The Keadby 3 Carbon Capture Gas Power Station Project

Document Ref: 5.6

Planning Inspectorate Ref: EN010114

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

Design and Access Statement (Proposed Development Changes Version)

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

Regulation 5(2)(q)

Applicant: Keadby Generation Limited

Date: May 2022

DOCUMENT HISTORY

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GLOSSARY

Abbreviation	Description
2008 Act	The Planning Act 2008
AGI	Above Ground Installation
AIL	Abnormal Indivisible Load
APFP Regulations	Application (Prescribed Forms and Procedure) Regulations 2009
CCGT	Combined Cycle Gas Turbine
CCUS	Carbon Capture, Usage and Storage
DCO	Development Consent Order
EIA Regulations	Environmental Impact Assessment Regulations 2017
ES	Environmental Statement
HP	High pressure
MW	Megawatts
NEP	Northern Endurance Partnership
NLC	North Lincolnshire Council
NSIP	Nationally Significant Infrastructure Project
The Order	The Keadby 3 (Carbon Capture Equipped Gas Fired Generating Station) Order
PCC	Power and Carbon Capture
PINS	Planning Inspectorate
SoS	Secretary of State for Business, Energy and Industrial Strategy
ZCH	Zero Carbon Humber

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APPENDIX

1.0 INTRODUCTION

1.1.1 The Design and Access Statement (DAS) (**Application Document Ref. 5.6**) has been prepared by Keadby Generation Limited ('KGL' or 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 fueled 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 68MWe.

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.

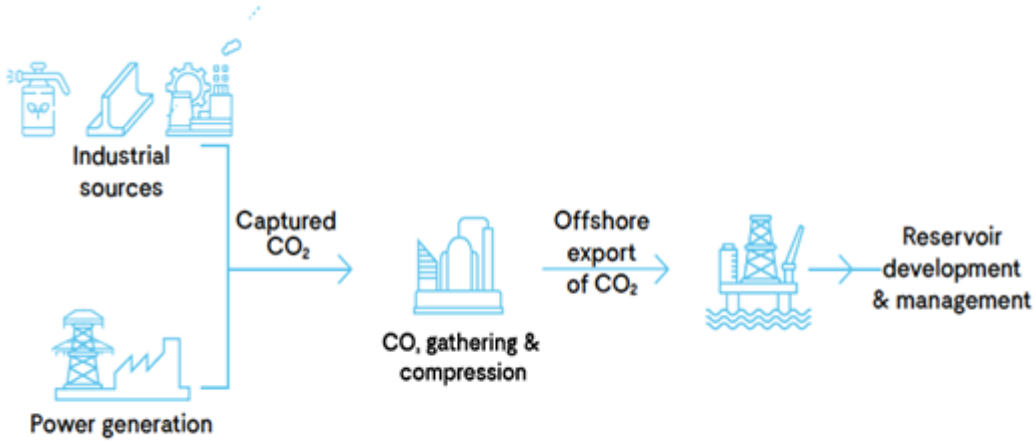
1.2.3 The design of the Proposed Development demonstrates this commitment. The Proposed Development will be built with a clear route to decarbonisation, being equipped with post-combustion carbon capture technology, consistent with SSE's commitment to reduce the carbon intensity of electricity generated 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) Partnership[1] 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. **Figure 1** overleaf shows what is involved in the process.

[redacted]

Figure 1: Schematic illustration of 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 Humber Low Carbon Pipelines project pipeline network, being promoted by National Grid Carbon Limited (NGCL), for onward transportation to the Endurance storage site 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 '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 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 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 existing Keadby Power Station site 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 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 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**);
- 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. NGCL will be responsible for the development of the carbon dioxide pipeline 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 application(s) to be taken forward by NGCL.

1.4.7 The Proposed Development is designed to be capable of operating 24 hours per day, 7 days a week, with plant operation dispatchable to meet electricity demand and with programmed offline periods for maintenance. It is anticipated that in the event of CCP maintenance outages, for example, it could 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 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 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 (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)** and described in more detail at Section 3 of this Report.

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 used[3].
- Change No. 3 - Increase to the maximum heights of the carbon dioxide absorbers/ stacks, if two are installed.
- 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.

[3] 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.

1.7 The Development Consent Process

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).

1.7.2 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.

