

KEADBY 3 CARBON CAPTURE POWER STATION

A collaboration between **SSE Thermal** and **Equinor**

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The Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station) Order

Land at and in the vicinity of the Keadby Power Station site, Trentside, Keadby, North Lincolnshire

Framework Construction Traffic Management Plan

The Planning Act 2008

Applicant: Keadby Generation Limited

Date: ~~April~~ May 2022

DOCUMENT HISTORY

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GLOSSARY

Abbreviation	Description
AGI	Above Ground Installation - installations used to support the safe and efficient operation of a pipeline; above ground installations are needed at the start and end of a cross-country pipeline and at intervals along the route.
AIL	Abnormal Indivisible Load – a load that cannot be broken down into smaller loads for transport without undue expense or risk of damage. It may also be a load that exceeds certain parameters for weight, length and width.
Applicant	Keadby Generation Limited
CCUS	Carbon Capture, Usage and Storage - group of technologies designed to reduce the amount of carbon dioxide (CO ₂) released into the atmosphere from coal and gas power stations as well as heavy industry including cement and steel production. Once captured, the CO ₂ can be either re-used in various products, such as cement or plastics (utilisation), or stored in geological formations deep underground (storage).
CTMP	Construction Traffic Management Plan – a plan outlining measures to organise and control vehicular movement on a construction site so that vehicles and pedestrians using site routes can move around safely.
CWTP	Construction Workers' Travel Plan – a plan managing and promoting how construction workers travel to a particular area or organisation. It aims at promoting greener, cleaner travel choices and reducing reliance on the private car.
DCO	Development Consent Order - made by the relevant Secretary of State pursuant to The Planning Act 2008 to authorise a Nationally Significant Infrastructure Project. A DCO can incorporate or remove the need for a range of consents which would otherwise be required for a development. A DCO can also include rights of compulsory acquisition.
ES	Environmental Statement – a report in which the process and results of an Environment Impact Assessment are documented.

Abbreviation	Description
FEED	Front End Engineering Design - engineering which comes after the conceptual design or feasibility study focusing on the technical requirements and estimated investment cost for the project.
HGV	Heavy Goods Vehicle – vehicles with a gross weight in excess of 3.5 tonnes.
MW	Megawatt – unit of power.
National Highways	Formerly Highways England - operate, maintain and improve England's motorways and major A-roads.
NEP	A partnership between bp, Eni, Equinor, National Grid, Shell and Total to develop infrastructure to transport and store carbon dioxide emissions.
NLC	North Lincolnshire Council – the council with jurisdiction over the area within which the Proposed Development Site (the Site) is situated.
NSIP	Nationally Significant Infrastructure Projects – defined by the Planning Act 2008 and covers projects relating to energy (including generating stations, electric lines and pipelines); transport (including trunk roads and motorways, airports, harbour facilities, railways and rail freight interchanges); water (dams and reservoirs, and the transfer of water resources); wastewater treatment plants and hazardous waste facilities. These projects are only defined as nationally significant if they satisfy a statutory threshold in terms of their scale or effect.
SoS	Secretary of State - title typically held by Cabinet Ministers in charge of Government Departments.

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Revision History for Version VP2.0

Item	Nature of Revision
1	Updates made to the Framework CTMP considering: Changes to paragraph 2.5.4 following discussions with North Lincolnshire Council in relation to Document Ref. 4.6: Highways Works Plans.
2	Update on status of Applicant's Change Request application.

EXECUTIVE SUMMARY

- 1 This Framework Construction Traffic Management Plan (Framework CTMP) has been prepared to outline the controls intended to be used for the management and routing of HGV traffic associated with the construction of a proposed low carbon Combined Cycle Gas Turbine (CCGT) Generating Station ('the Proposed Development') on land at, and in the vicinity of, the existing Keadby Power Station, Trentside, Keadby, Scunthorpe DN17 3EF (the 'Proposed Development Site').
- 2 The construction of the Proposed Development would generate a volume of HGV involved in site preparation (removal of spoil and importation of material) and delivering plant and machinery, concrete and aggregates, steelwork, bricks and block work and other general construction materials. A small number of abnormal indivisible loads (AIL) will also be generated by the construction of the Proposed Development which will need appropriate management.
- 3 This Framework CTMP sets the limits determined by the assessment of traffic impacts associated with the Proposed Development. The appointed contractor will be required to use this document as the starting point for the detailed Construction Traffic Management Plan to be prepared in accordance with a requirement of the draft Development Consent Order (DCO) to demonstrate how the limits set will be achieved. The draft DCO is included as **Application Document Ref. 2.1**. This Framework CTMP also describes the issues that have been identified during the application process and the measures necessary to address these issues.
- 4 This Framework CTMP is structured as follows:
 - Section 1 describes the Proposed Development including the construction programme, the profile of car and light van generation and heavy goods vehicle (HGV) generation;
 - Section 2 describes the proposed measures to control HGV routing and impact;
 - Section 3 describes the proposed Additional AIL Route and routing strategy;
 - Section 4 provides the monitoring strategy; and
 - Section 5 describes the planned liaison with key stakeholders.

1.0 INTRODUCTION

1.1 Overview

- 1.1.1 This Framework Construction Traffic Management Plan (Framework CTMP) has been prepared by AECOM on behalf of Keadby Generation Limited (the 'Applicant') which is a wholly owned subsidiary of SSE plc. It forms part of the application (the 'Application') for a Development Consent Order (a 'DCO'), that has been submitted to the Secretary of State (the 'SoS') for Business, Energy and Industrial Strategy, under section 37 of 'The Planning Act 2008' (the '2008 Act').
- 1.1.2 The Applicant is seeking development consent for the construction, operation and maintenance of a new low carbon Combined Cycle Gas Turbine (CCGT) Generating Station ('the Proposed Development') on land at, and in the vicinity of, the existing Keadby Power Station, Trentside, Keadby, Scunthorpe DN17 3EF (the 'Proposed Development Site').
- 1.1.3 The Proposed Development is a new electricity generating station of up to 910 megawatts (MW) gross electrical output, equipped with carbon capture and compression plant and fuelled by natural gas, on land to the west of Keadby 1 Power Station and the (under construction) Keadby 2 Power Station, including connections for cooling water, electrical, gas and utilities, construction laydown areas and other associated development. It is described in **Chapter 4: The Proposed Development of the Environmental Statement (ES) (ES Volume I - Application Document Ref. 6.2)**.
- 1.1.4 The Proposed Development falls within the definition of a 'Nationally Significant Infrastructure Project' (NSIP) under Section 14(1)(a) and Sections 15(1) and (2) of the 2008 Act, as it is an onshore generating station in England that would have a generating capacity greater than 50MW electrical output (50MWe). As such, a DCO application is required to authorise the Proposed Development in accordance with Section 31 of the 2008 Act.
- 1.1.5 The DCO, if made by the SoS, would be known as 'The Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station) Order' ('the Order').

