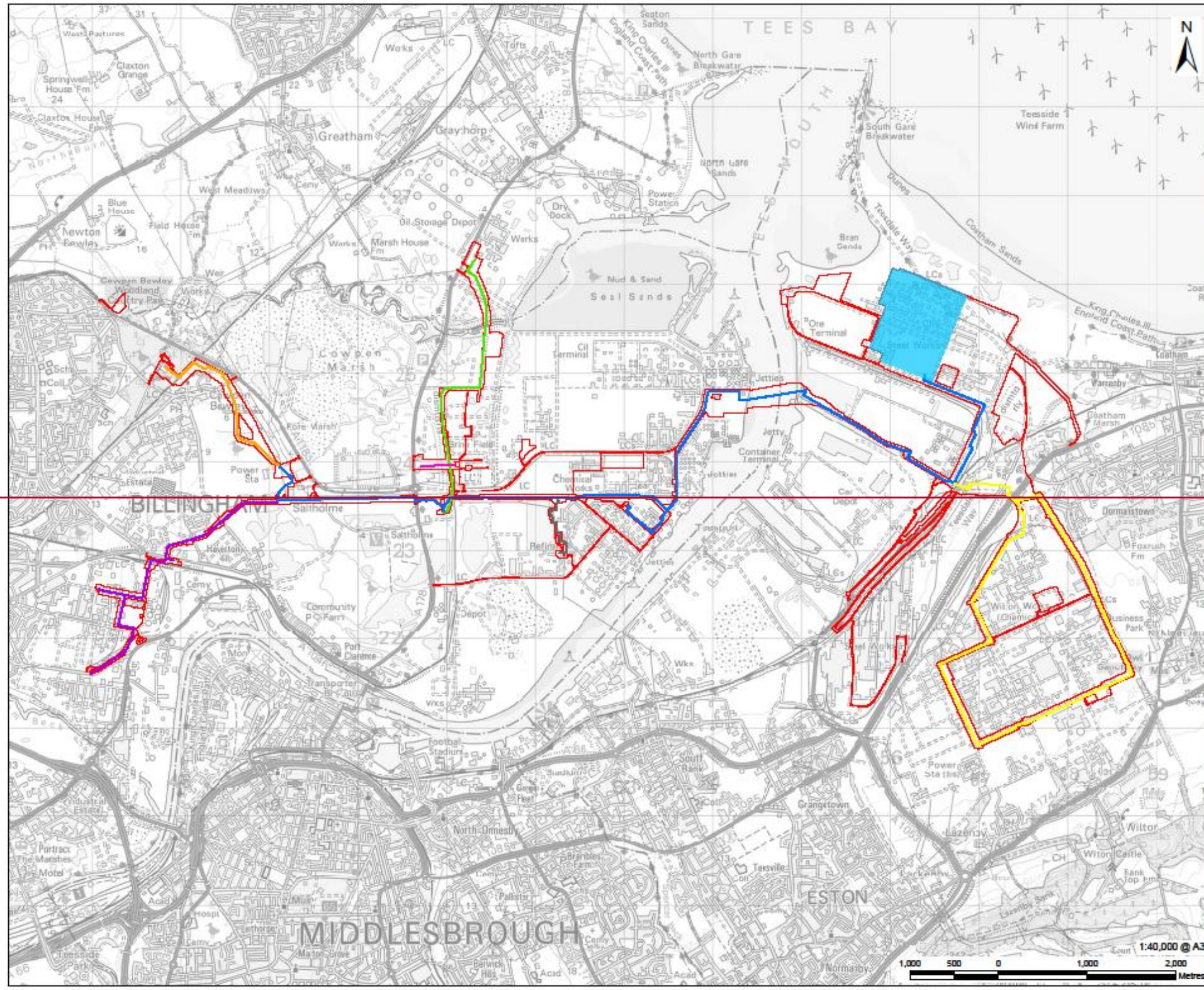
- 5.1.1 The Land Plans (EN070009/APP/2.2), Book of Reference (EN070009/APP/3.1) and Schedule of Negotiations and Powers Sought (EN070009/APP/3.4) set out the powers that are sought for each plot of land that is required for the Hydrogen Distribution Network, including all road and river crossings and necessary easement widths, and Schedule 1 of the draft DCO (EN070009/APP/4.1) and the associated Works Plans (EN070009/APP/2.4) authorise the powers to carry out the works to install the Hydrogen Distribution Network. ~~The Land Plans, Book of Reference, Works Plans and the draft DCO have been updated as part of this Change Application.~~
- 5.1.2 Together, these powers will enable the Applicant and persons authorised on its behalf to enter onto the land to lay, install, operate, maintain and access the pipeline and its associated crossings.
- 5.1.3 As set out in the Schedule of Negotiations and Powers Sought, the Applicant has been and will continue to seek to enter into voluntary agreements with affected parties for use of this land, but if this is not able to be achieved, the relevant land powers in the DCO will be utilised.