1.8 The Purpose of this Document

1.8.1 The DAS has been prepared to describe the approach that has been taken to the design of the Proposed Development and to demonstrate how regard has been had to the surrounding context and to good design. Whilst there is no statutory requirement for a DAS to accompany a DCO application, the Planning Inspectorate's Advice Note Six advises that 'other documents' may include information that the applicant would normally want to submit for the development proposal or which has been requested or suggested by respondents to pre-application consultation and publicity, and which the applicant wishes to include. The Applicant considers it beneficial to set out in the DAS how the design of the Proposed Development has developed.

1.8.2 The DAS has therefore been prepared to describe the approach that has been taken to the design of the Proposed Development and to demonstrate how regard has been had to the surrounding context and to good design considerations.

1.8.3 The structure of the DAS is set out in **Table 1.1** below.

Table 1.1: Design and Access Statement Structure

Section	Title	Overview
Section 2	The Proposed Development	Provides a list of each of the components (and Work Nos) which make up the Proposed Development.
Section 3	Legislative and Policy Context	Provides a summary of relevant policy and guidance relating to design.

Section 4	Site Description, Context and Appraisal	Describes the Proposed Development Site, its immediate context, the surrounding area and appraises this context and the opportunities provided by the Site.
Section 5	Design Flexibility and Information	Explains the design flexibility that is being sought by KGL and sets out the design information being provided with the Application.
Section 6	Design Approach and Evolution	Describes the design process that has been followed, including the broad approach that KGL has taken to the design of the Proposed Development and where the design has evolved.
Section 7	Design Components	Describes the final design of the Proposed with reference to its key design components, including use, the amount of development, its layout, scale, appearance and also landscaping.
Section 8	Access Arrangements	Considers access both to and within the Proposed Development Site.
Section 9	Securing Detailed Design	Sets out how the detailed design of the Proposed Development will be in accordance with the design details and parameters upon which the Environmental Impact Assessment of it has been based.
Section 10	Conclusions	Sets out the conclusions that can be drawn with regard to design and access matters.

1.9 Purpose of this Version

1.9.1 This version (VP3.0) of the Design and Access Statement has been updated to reflect the Proposed Development Changes. Table 4.2 has been added to Section 4 to illustrate the Maximum Design Parameters resulting from the Proposed Development Changes.

2.0 LEGISLATIVE AND POLICY CONTEXT

2.1.1 This section summarises the design related legislative context and policy framework in respect of NSIPs, with particular emphasis on the relevant National Policy Statements. Regard has also been had to statutory development plan policy, supplementary planning documents and other local design guidance and guidelines. Planning policy more generally is considered within the Planning Statement (**Application Document Ref. 5.5**).

2.2 Legislative Context

2.2.1 Section 10 'Sustainable development' of the PA 2008 (subsection (3)(b)) states that in setting policy for NSIPs (through National Policy Statements) the SoS must have regard to the desirability of achieving 'good design'. However, the PA 2008 and related regulations do not require applications for NSIPs to be accompanied by a DAS.

2.2.2 The Town and Country Planning (Development Management Procedure) (England) Order 2015 (S.I 2015 No. 595), while applying to applications for planning permission under the Town and Country Planning Act 1990 (the 'TCPA') is of relevance as it sets out the matters to be addressed within a DAS. Article 9 'Design and access statements' of the Order confirms (paragraph 3) that a DAS must:

- Explain the design principles and concepts that have been applied to the development;
- Demonstrate the steps taken to appraise the context of the development and how the design of the development takes this context into account;
- Explain the policy adopted as to access, and how policies relating to access in relevant local development documents have been taken into account;
- State what, if any, consultation has been undertaken on issues relating to the access and design of the development and what account has been taken of the outcome of any such consultation; and
- Explain how any specific issues which might affect access to the development have been addressed.

2.2.3 Article 9 (paragraph 4) confirms that a DAS is not required for applications involving engineering or mining operations.

2.2.4 With regard to Article 9, it is relevant to note that while the CCGT power station and post-combustion carbon capture plant (Work No. 1), the natural gas connection and gas compound (Work No. 2A) and the CO_2 compressor station and National Grid above ground infrastructure compound ('AGI') (Work No. 7) involve new buildings and structures. The other works comprised within the Proposed Development (e.g., gas, electricity grid and water connections (Work Nos. 2B to 5) primarily involve the installation of pipelines and cables above and below ground and can therefore be considered to represent engineering

works. The main focus of this DAS is therefore upon the Works Nos. 1, 2A and 7.