1.2 The Applicant

- 1.2.1 The Applicant, Keadby Generation Limited, is the freehold owner of a large part of the Proposed Development Site and is a wholly owned subsidiary of the FTSE 100-listed SSE plc, one of the UK's largest and broadest-based energy companies, and the country's leading developer of renewable energy generation. Over the last 20 years, SSE plc has invested over £20bn to deliver industry-leading offshore wind, onshore wind, CCGT, energy from waste, biomass, energy networks and gas storage projects. The Applicant owns and operates the adjacent Keadby 1 Power Station and is in the process of constructing Keadby 2 Power Station. SSE operates the Keadby Windfarm which lies to the north and south of the Proposed Development Site and

generates renewable energy from 34 turbines, with a total installed generation capacity of 68MW.

- 1.2.2 SSE has produced a 'Greenprint' document (SSE plc, 2020a) that sets out a clear commitment to investment in low carbon power infrastructure, working with government and other stakeholders to create a net zero power system by 2040. This includes investment in flexible sources of electricity generation and storage for times of low renewable output which will complement other renewable generating sources, using low carbon fuels and/ or capturing and storing carbon emissions. SSE is working with leading organisations across the UK to accelerate the development of carbon capture, usage and storage ('CCUS') clusters, including Equinor and National Grid Carbon.
- 1.2.3 The design of the Proposed Development demonstrates this commitment. The Proposed Development will be built with a clear route to decarbonisation, being equipped with post-combustion carbon capture technology, consistent with SSE's commitment to reduce the carbon intensity of electricity generated by 60% by 2030, compared to 2018 levels (SSE plc, 2020b). It is intended that the Proposed Development will connect to infrastructure that will be delivered by the Zero Carbon Humber (ZCH) Partnership¹ and Northern Endurance Partnership (NEP)² for the transport and offshore geological storage of carbon dioxide.

1.3 What is Carbon Capture, Usage and Storage?

- 1.3.1 CCUS is a process that removes carbon dioxide emissions at source, for example emissions from a power station or industrial installation, and then compresses the carbon dioxide so that it can be safely transported to secure underground geological storage sites. It is then injected into layers of solid rock filled with interconnected pores where the carbon dioxide becomes trapped and locked in place, preventing it from being released into the atmosphere. Plate 1 shows what is involved in the process.

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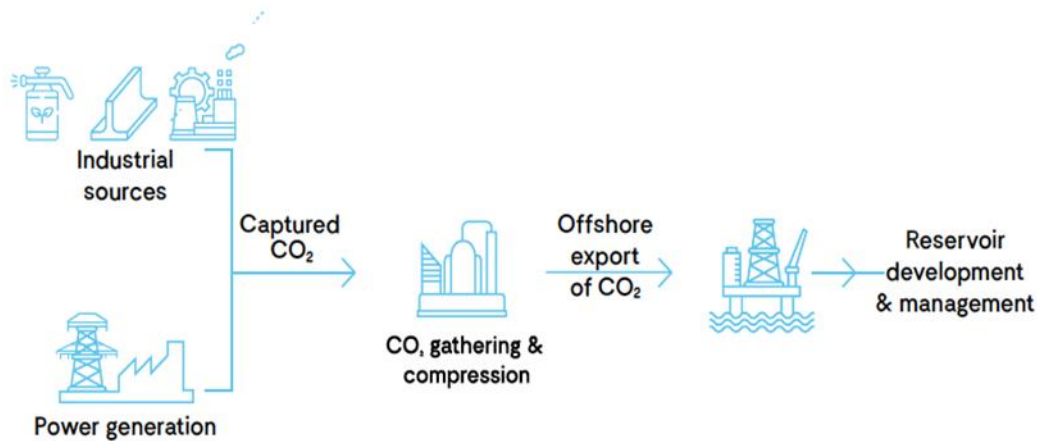


Plate 1: Illustration of the Carbon Capture, Usage and Storage

- 1.3.2 The technologies used in CCUS are proven and have been used safely across the world for many years. Geological storage sites are located far underground and are subject to stringent tests to ensure that they are geologically suitable. It is expected that the storage sites will be located offshore, in areas such as the North Sea. The NEP has been formed to develop the offshore infrastructure to transport and store carbon dioxide emissions in the North Sea.
- 1.3.3 CCUS is crucial to reducing carbon dioxide emissions and combatting global warming. The UK Government has committed to achieving Net Zero in terms of greenhouse gas emissions by 2050. This is a legally binding target. UK Government policy further states that the *'deployment of power CCUS projects will play a key role in the decarbonisation of the electricity system at low cost'* (HM Government, 2020a, page 47).
- 1.3.4 The Proposed Development will provide up to 910MWe (gross) of dispatchable capacity and capture some 2 million tonnes of carbon dioxide per annum, dependent upon the turbine equipment chosen and the running hours of the plant. The Proposed Development could be up and running by the mid-2020s and will facilitate the timely development of a major CCUS cluster in the Humber region, making an important contribution towards the achievement of Net Zero by 2050.

1.4 The Proposed Development

- 1.4.1 The Proposed Development will work by capturing carbon dioxide emissions from the gas-fired power station and connecting into the ZCH Partnership export pipeline and gathering network for onward transport to the Endurance saline aquifer under the North Sea.
- 1.4.2 The Proposed Development would comprise a low carbon gas fired power station with a gross electrical output capacity of up to 910MWe and associated buildings, structures and plant and other associated development defined in the

Schedule 1 of the draft DCO (**Application Document Ref. 2.1**) as Work No. 1 – 11 and shown on the Works Plans (**Application Document Ref. 4.3**).

1.4.3 At this stage, the final technology selection cannot yet be made as it will be determined by various technical and economic considerations and will be influenced by future UK Government policy and regulation. The design of the Proposed Development therefore incorporates a necessary degree of flexibility to allow for the future selection of the preferred technology in the light of prevailing policy, regulatory and market conditions once a DCO is made.

1.4.4 The Proposed Development will include:

- a carbon capture equipped electricity generating station including a CCGT plant (**Work No. 1A**) with integrated cooling infrastructure (**Work No. 1B**), and carbon dioxide capture plant (CCP) including conditioning and compression equipment, carbon dioxide absorption unit(s) and stack(s) (**Work No. 1C**), natural gas receiving facility (**Work No. 1D**), supporting uses including control room, workshops, stores, raw and demineralised water tanks and permanent laydown area (**Work No. 1E**), and associated utilities, various pipework, water treatment plant, wastewater treatment, firefighting equipment, emergency diesel generator, gatehouse, chemical storage facilities, other minor infrastructure and auxiliaries/ services (all located in the area referred to as the 'Proposed Power and Carbon Capture (PCC) Site' and which together form **Work No. 1**);
- natural gas pipeline from the existing National Grid Gas high pressure (HP) gas pipeline within the Proposed Development Site to supply the Proposed PCC Site including an above ground installation (AGI) for National Grid Gas's apparatus (**Work No. 2A**) and the Applicant's apparatus (**Work No. 2B**) (the 'Gas Connection Corridor');
- electrical connection works to and from the existing National Grid 400kV Substation for the export of electricity (**Work No. 3A**) (the 'Electrical Connection Area to National Grid 400kV Substation');
- electrical connection works to and from the existing Northern Powergrid 132kV Substation for the supply of electricity at up to 132kV to the Proposed PCC Site, and associated plant and equipment (**Work No. 3B**) (the 'Potential Electrical Connection to Northern Powergrid 132kV Substation');
- Water Connection Corridors to provide cooling and make-up water including:
 - underground and/ or overground water supply pipeline(s) and intake structures within the Stainforth and Keadby Canal, including temporary cofferdam (**Work No. 4A**) (the 'Canal Water Abstraction Option');
 - in the event that the canal abstraction option is not available, works to the existing Keadby 1 power station cooling water supply pipelines and intake structures within the River Trent, including temporary cofferdam (**Work No. 4B**) (the 'River Water Abstraction Option');
 - works to and use of an existing outfall and associated pipework for the discharge of return cooling water and treated wastewater to the River Trent (**Work No. 5**) (the 'Water Discharge Corridor');