6.0 CONSENTS REQUIRED

6.1.1 The Hydrogen Distribution Network is included within the DCO Application, and therefore no separate planning permission is required. Environmental impacts associated with the Hydrogen Pipeline Corridor works are assessed in the topic chapters in the ES and Other Consents and Licences required are discussed in the Other Consents and Licences Statement ~~(EN070009/APP/5.7)~~[APP-037] which has been updated as part of the change application..

FIGURE 1: PIPELINE ROUTE OPTIONS

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LEGEND

- Proposed Development Site
- Main Site
- Hydrogen Routes**
- Billingham Industrial Park
- Greatham
- North Tees
- Teesworks and Seal Sands
- Transmission and Distribution Infrastructure Connection (Option A)
- Transmission and Distribution Infrastructure Connection (Option B)
- Wilton International

NOTES

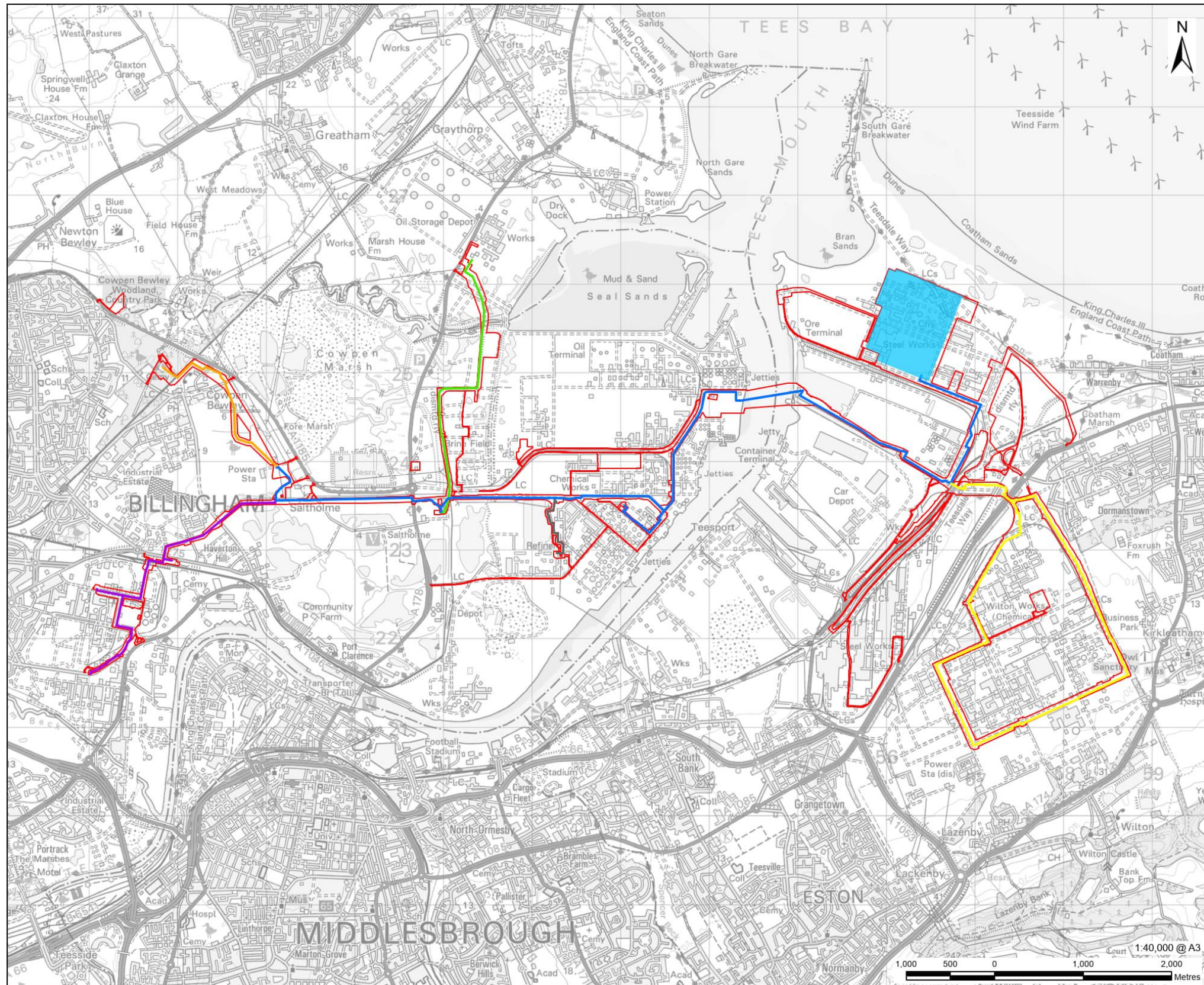
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ISSUE PURPOSE
Environmental Statement