National Policy Statements

2.2.5 The planning policy framework for examining and determining applications for NSIPs is providing by a number of National Policy Statement ('NPSs'). Section 1 of the PA 2008 confirms that where NPSs are in place, these shall be the primary basis for decisions by the SoS on applications for NSIPs. Policy relating to design contained with the NPSs of relevance to the Proposed Development is set out below.

Overarching NPS for Energy (EN-1)

2.2.6 The Overarching NPS for Energy (EN-1) defines the need for nationally significant energy infrastructure and sets out certain assessment principles and criteria against which applications for such infrastructure should be considered. This includes Section 4.5 'Criteria for good design for energy infrastructure'.

2.2.7 Paragraph 4.5.1 recognises that while the visual appearance of a building is sometimes considered to be the most important factor in good design, high quality and inclusive design does far beyond aesthetic considerations. The functionality of buildings and infrastructure, including fitness for purpose and sustainability, are as equally important. It goes on to state that applying good design to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates 'good aesthetic' as far as possible. It is acknowledged however:

"…that the nature of much energy infrastructure development will often limit the extent to which it can contribute to the enhancement of the quality of an area."

2.2.8 Paragraph 4.5.2 of EN-1 notes that good design is also a means by which many policy objectives in EN-1 can be met, for example, good design, in terms of siting and use of appropriate technologies can help mitigate adverse impacts such as noise.

2.2.9 Paragraph 4.5.3 confirms that in assessing applications, the SoS will need to be satisfied that energy infrastructure developments are sustainable and, having regard to regulatory and other constraints, are as attractive, durable and adaptable (including taking account of natural hazards such as flooding) as they can be. In doing so, paragraph 4.5.3 goes on to state that the SoS should be satisfied that:

"..the applicant has taken into account both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located) as far as possible. Whilst the applicant may not have any or very limited choice in the physical appearance of some energy infrastructure, there may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape

character, landform and vegetation. Furthermore, the design and sensitive use of materials in any associated development such as electricity substations will assist in ensuring that such development contributes to the quality of the area."

2.2.10 Paragraph 4.5.4 stresses the importance of applicants being able to demonstrate in their application documents how the design process was conducted and how the proposed design evolved. However, it is clear that in considering applications the SoS should take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements that the design has to satisfy.

2.2.11 In the new Draft EN-1 Section 4.6 covers the criteria for "good design" for energy infrastructure. The text is broadly similar but applies more emphasis to applying good design during early stages of the project lifecycle, taking account of potential amenity benefits and visual impacts on the landscape or seascape and encourages the Applicant to imbed opportunities for nature inclusive design within the design process. It also draws attention to wider impacts such as landscape and environmental impact being important factors in the design process and states assessment of impacts must be for the entirety of the stated design life.

NPS for Fossil Fuel Electricity Generating Infrastructure (EN-2)

2.2.12 EN-2 provides limited additional guidance on 'good design' for fossil fuel generating stations over and above what is set out in EN-1. Paragraph 2.3.15 does, however, state that the principles of good design set out at Section 4.5 of EN-1 should be applied to all energy infrastructure.

2.2.13 Paragraph 2.3.16 states that applicants should demonstrate good design in respect of landscape and visual amenity and in the design of the development to mitigate impacts such as noise and vibration, transport impacts and air emissions. Notably, paragraph 2.6.5 of EN-2 states that:

"It is not possible to eliminate the visual impacts associated with a fossil fuel generating station."

2.2.14 Paragraph 2.6.10 of EN-2 states that *"if, having regard to the considerations in respect of other impacts set out in EN-1 and this NPS, the IPC is satisfied that the location is appropriate for the project, and that it has been designed sensitively (given the various siting, operational and other relevant constraints) to minimise harm to landscape and visual amenity, the visibility of a fossil fuel generating station should be given limited weight".*

2.2.15 The text on consideration of "good design" for energy infrastructure in the new Draft EN-2 is not considered to be materially different to the text in the current adopted EN-2.