- towns water connection pipeline from existing water supply within the Keadby Power Station to provide potable water (**Work No. 6**);
- above ground carbon dioxide compression and export infrastructure comprising an above ground installation (AGI) for the undertaker's apparatus including deoxygenation, dehydration, staged compression facilities, outlet metering, and electrical connection (**Work No. 7A**) and an above ground installation (AGI) for National Grid Carbon's apparatus (**Work No. 7B**);
- new permanent access from A18, comprising the maintenance and improvement of an existing private access road from the junction with the A18 including the western private bridge crossing of the Hatfield Waste Drain (**Work No. 8A**) and installation of a layby and gatehouse (**Work No. 8B**), and an emergency vehicle and pedestrian access road comprising the maintenance and improvement of an existing private track running between the Proposed PCC Site and Chapel Lane, Keadby and including new private bridge (**Work No. 8C**);
- temporary construction and laydown areas including contractor facilities and parking (**Work No. 9A**), and access to these using the existing private roads from the A18 and the existing private bridge crossings, including the replacement of the western existing private bridge crossing known as 'Mabey Bridge' over Hatfield Waste Drain (**Work No. 9B**) and a temporary construction laydown area associated with that bridge replacement (**Work No. 9C**);
- temporary retention, improvement and subsequent removal of an existing and extended Additional Abnormal Indivisible Load Haulage Route (**Work No. 10A**) and temporary use, maintenance, and placement of mobile crane(s) at the existing Railway Wharf jetty for a Waterborne Transport Offloading Area (**Work No. 10B**) and inclusion of land within the River Trent (**Work No. 10C**) which will be required for the mooring of vessels at the Waterborne Transport Offloading Area;
- landscaping and biodiversity enhancement measures (**Work No. 11A**) and security fencing and boundary treatments (**Work No. 11B**); and
- associated development including: surface water drainage systems; pipeline and cable connections between parts of the Proposed Development Site; hard standings and hard landscaping; soft landscaping, including bunds and embankments; external lighting, including lighting columns; gatehouses and weighbridges; closed circuit television cameras and columns and other security measures; site preparation works including clearance, demolition, earthworks, works to protect buildings and land, and utility connections; accesses, roads, roadways and vehicle and cycle parking; pedestrian and cycle routes; and temporary works associated with the maintenance of the authorised development.

1.4.5 The Applicant will be responsible for the construction, operation (including maintenance) and eventual decommissioning of the Proposed Development, with the exception of the National Grid Gas compound works (**Work No. 2A**), the works within the National Grid Electricity Transmission 400kV substation (part of **Work No. 3A**), the works within the Northern Powergrid 132kV

substation (part of **Work No. 3B**), and the National Grid Carbon compound works (**Work No. 7B**), which will be the responsibility of those named beneficiaries.

- 1.4.6 The Proposed Development includes the equipment required for the capture and compression of carbon dioxide emissions from the generating station so that it is capable of being transported off-site. ZCH Partnership will be responsible for the construction, operation and decommissioning of the carbon dioxide gathering network linking onshore power and industrial facilities including the Proposed Development in the Humber Region. The carbon dioxide export pipeline does not, therefore, form part of the Proposed Development and is not included in the Application but will be the subject of separate consent applications by third parties, such as the Humber Low Carbon Pipeline DCO Project by National Grid Carbon³.
- 1.4.7 The Proposed Development will operate 24 hours per day, 7 days per week with programmed offline periods for maintenance. It is anticipated that in the event of CCP maintenance outages, for example, it will be necessary to operate the Proposed Development without carbon capture, with exhaust gases from the CCGT being routed via the Heat Recovery Steam Generator (HRSG) stack.
- 1.4.8 Various types of associated and ancillary development further required in connection with and subsidiary to the above works are detailed in Schedule 1 'Authorised Development' of the draft DCO (**Application Document Ref. 2.1**). This along with **Chapter 4: The Proposed Development in the ES Volume I (Application Document Ref. 6.2)** provides further description of the Proposed Development. The areas within which each numbered Work (component) of the Proposed Development are to be built are defined by the coloured and hatched areas on the Works Plans (**Application Document Ref. 4.3**).

1.5 The Proposed Development Site

- 1.5.1 The Proposed Development Site (the 'Order Limits') is located within and near to the existing Keadby Power Station site near Scunthorpe, Lincolnshire and lies within the administrative boundary of North Lincolnshire Council (NLC). The majority of land is within the ownership or control of the Applicant (or SSE associated companies) and is centred on national grid reference 482351, 411796.
- 1.5.2 The existing Keadby Power Station site currently encompasses the operational Keadby 1 and (under construction) Keadby 2 Power Station sites, including the Keadby 2 Power Station Carbon Capture and Readiness reserve space.
- 1.5.3 The Proposed Development Site encompasses an area of approximately 69.4 hectares (ha). This includes an area of approximately 18.7ha to the west of Keadby 2 Power Station in which the generating station (CCGT plant, cooling

³ <https://infrastructure.planninginspectorate.gov.uk/projects/yorkshire-and-the-humber/humber-low-carbon-pipelines/>

infrastructure and CCP) and gas connection will be developed (the Proposed PCC Site).