PROJECT NUMBER
60689030

FIGURE TITLE
H2Teesside DCO Application Pipeline Statement

FIGURE NUMBER
Figure 1



AECOM

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- LEGEND**
- Proposed Development Site
 - Main Site
 - Hydrogen Routes**
 - Billingham Industrial Park
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 - Transmission and Distribution Infrastructure Connection (Option A)
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NOTES
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ISSUE PURPOSE
Environmental Statement

PROJECT NUMBER
60689030

FIGURE TITLE
H2Teesside DCO Application Pipeline Statement

FIGURE NUMBER
Figure 1

7.0 REFERENCES

Department for Business Security and Net Zero (DESNZ) (2023). UK Low Carbon Hydrogen Standard

HM Government (2009). Regulation 6(4) of The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations

APPENDIX 1: PIPELINE STATEMENT

Table A-1 below lists the following information required by The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 6(4) in relation to the Hydrogen Pipeline Network to be constructed as part of the Proposed Development:

- a) the name of the proposed pipeline and section;
- b) the owner of the proposed pipeline;
- c) the start and end point of the proposed pipeline;
- d) the length of the proposed pipeline in kilometres;
- e) the external diameter in millimetres of the proposed pipeline;
- f) what will be conveyed by the proposed pipeline; and
- g) whether the grant of any rights in land or consents to road or river crossing works are required and if so whether they can be obtained by agreement.

Table A-1: Pipelines required for the Proposed Development

NAME	SECTION NAME	OWNER	START	END	LENGTH (km)	EXTERNAL DIAMETER (mm)	WHAT WILL BE CONVEYED?	LAND RIGHTS:	
								REQUIRED FOR CROSSINGS?	CAN BE REACHED BY AGREEMENT?
Hydrogen Distribution Network	South Tees Development Corporation (STDC) and Seal Sands	H2 Teesside Limited	Foundry site	AGI near Saltholme National Grid sub-station	11.81	600	Hydrogen	Yes	See note below ¹
	Wilton International	H2 Teesside Limited	AGI south of Bran Sands	AGI within Wilton International	7.67	4300	Hydrogen	Yes	

¹ The Applicants are in negotiations with affected land owners to acquire the necessary rights for the pipelines by agreement – see the Schedule of Negotiations and Powers Sought (Document Ref. 3.4). However compulsory acquisition powers are sought in the DCO, including the power to acquire rights, to ensure that the delivery of the Proposed Development can be secured. Further details are provided in the Statement of Reasons (Document Ref. 3.2). Works within streets and river crossings are authorised by powers in the Draft DCO (~~Document Ref. 4.1~~[APP-027]), and details of consents required are set out in Other Consents and Licences (~~Document Ref. 5.7~~[APP-037]).

NAME	SECTION NAME	OWNER	START	END	LENGTH (km)	EXTERNAL DIAMETER (mm)	WHAT WILL BE CONVEYED?	LAND RIGHTS:	
								REQUIRED FOR CROSSINGS?	CAN BE REACHED BY AGREEMENT?
	North Tees	H2 Teesside Limited	AGI from South Tees Development Corporation (STDC) and Seal Sands line	AGI in North Tees	0.91	200	Hydrogen	Yes	
	Greatham	H2 Teesside Limited	AGI from South Tees Development Corporation (STDC) and Seal Sands line	AGI north of Greatham Creek	3.47	20150	Hydrogen	Yes	

NAME	SECTION NAME	OWNER	START	END	LENGTH (km)	EXTERNAL DIAMETER (mm)	WHAT WILL BE CONVEYED?	LAND RIGHTS:	
								REQUIRED FOR CROSSINGS?	CAN BE REACHED BY AGREEMENT?
	Transmission and Distribution Infrastructure Connection	H2 Teesside Limited	AGI near Saltholme National Grid sub-station	Option A: NGN site AGI location Cowpen Bewley ³	2.06 2	350 3	Hydrogen	Yes	
				Option B: NGN site AGI location off A178 Seaton Carew Rd ⁴	0.9 3	TBC ⁴			
	Billingham Industrial Park	H2 Teesside Limited	AGI from South Tees Development Corporation	Billingham Industrial Park	4.80	4 2 00	Hydrogen	Yes	

²-Pipeline length based on Scenario A for Greatham Offtaker A / NGN C&B

³-Pipeline length based on Scenario B for Greatham Offtaker A / NGN C&B



NAME	SECTION NAME	OWNER	START	END	LENGTH (km)	EXTERNAL DIAMETER (mm)	WHAT WILL BE CONVEYED?	LAND RIGHTS:	
								REQUIRED FOR CROSSINGS?	CAN BE REACHED BY AGREEMENT?
			(STDC) and Seal Sands line						