NPS for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)

2.2.16 Paragraph 2.3.1 refers to Section 4.5 of EN-1 that sets out the principles of good design that should be applied to all energy infrastructure.

2.2.17 Paragraph 2.3.2 states that for the reasons given at Section 4.5 of EN-1, applicants should demonstrate good design, in particular, when mitigating the impacts relevant to the infrastructure.

2.2.18 The text on consideration of "good design" for energy infrastructure in the new Draft EN-4 is not considered to be materially different to the text in the current adopted EN-4.

NPS for Electricity Networks Infrastructure (EN-5)

2.2.19 Paragraph 2.5.1, as with EN-4, refers to the principles of good design set out at Section 4.5 of EN-1.

2.2.20 Paragraph 2.5.2 states that proposals for electricity networks infrastructure should demonstrate good design in mitigating the potential adverse impacts that can be associated with overhead electric lines, particularly impacts upon biodiversity and geological conservation, landscape and visual, noise and vibration and electro-magnetic fields.

2.2.21 The new Draft EN-5 features a completely written paragraph 2.5.2, now numbered paragraph 2.7.2. It now emphases that safety and security are the primary focus of designing electricity networks infrastructure and they may limit the ability to influence aesthetic appearance.

Local Planning Policy

2.2.22 The Proposed Development Site encompasses land within the administrative boundary of North Lincolnshire Council (NLC). The statutory development plan for the area currently comprises the following documents:

- North Lincolnshire Local Development Framework Core Strategy (the Core Strategy) (NLC, 2011) - adopted June 2011;
- North Lincolnshire Local Development Framework Housing and Employment Land Allocations DPD (the Allocations DPD) (NLC, 2016) - adopted March 2016; and
- Saved Policies of the North Lincolnshire Local Plan (the Local Plan) (Local Development Frameworks Government Office for Yorkshire and The Humber, 2007) - adopted May 2003, saved September 2007.

Core Strategy (2011)

2.2.23 The most relevant Core Strategy policy to the Proposed Development for the purposes of this DAS is Policy CS5 'Delivering Quality Design in North Lincolnshire'. CS5 makes clear that all new development in North Lincolnshire should be well designed and appropriate for their context; encouraging contemporary design provided it is appropriate for its location and is informed

by its surrounding context in particular terms of scale, density, layout and access. The policy also notes that developments should incorporate principles of sustainable development in their design; consider their function and appropriateness in the context of their located; be easily accessible to all users and incorporate appropriate landscaping and planting which enhances biodiversity.

2.2.24 Spatial Objective 10 of the Core Strategy Document; 'Creating a Quality Environment', sets out NLC's ambition to ensure that all new development exhibits a high standard of design and architectural quality that respects distinctive landscapes and townscapes of North Lincolnshire.

Policies from the Allocations DPD (2016)

2.2.25 Although the Allocations DPD forms part of the Development Plan for the area, none of its policies are considered to be of relevance to the Proposed Development.

Saved Policies of the Local Plan (2003)

2.2.26 The following saved policies are considered relevant:

- DS1 – General Requirements;
- IN10 – Wharves;
- RD1 – Development involving High Quality Agricultural Land;
- RD2 – Development in the Open Countryside;
- T1 – Location of Development
- T2 – Access to Development
- T5 – Green Travel Plans;
- T6 – Pedestrian Routes and Footpaths;
- T8 – Cyclists and Development;
- T14 – The North Lincolnshire Strategic Road Network (NLSRN); and
- T19 – Car Parking Provision and Standards.

Emerging Policy

2.2.27 NLC is preparing a new Local Plan to 2036. Once agreed (formally adopted), it will replace the current North Lincolnshire Local Plan, the Core Strategy and the Housing and Employment Land Allocations Development Plan Documents (DPD).

2.2.28 The Regulation 19 Publication Draft has been issued and consultation concluded on 3 December 2021. The current expectations of the Spatial Planning Team regarding the publication of the adopted New Local Plan are

December 2022 (at the earliest) to June 2023. In their Local Impact Report (REP1-022) North Lincolnshire Council state:

"The currently anticipated timeframe for adoption of the new Local Plan is 12-18 months and it is unlikely that the document will have been subject to formal examination prior to the expiry of the statutory 6 month examination period in respect of this application. As such it is considered that the emerging Local Plan is not a relevant consideration in the determination of this DCO application."