1.5.4 The Proposed Development Site includes other areas including:

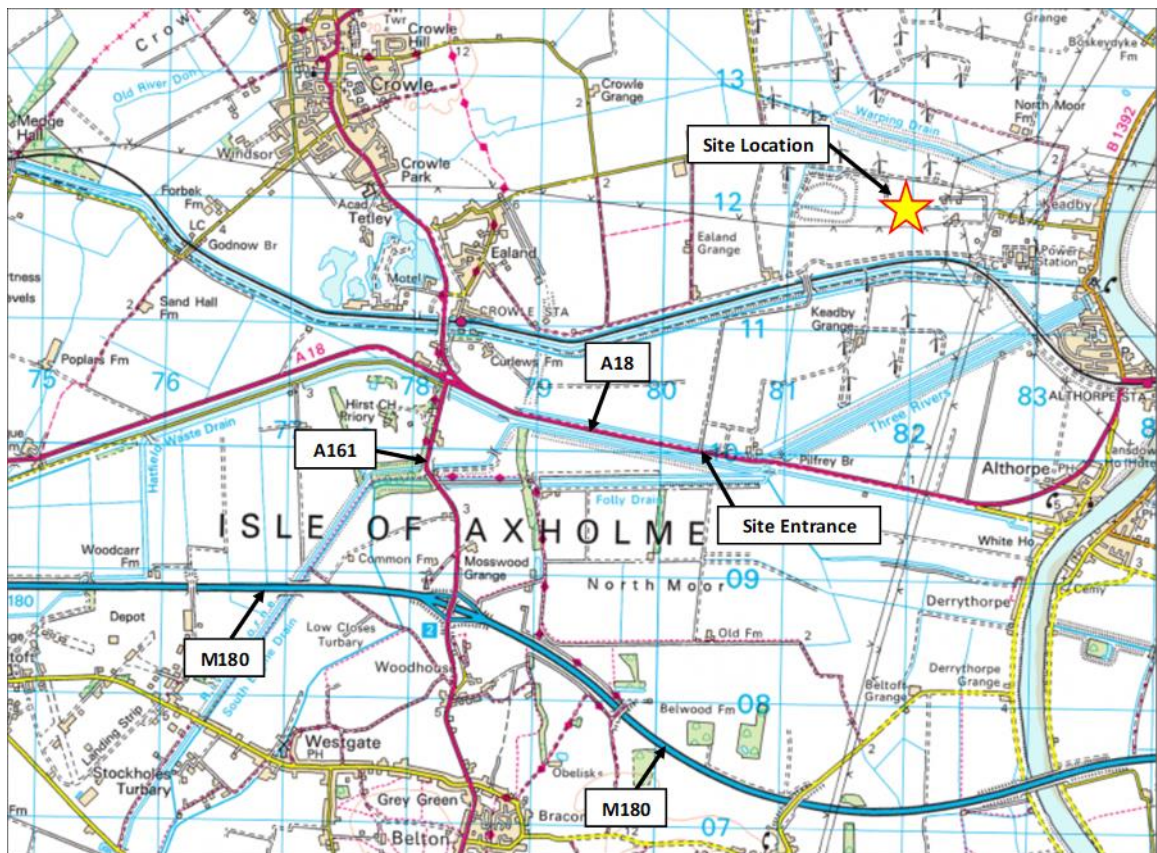
- Previously developed land, along with gas, towns water and other connections, and access routes, within the Keadby Power Station site;
- the National Grid 400kV Substation located directly adjacent to the Proposed PCC Site, through which electricity generated by the Proposed Development will be exported;
- Emergency Vehicle Access Road and Potential Electrical Connection to Northern Powergrid Substation, the routes of which utilise an existing farm access track towards Chapel Lane and land within the existing Northern Powergrid substation on Chapel Lane;
- Water Connection Corridors:
 - Canal Water Abstraction Option which includes land within the existing Keadby Power Station site with an intake adjacent to the Keadby 2 Power Station intake and pumping station and interconnecting pipework;
 - River Water Abstraction Option which includes a corridor that spans Trent Road and encompasses the existing Keadby Power Station pumping station, below ground cooling water pipework, and infrastructure within the River Trent; and
 - a Water Discharge Corridor which includes an existing discharge pipeline and outfall to the River Trent and follows a route of an existing easement for Keadby 1 Power Station;
- an existing river wharf at Railway Wharf (the Waterborne Transport Offloading Area) and existing temporary haul road into the into the existing Keadby 1 Power Station Site and extended to the north of Keadby 1 Power Station Site (the 'Additional Abnormal Indivisible Load (AIL) Route');
- a number of temporary Construction Laydown Areas on previously developed land and adjoining agricultural land; and
- land at the A18 Junction and an existing site access road, including two existing private bridge crossing of the Hatfield Waste Drain lying west of Pilfrey Farm (the western of which is known as Mabey Bridge, to be replaced, and the eastern of which is termed Skew Bridge) and an existing temporary gatehouse, to be replaced in permanent form.

1.5.5 In the vicinity of the Proposed Development Site the River Trent is tidal, therefore parts of the Proposed Development Site are within the UK marine area. No harbour works are proposed.

1.5.6 Further description of the Proposed Development Site and its surroundings is provided in **Chapter 3: The Site and Surrounding Area** in ES Volume I (**Application Document Ref. 6.2**).

1.5.7 Its location in relation to the surrounding area and the strategic road network is shown in **Figure 1**.

Figure 1: Proposed Development Site Location



1.6 The Proposed Development Changes

1.6.1 The Applicant has submitted a request (the 'Change Request') for the following changes to the Proposed Development, together known as 'the Proposed Development Changes'.

1.6.2 The Proposed Development Changes have resulted from design contractor involvement, which has continued to refine the detail of this 'First of a Kind' Project implementation.

- Change No. 1 - Inclusion of riverbed within the Waterborne Transport Offloading Area (Railway Wharf) to be numbered in Schedule 1 of the DCO as **Work 10C**.
- Change No. 2 – not used⁴.
- Change No. 3 - Increase to the maximum heights of the carbon dioxide absorbers/ stacks, if two are installed.

^[1] The Applicant previously consulted on and, at Deadline 5, proposed another change ("Change No. 2 - Changes to the Additional Abnormal Indivisible Load Route largely within SSE land and all within existing Order Limits". This was subsequently withdrawn by the Applicant by letter dated 26 April 2022 (REP6-018) and forms no part of the DCO examination.

- [Change No. 4 - Increase to the maximum heights of the carbon dioxide stripper column.](#)
- [Change No. 5 - Increase in proposed soil import volumes to create a suitable development platform.](#)

[1.6.3 With the Proposed Development Changes, the Proposed Development Site would cover an area of 69.7 hectares \(ha\) \(a minor increase of 0.3ha in the amount of the Applicant's land required\).](#)

[1.6.4 At the time of writing the Examining Authority is minded to accept the Change Request \(as submitted at Deadline 5 and modified at Deadline 6\) as stated in a letter dated 29 April 2022 \(PD-019\) but has requested in the same letter that all documents and plans comprising the Change Request are submitted, and/or resubmitted, by the Applicant in a single package at Deadline 6a.](#)

[1.6.5 It is anticipated that following receipt of this single package the ExA will exercise discretion to accept the Change Request and from this point the Proposed Development Changes would form part of the Proposed Development for the remainder of the DCO examination.](#)

4.6.1.7 The Development Consent Process

[4.6.1.7.1](#) As a NSIP project, the Applicant is required to obtain a DCO to construct, operate and maintain the generating station, under Section 31 of the 2008 Act. Sections 42 to 48 of the 2008 Act govern the consultation that the promoter must carry out before submitting an application for a DCO and Section 37 of the 2008 Act governs the form, content and accompanying documents that are required as part of a DCO application. These requirements are implemented through the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended) ('APFP Regulations') which state that an application must be accompanied by an ES, where a development is considered to be 'EIA development' under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations).

[4.6.21.7.2](#) An application for development consent for the Proposed Development has been submitted to the Planning Inspectorate (PINS) acting on behalf of the Secretary of State. Subject to the Application being accepted (which will be decided within a period of 28 days following receipt of the Application), PINS will then examine it and make a recommendation to the Secretary of State, who will then decide whether to make (grant) the DCO.