2.2.29 Local planning policy is dealt with in more detailed in the Planning Statement (**Application Document Ref. 5.5**).

3.0 SITE DESCRIPTION, CONTEXT AND APPRAISAL

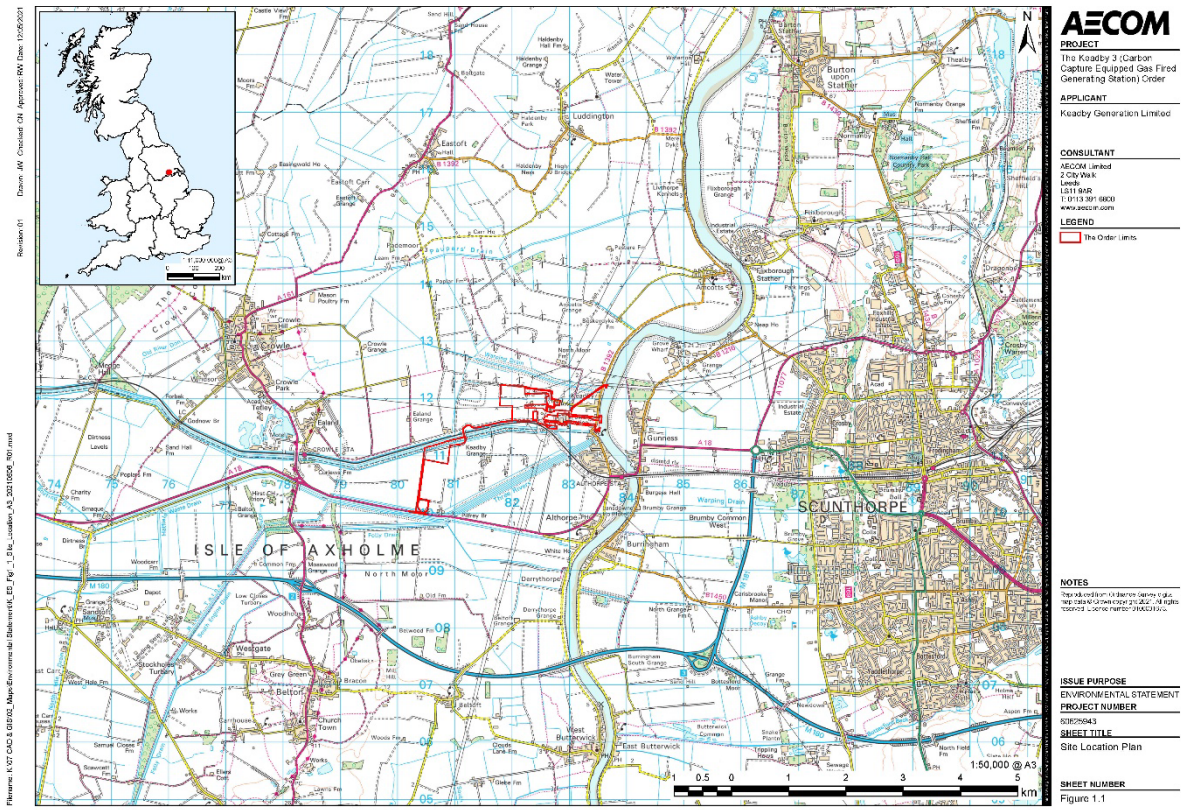
3.1.1 This section describes and appraises the Proposed Development Site's (the 'Site's') context. This includes a description of its location and individual areas, including the immediate context within which it sits, the surrounding area and how access is achieved. It also explains the planning context for the site. Finally, it appraises the characteristics of the Site, including the opportunities and constraints it presents for development.

3.1.2 The location and extent of the different parts of the Site are described later within this section are shown on the Works Plans (**Application Document Ref. 4.3**).

3.2 Site Location

3.2.1 The Site comprises approximately 69.66 hectares ('ha') of land within the boundary of the existing Keadby Power Station site near Scunthorpe, Lincolnshire and falls within the administrative area of North Lincolnshire Council (NLC). The Keadby Power Station site currently encompasses the operational Keadby 1 Power Station and Keadby 2 Power Station (under construction), both owned and under control of the Applicant. The location of the Site is shown in **Figure 3.1** below.

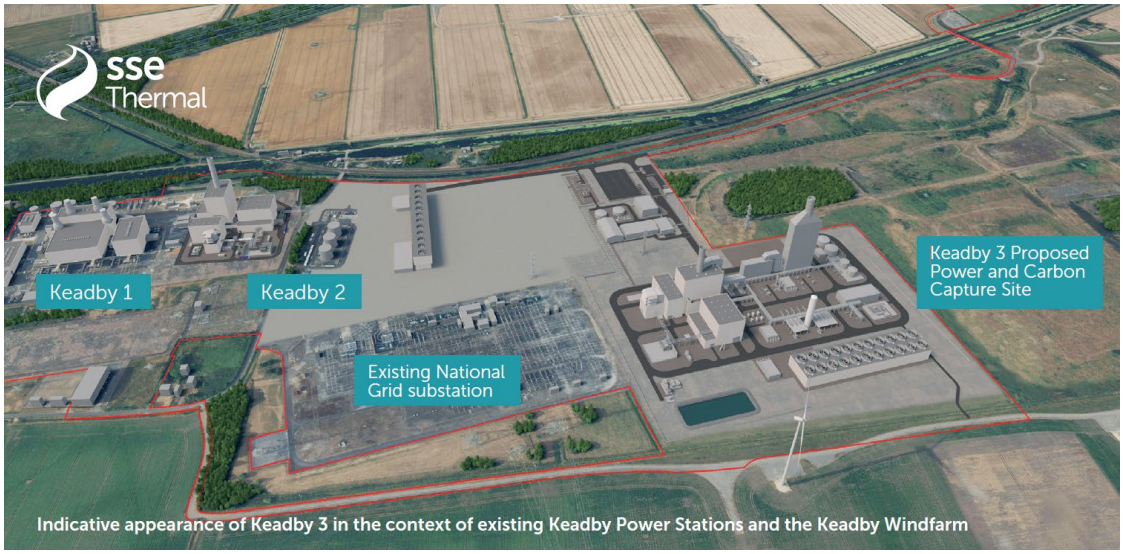
Figure 3.1: Keadby 3 Site Location Plan



3.2.2 The Site includes an area entitled the 'Power, Capture and Compression Site' or 'PCC Site', where the CCGT and Carbon Capture Plant ('CCP') is proposed to be located. The PCC Site comprises an 18.7ha area within Keadby Common and is located 4.1km to the west of the town of Scunthorpe. The remaining areas of the Site include land for associated connections, access and temporary land required during construction of the Proposed Development. The Site is approximately centered on national grid reference (NGR) 482351, 411796. The majority of land is within the ownership of the Applicant.

3.2.3 Beyond the PCC Site, the wider Site encompasses parts of the wider Keadby Power Station Site to the south and east, including a National Grid Substation. The wider Site includes sizeable existing hardstanding areas, including internal site roads, parking, security fencing and further associated on-site electrical infrastructure such as pylons and substations. The Site, including an indicative 3D rendering of the Proposed Development, is shown in context within the Keadby Power Station site and National Grid substation in **Figure 3.2** below.

Figure 3.2: Indicative 3D rendering of the Proposed Development within the Keadby Power Station site



3.2.4 The Site also includes some corridors and areas of land for various infrastructure connections, notably for the gas pipeline from the existing National Grid high pressure (HP) gas pipeline, water connection corridors including abstraction options connecting to the River Trent and Keadby Canal, a water discharge corridor and a towns water connection for potable water. Additional areas of the Site are also provided for temporary laydown and access. Each part of the Site required for different purposes are described in more detail in the below section.

Site History/Context

3.2.5 The Applicant owns and operates the adjacent Keadby 1 Power Station and is in the process of constructing Keadby 2 Power Station. SSE Renewables also

operates the Keadby Windfarm which lies to the north and south of the Site and generates renewable energy from 34 turbines, with a total installed generation capacity of 68MW.

3.2.6 The Applicant's involvement in the Keadby Power Station Site dates back to the original coal fired power station which operated at the Site from 1952 to 1984, before being demolished in the early 1990s.