4.7.1.8 The Purpose and Structure of this Document

[4.7.1.8.1](#) This Framework CTMP draws upon the assessment of impacts on transport receptors presented in **Appendix 10A: Transport Assessment (ES Volume II - Application Document Ref. 6.3.10)** and will be provided to the appointed contractor who will be required to prepare a Construction Traffic Management Plan which is proposed to be secured by a Requirement of the draft DCO (**Application Document Ref. 2.1**) for details. This Framework CTMP also identifies measures to control the routing and impact of HGV on the

local road network during construction. The identified measures will form contractual obligations, to be enforced through normal contractual means.

1.7.21.8.2 This document is structured as follows:

- Section 2 describes the measures imposed to control HGV routing and impacts;
- Section 3 describes the abnormal indivisible loads required during the construction period of the Proposed Development;
- Section 4 describes the programme of monitoring that will be adopted to assess the effectiveness of the measures included in the final CTMP to control the routing and impact of construction HGV; and
- Section 5 describes the formal process of liaison between all relevant parties.

2.0 MEASURES TO CONTROL HGV ROUTING AND IMPACT

2.1 Indicative Construction Programme

2.1.1 It is anticipated that construction of the Proposed Development could (subject to the necessary consents being granted and an investment decision being made) potentially start as early as Quarter 4 (Q4) 2022. Construction activities are expected to be completed within 42 months, followed by a period of commissioning. However, for the purposes of **Appendix 10A: Transport Assessment (ES Volume II – Application Document Ref. 6.3)** a construction build programme lasting 42 months starting in Q2 2029 (Mabey Bridge replacement and A18 carriageway improvements) and ending Q4 2032 would provide a representative worst-case scenario for traffic impact assessment purposes.

2.2 Construction Phase Site Worker Traffic Generation

2.2.1 For construction worker traffic generation and the measures to be implemented to encourage sustainable travel modes, please refer to the Framework Construction Workers' Travel Plan (CWTP) (**Application Document Ref. 7.3**).

2.3 Construction Phase HGV Traffic Generation

2.3.1 As described **Chapter 10: Traffic and Transport (ES Volume I - Application Document Ref. 6.2)**, no allowance has been made in the traffic impact assessment for the delivery of construction materials by water or other means, in order to assess the 'worst-case' construction road traffic impact. However, provision for the delivery of AIL by water is included within the Proposed Development site.

2.4 Proposed Development Construction

2.4.1 HGV delivering construction materials would access the Proposed Development Site from the M180 Junction 2, via the A161 and A18, entering via the existing perpendicular access point off the A18 and over Mabey Bridge. Access into the Proposed Development Site will be controlled by a new gatehouse and HGV waiting area (refer to **Application Document Ref. 4.14**) where vehicle registration and deliveries will be recorded. The location of the gatehouse has been set sufficiently back from the A18 to allow HGV to queue on the access road, rather than on the A18.

2.4.2 The volume of HGV associated with construction of the Proposed Development on the network would be at its maximum of 624 two-way daily HGV movements (312 in and 312 out) during the initial Site Enabling and Preparation phase of construction following Mabey Bridge replacement works and A18 junction improvement works. This is associated with the potential cut and fill of the top layer of ground within the Proposed PCC Site to improve the geotechnical condition of the ground. The import and export of material will occur over a two month period during Months 7 and 8 of the construction programme. During the remainder of the construction period, HGV movements will vary with 120 two-

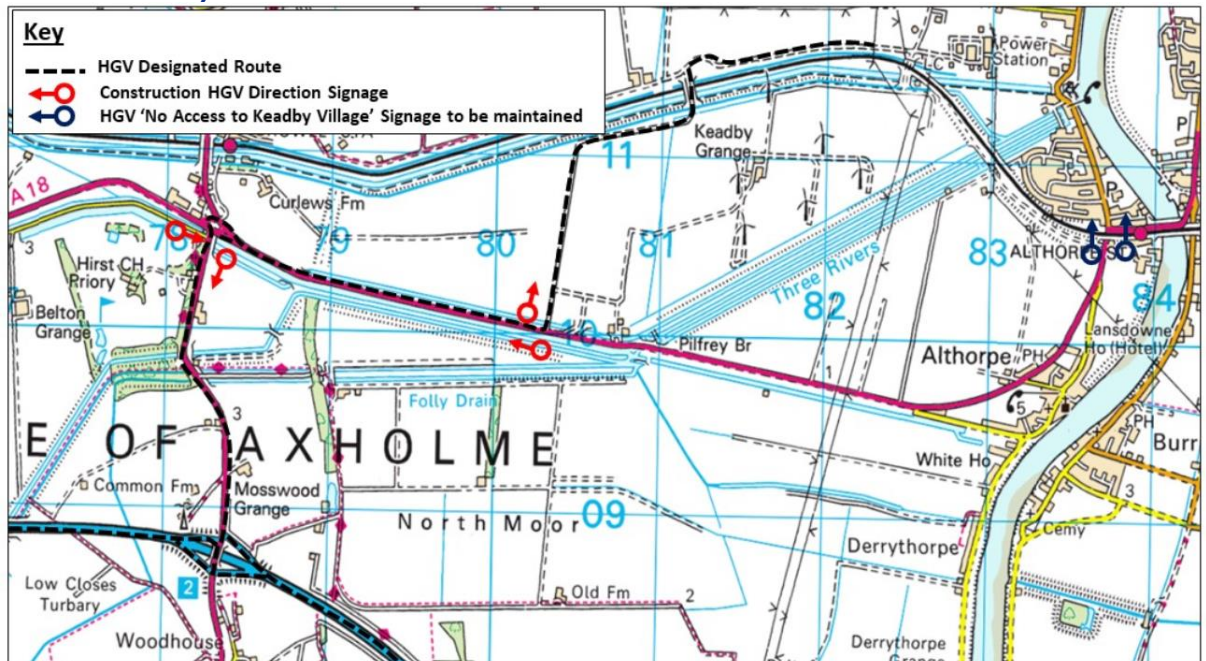
way daily HGV movements (60 in and 60 out) from month 24 to month 35 of construction, 60 two-way daily HGV movements (30 in and 30 out) from months 9 to 23 and months 36 to 42 of construction and 10 daily two-way HGV movements (5 in and 5 out) from months 1 to 6 of construction.

2.4.3 HGV arrivals, including deliveries, will be managed as far as reasonably practicable, such that they are spread evenly over the day between the hours of 07:00 and 19:00 Monday to Friday (except bank holidays) and 08:00 to 13:00 on Saturday (if required) to avoid on-site congestion.

2.5 Designated Route to the Proposed Development Site

2.5.1 It is proposed that HGV associated with the construction of the Proposed Development would be required to access/ depart the Proposed Development Site from the M180 Junction 2 via the A161 and the A18. At the junction of the M180, it is assumed that 80% would arrive/ depart to the west and 20% arrive/ depart to the east. The HGV routing plan is shown in **Figure 2**.

Figure 2: HGV Designated Route Plan (Proposed Development Construction)



2.5.2 The contractor must distribute the HGV routing plan to all HGV drivers during their induction. It will be a condition of contract between the Applicant and the appointed contractor to aim to ensure that all construction HGV deliveries must use the designated route to access and egress the construction site. Sanctions will be put in place to deal with non-compliance (see Section 2.7).

2.5.3 It is noted that signage is currently in place at locations agreed with NLC for the construction of Keadby 2 Power Station, which aims to facilitate appropriate routing of construction traffic, including avoiding Keadby village.

2.5.4 For the Proposed Development, the contractor will erect signage at the main junctions to appropriately direct all HGV traffic relating to the Proposed Development (both accessing and egressing the site) towards the M180 [including signage giving priority to HGV to enter from the A18](#). The indicative signage locations are shown in **Figure 2**. These will be in place for the duration of the construction phase and will be checked regularly to confirm they are visible throughout.

2.5.5 The appointed contractor will be required to maintain all the HGV route signage.

2.6 Construction Programme/ Site Hours

2.6.1 The Applicant would appoint one or more EPC contractors for the construction of the CCGT and CCP (**Work No 1**). Additional contractors are likely to be appointed to undertake the proposed minor highway works (**Work No. 8A**). An early works phase, including the A18 carriageway improvements and Mabey Bridge replacement, would be undertaken over a circa 6 month period. Construction activities for the main works phase are expected to be completed within approximately three years, followed by commissioning.

2.6.2 In order to minimise the disruption to the public, HGV deliveries will be restricted to the following core construction hours unless agreed otherwise with NLC:

- Monday – Friday: 07:00 – 19:00 (excluding Bank Holidays); and
- Saturday: 08:00 – 13:00.

2.6.3 It is proposed that HGV deliveries will be made during these core working hours, unless agreed in exceptional circumstances (e.g. during concrete pouring) in advance with NLC. The only expected HGV deliveries outside these hours may be the delivery of certain AIL, if required. Any noisy works outside the core working hours, including timing of AIL deliveries, if required, would be agreed with NLC on a case by case basis.

2.7 HGV Access via Keadby Village

2.7.1 The Applicant is aware of a small number of instances during Keadby 2 Power Station construction of HGV not using designated and signed routes, resulting in HGV using Keadby village. It is noted that a dedicated postcode has been implemented for the construction site gatehouse off the A18.

2.7.2 It will be a condition of contract between the Applicant and the appointed contractor to aim to ensure that the designated HGV route (which is the most direct route from the motorway network) is adhered to by HGV drivers and the contractor must ensure that the HGV routing plan is distributed to all HGV drivers. This HGV routing plan policy will be reinforced during staff inductions and will include HGV drivers being made aware specifically not to access the Proposed Development Site via Keadby village (except in case of emergency), with sanctions put in place to deal with non-compliance with the aim of no repeat events (see Section 2.8).

2.8 Dealing with Non-Compliance

- 2.8.1 To provide compliance with the measures set out above, the contractor must enforce a disciplinary procedure, “yellow/ red card system” or equivalent.
- 2.8.2 In the first event of non-compliance, a warning will be issued to the HGV driver (yellow card). In the event of any repeat of the contravention, that driver will be prohibited from making further HGV deliveries to the Proposed Development Site (red card).

2.9 Wheel Cleaning Facility

- 2.9.1 In the interests of highway safety, wheel cleaning facilities will be installed at the Proposed Development Site from the start of the construction phase. All HGV would be required to wheel wash prior to exiting the Proposed Development Site. The need for this measure will be periodically reviewed throughout the construction phase.

2.10 Contact with Local Residents

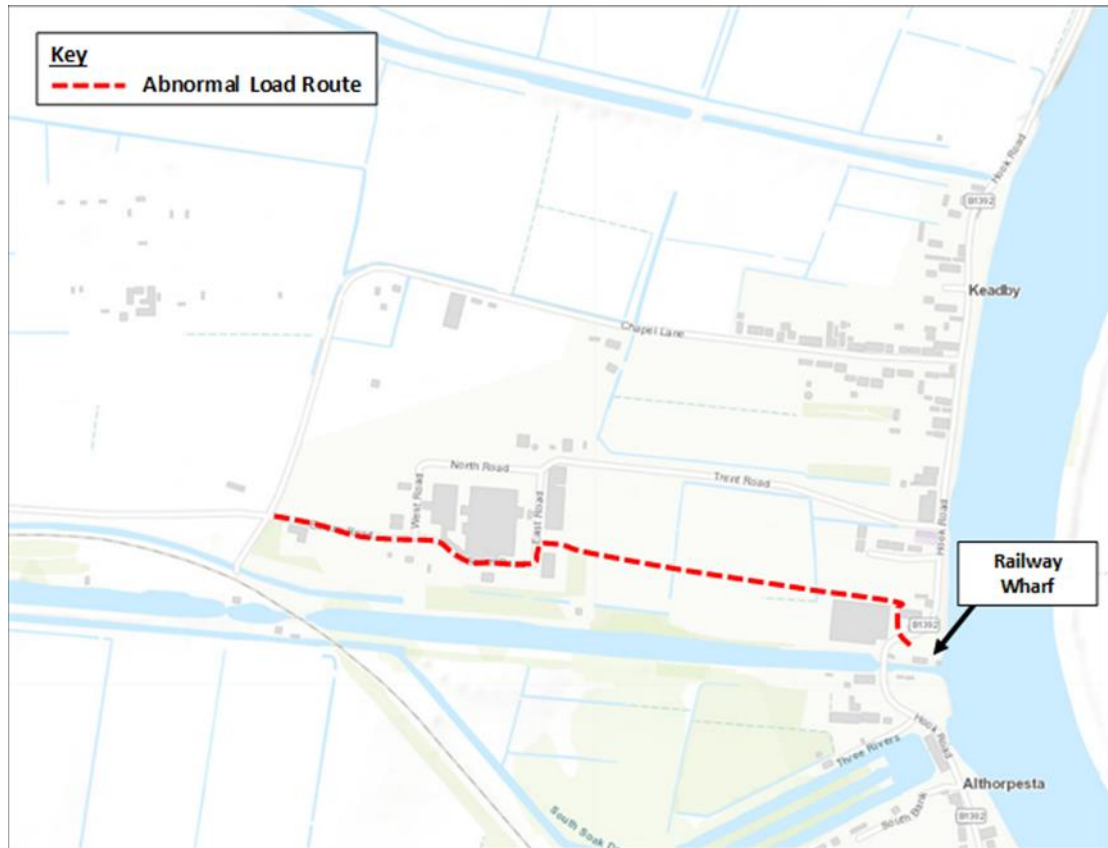
- 2.10.1 A 24 hour contact name and number will be displayed on a notice board at the Proposed Development Site entrance and on the Applicant’s website, for members of the public to contact should they have any issues regarding construction traffic. The contact number could also be displayed on the Keadby with Althorpe Parish Council website if they wish to host this.
- 2.10.2 Residents will be updated on the construction of the Proposed Development via a regular update bulletin posted on the Applicant’s website. This will include information on the timing and routing of ALL deliveries and a 24-hour contact name and number established by the contractor for members of the public to contact should they have any issues regarding construction traffic. It is anticipated that the project liaison manager will act as the initial point of contact for members of the community to find out further information. A link to this information could also be provided on the Keadby with Althorpe Parish Council website if they wish to host this.