3.2.7 This was then followed by the emergence of Keadby 1, which was commissioned in 1996 and is still operating. Keadby 2 was originally consented in 1993 before being varied under Section 36c in 2016, 2017 and 2018. Construction of Keadby 2 by the Applicant's Engineering, Procurement and Construction (EPC) contractor 'Siemens Energy' commenced in April 2019 and is ongoing; expected completion is by quarter 1 (Q1), 2022.

3.2.8 Extensive historical landfilling has been identified on-site and off-site across the Keadby Power Station Site. Data collected for the Site in ES Appendix 13A: Phase 1 Desk Based Assessment (DCO Doc. Ref – 6.3) indicates that historic landfill activities occurred across much of the PCC Site, along with land immediately to the east and west. In view of the historic records considered above, it is considered that the PCC Site is brownfield land.

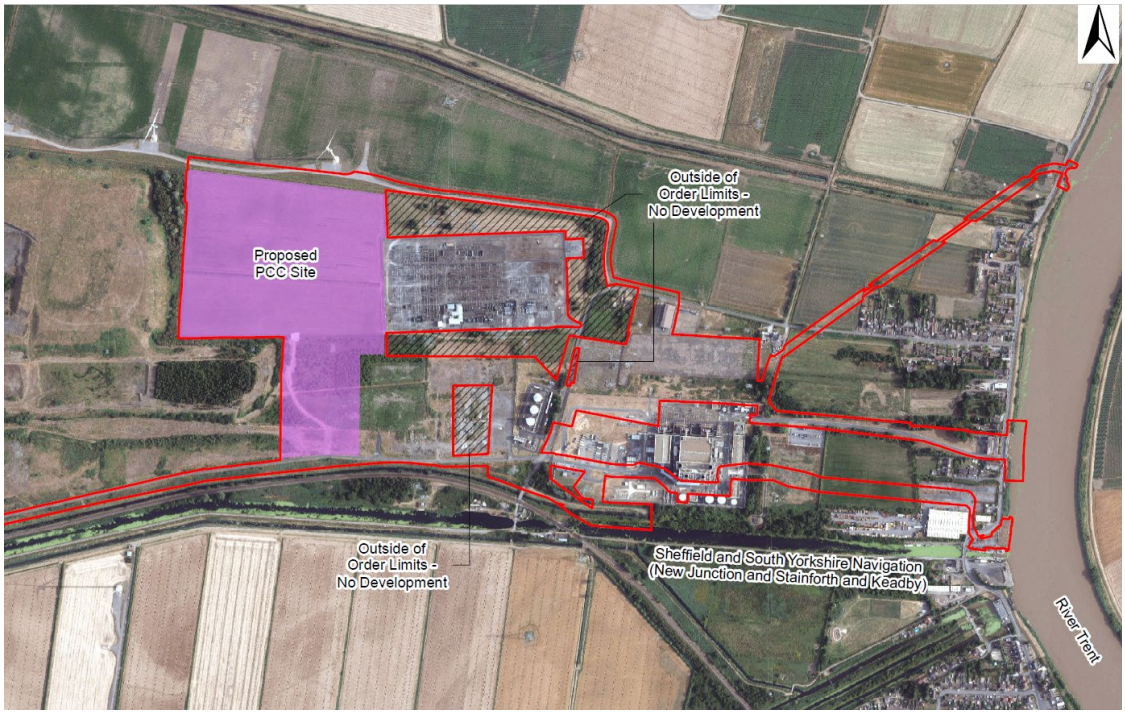
3.3 Description of the Site

The PCC Site

3.3.1 The PCC Site comprises flat, former agricultural land previously in arable production until circa 2017/2018. The northern areas of Keadby Common where the CCGT and CCP are proposed are occupied by improved grassland. Keadby Common has a drain on each boundary. A further field drain crosses the Common between a northern field and the southern area of the Main Site which is currently temporarily being used for soil storage during construction of the Keadby 2 Power Station.

3.3.2 The Proposed PCC Site is bisected by overhead electricity transmission lines associated with the existing National Grid 400kV Substation to the east of the PCC Site. In the vicinity of the overhead lines a swathe of unmanaged semi-improved grassland and pockets of scattered scrub occur within the PCC Site. To the south of these areas, existing land within the PCC Site comprises extensive hardstanding areas associated with the Keadby 2 Power Station laydown and construction site. The PCC site location is shown in **Figure 3.3** below.