3.0 ABNORMAL INDIVISIBLE LOADS

3.1 Strategy and Routing

- 3.1.1 A number of AIL movements are expected during the construction programme associated with the delivery of large items of plant and equipment. The exact number and size/ weight is not known at this stage and is based on specific construction methodologies that will be confirmed during detailed design. However, it is expected that the proposed construction methodology will favour modularisation with pre-assembly off-site supplemented by on-site construction.
- 3.1.2 The 'Water preferred policy guidelines for the movement of abnormal indivisible loads' (Highways England, 2016) states that it is Government policy to avoid road transport as far as possible by using alternative modes, such as water.
- 3.1.3 It is anticipated that delivery of AIL to the Proposed Development Site will use both the routes being used for the delivery of AIL associated with the construction of Keadby 2 Power Station, along with an extension of the existing Additional AIL Route – on largely vacant land to the north of Keadby 1 and Keadby 2 Power Stations. This is to reduce reliance on routeing all AIL through the operational Keadby Power Station due to the potential for health, safety and environmental risks which could otherwise affect the construction timescales and speed of being able to deploy this Nationally Significant Infrastructure Project.
- 3.1.4 It is expected that the largest abnormal loads will be received at the Port of Immingham and barged down the River Trent to the Waterborne Transport Offloading Area at Railway Wharf, which is included within the Order Limits for the Application (refer to **Figure 3.3** in ES Volume III - **Application Document Ref. 6.4**). The components will then be transported to the Proposed Development Site crossing the B1392 onto the temporary haul road that runs to the east of PD Port Services (see **Figure 3**). Traffic management in the form of Stop/ Go signs will be used to halt traffic along the B1392 in order to allow the abnormal loads to cross the B1392.

Figure 3: Updated-Abnormal Indivisible Load Route via Waterborne Transport Offloading Area for Proposed Development

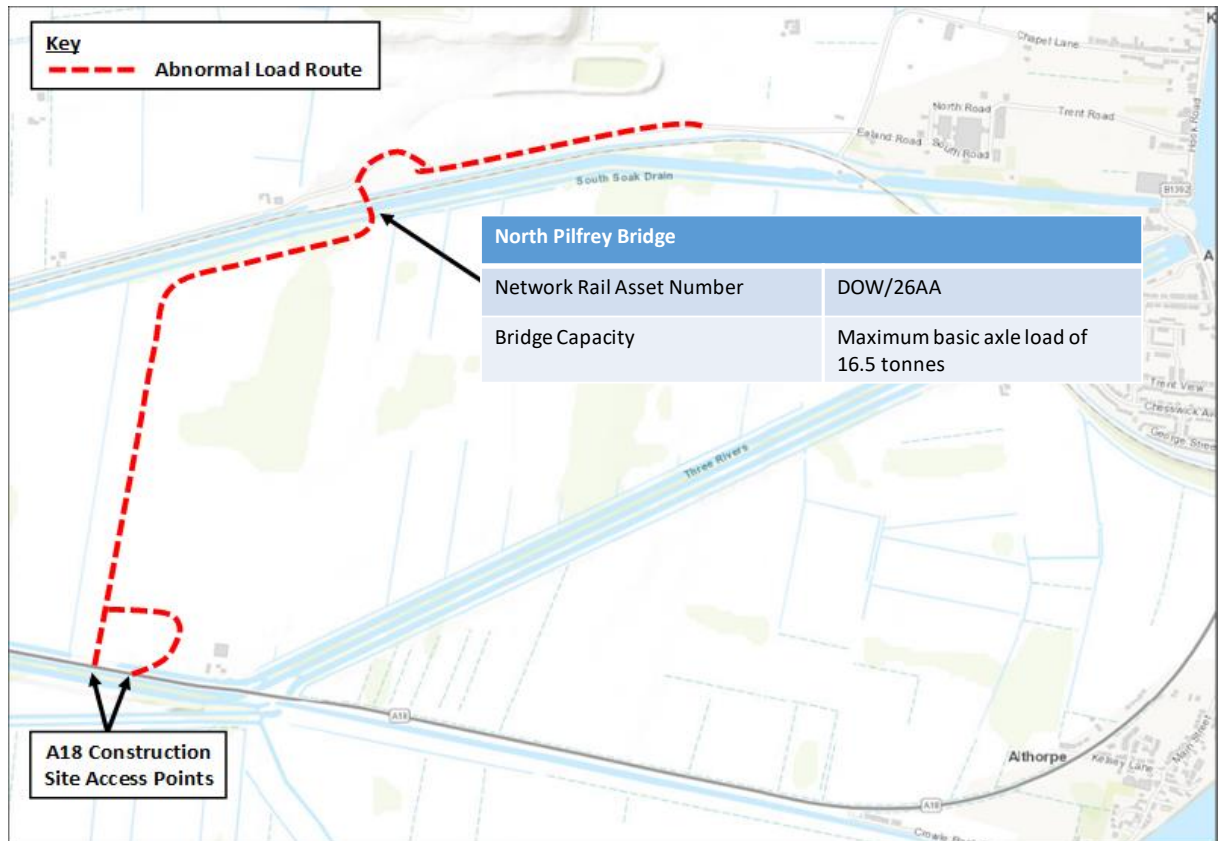


3.1.5 In order to provide an indicative estimated number of AIL movements to the Waterborne Transport Offloading Area (Railway Wharf), data from the construction of Keadby 2 Power Station has been reviewed. It is anticipated that the Proposed Development will require a similar number of AIL shipments for the CCGT unit and an additional number of units for the CCP. Over the course of circa 7 months in 2020, 25 AIL shipments arrived at Railway Wharf (SSE, 2020) for Keadby 2 Power Station. A further circa 10 - 15 AIL shipments may be associated with the CCP unit. On this basis, it is estimated that around 35 – 40 AIL movements could be required at Railway Wharf. These movements would take place over the period allocated for erection of main process equipment in Table 5-1: Indicative construction and commissioning programme in **Chapter 5: Construction Programme and Management (ES Volume I – Application Document Ref. 6.2)**.

3.1.6 The smaller abnormal loads are expected to be transported by road from Immingham Dock via the M180 to Junction 2 and then from the A161 to the A18, entering the Proposed Development Site via either the perpendicular construction access or, if required, the skewed construction access off the A18 (**Work No. 8A**) and then over the privately owned and maintained North Pilfrey

Bridge (see **Figure 4**). This route is also included within the Order Limits for the Application.

Figure 4: AIL Route using A18 to access the Proposed Development Site



3.1.7 Use of this AIL route would be subject to the load bearing capacity of the skew bridge, as follows:

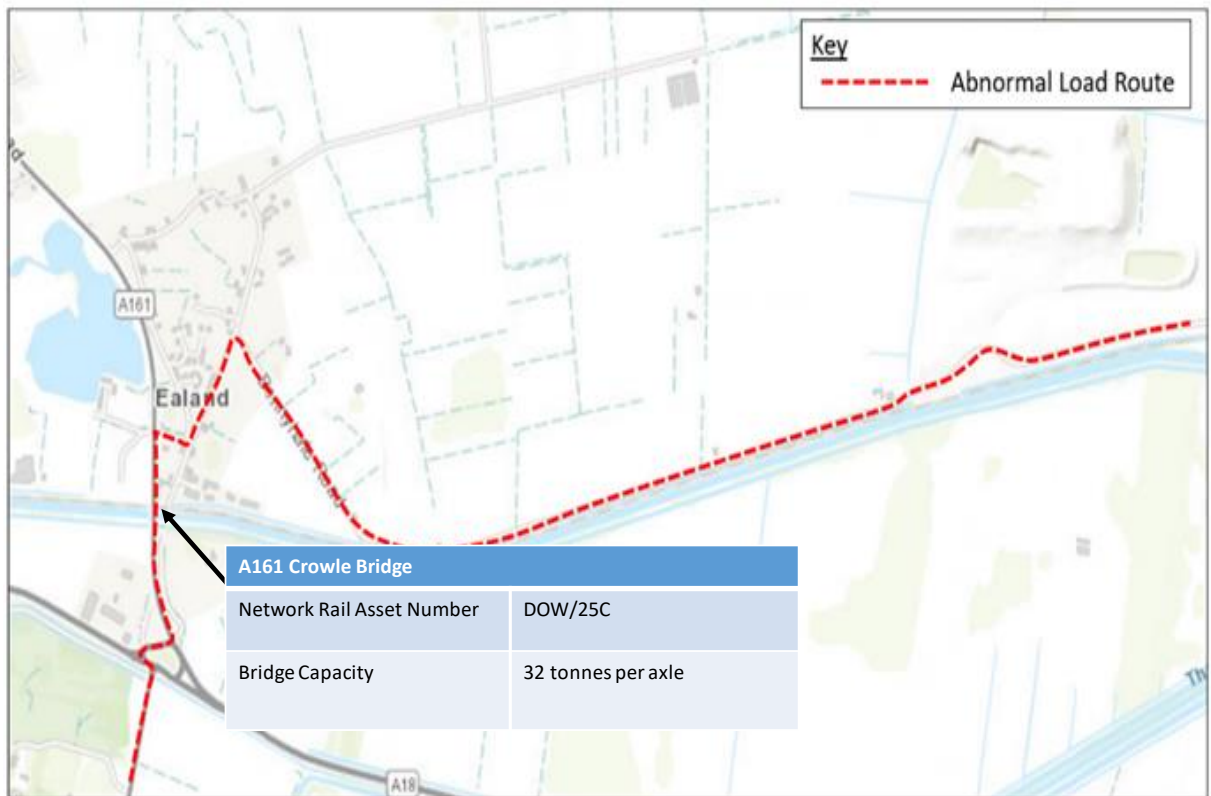
- SV80 Vehicle (max gross weight 80 tonnes with a maximum basic axle load of 12.5 tonnes); and
- Turbine 4000F delivery vehicle over the central 6m of the carriageway. Vehicle consists of 2 trailers both of 14No. 19.89 tonne axles.

3.1.8 Use of this AIL Route would also be strictly subject to the load bearing capacity of North Pilfrey Bridge, as follows:

- normal design loading covering vehicles up to 44 tonnes gross vehicle weight;
- SV80 Vehicle (max gross weight 80 tonnes with a maximum basic axle load of 12.5 tonnes);
- SV100 Vehicle (max gross weight of 100 tonnes with a maximum basic axle load of 16.5 tonnes); and
- SV196 Vehicle (max gross weight of 196 tonnes with a maximum basic axle load of 16.5 tonnes).

3.1.9 An alternative access route for certain abnormal loads that cannot pass over North Pilfrey Bridge that has been used during construction of Keadby 2 Power Station is via Bonnyhale Road. This route is shown in **Figure 5**.

Figure 5: Alternative proposed access route for certain abnormal loads (if North Pilfrey Bridge and Railway Wharf are unavailable)



3.1.10 Should it be necessary, AIL could potentially utilise the route from Ealand village via the A161, A161 Crowle Bridge, New Trent Road and Bonnyhale Road. During Keadby 2 Power Station construction, this was used for up to 10 AIL. No works are required for the purposes of AIL for the Proposed Development, therefore this route is not included within the Order Limits for the Application. This route would only be used if North Pilfrey Bridge and Railway Wharf are unavailable or if delays to the construction programme would otherwise result. No more than 10 AIL movements would use this route and each would be below the axle loading capacity of the A161 Crowle Bridge, owned and maintained by North Lincolnshire Council as highway authority.

3.1.11 Detail of the routing strategy and procedures for the notification and conveyance of AIL, including agreed routes, the number of abnormal loads to be delivered by road, construction programme, and measures for the temporary protection of carriageway surfaces, the protection of statutory undertakers' plant and equipment, and any temporary removal of street furniture will be set out in the final Construction Traffic Management Plan, which is secured as a Requirement of the draft DCO (**Application Document Ref. 2.1**).

- 3.1.12 NLC and Highways England (HE) abnormal loads officer will be consulted at the earliest opportunity on the programme and plan for the delivery of the AIL, as part of or in advance of discharging the relevant DCO Requirement. Relevant asset owners such as Network Rail (with infrastructure below North Pilfrey Bridge) would also be notified.
- 3.1.13 As has happened on Keadby 2 Power Station, the Applicant would notify and work closely with the Canal and River Trust and harbour authority to minimise restrictions on use of Keadby Lock during AIL deliveries.
- 3.1.14 The public will also be made aware of when abnormal load deliveries are taking place via a notice on the board at the existing entrance to Keadby 1 Power Station in Keadby village, on the Applicant's Website, and via the press and social media.

4.0 MONITORING

4.1 General Measures

- 4.1.1 A programme of monitoring will be adopted to assess the effectiveness of the measures included in the final CTMP to control the routing and impact of construction HGV. It will provide a firm basis upon which to answer queries and complaints regarding the HGV traffic impacts during construction. A 24-hour contact name and number will be established by the Contractor and displayed at the Proposed Development Site.

4.2 HGV Monitoring Surveys

- 4.2.1 The appointed contractor will maintain gatehouse records of construction HGV entering and leaving the Proposed Development Site, which will be made available to NLC on request.
- 4.2.2 Should any complaints be raised by members of the public with regards to construction HGV not using the dedicated HGV route to the Proposed Development Site, gatehouse records along with CCTV footage obtained from the gatehouse would be used to identify the offending HGV involved and appropriate sanctions put in place with the aim of avoiding repeat events.

5.0 CONSULTATION

5.1 Planned Liaison

5.1.1 As is currently undertaken for the construction of Keadby 2 Power Station, a formal process of liaison between all relevant parties (Principal Contractor, NLC and Highways England) via a Local Liaison Committee, would:

- make all parties aware of the results of monitoring of the final CTMP;
- provide a route by which any complaints can be communicated and dealt with; and
- provide a route through which transport related issues can be identified and dealt with.

5.1.2 The Local Liaison Committee will be secured via a Requirement of the draft DCO (**Application Documents Ref. 2.1**).

5.1.3 It is proposed that a short written report is prepared by the contractor on a six monthly basis and circulated to all key stakeholders. Any comments generated by the report will be circulated to all key stakeholders and a meeting may be held if required.

6.0 REFERENCES

Highways England (2012) *Water preferred policy guidelines for the movement of abnormal loads.*

HM Government (2020a) *Energy White Paper, Powering our Net Zero Future.*

SSE (2020) *A Greenprint for Building a Cleaner More Resilient Economy.*

SSE (2020b) *Our Strategy:* [REDACTED]