Figure 3.3: PCC Site Location



Electrical Connection to 400kV Substation

3.3.3 The existing 400kV Substation (located adjacent to and east of the PCC Site) is owned and operated by National Grid and is included within the Site for the purposes of providing an electrical connection for the Proposed Development into the National Grid electricity transmission system.

Electrical Connection from 132kV Substation

3.3.4 An existing substation owned by Northern Powergrid on Chapel Lane is included within the Site boundary for the purposes of providing an option for lower voltage electrical connection to supply the PCC Site during plant start-up. This compound includes existing buildings and an adjacent area of compacted hardstanding. Two potential routes for the connecting cable between the compound and the PCC Site are included within the Site Boundary.

3.3.5 One route crosses Chapel Lane – an adopted highway and runs through an area of semi-improved grassland south of existing overhead electricity transmission lines associated with the existing National Grid 400kV Substation to the north. The alternative cable route runs along Chapel Lane and north and west towards the Main Site, utilising farm access tracks previously used during the construction the Keadby Windfarm.

Water Connection Corridors and Water Discharge Corridor

3.3.6 The proposed connection areas for the abstraction and discharge of water include corridors of land travel from the PCC Site to the River Trent

(approximately 1.4km north east of the PCC Site) and Keadby Canal (approximately 850m south east of the PCC Site). The Applicant has assessed two potential cooling options for the Proposed Development. Both are therefore included within the Site Boundary and have been considered within the assessments presented in this ES. The preferred option is to utilise water abstracted from the Stainforth and Keadby canal; the alternative option is to utilise water abstracted from the River Trent. Whichever water source is utilised, treated return cooling water will be directed to the River Trent and discharged through the existing Keadby 1 Power Station outfall which is also proposed to be utilised for treated water from Keadby 2 Power Station, once operational.

3.3.7 The Site therefore includes pipework corridors currently associated with the cooling operations for the Keadby 1 Power Station. One corridor relates to the potential water abstraction from the River Trent. The other corridor relates to the intended water discharge back to the River Trent.

Access

3.3.8 Access to the Site during construction and operation would be via the existing access road from the A18. This access road passes over the Stainforth and Keadby Canal and the Scunthorpe to Doncaster passenger railway line via North Pilfrey Bridge. It then links to internal private site roads travelling north towards the Site.

Waterborne Transport Offloading Area

3.3.9 A river wharf (known as Keadby Wharf) with a short stretch of access road, located directly adjacent to the River Trent is included within Site Boundary. Keadby Wharf is situated to the north of Keadby Lock which provides access to the Stainforth and Keadby Canal. The area incorporates a reinforced concrete slab which can be used for the positioning of temporary tower cranes for lifting and transfer of AIL components/ equipment.

3.3.10 Keadby Wharf was previously used in 2020 to transfer AIL components (such as the gas turbine) for the Keadby 2 Power Station Project, as shown over the page in **Figure 3.4**.

Figure 3.4: The Keadby 2 CCGT arriving via Keadby Wharf in 2020

Additional Abnormal Indivisible Load (AIL) Route

3.3.11 The Site incorporates land currently used as a temporary construction haul road for the Keadby 2 Power Station Project from the Waterborne Transport Offloading Area into the Keadby Power Station site for the purposes of transporting AIL that have been delivered and unloaded at the Waterborne Transport Offloading Area. This Additional AIL route commences at the Waterborne Transport Offloading Area, crosses a short section of the B1392 and then incorporates an existing temporary haul road that runs to the east of PD Port Services freight yard, through an agricultural field (owned by the Applicant).

Construction Laydown Areas

3.3.12 To the south of the Stainforth and Keadby Canal, adjacent to the construction and operational access road from the A18, an area of farmland under intensive arable management is included within the Site Boundary for use as temporary construction laydown. South of the Stainforth and Keadby Canal and west of Pilfrey Bridge, an area of mown improved grassland and land used for Keadby 2 Power Station laydown is also included as a laydown area.

3.3.13 The existing hardstanding construction laydown areas currently utilised by Keadby 2 Power Station are also included in the Site (south of the PCC Site). To the east of the PCC Site, the former site of the previous substation for Keadby 1 Power Station is also included for laydown where all equipment has been removed and the remaining site is flat and mostly concrete.

3.4 The Surrounding Area

3.4.1 The land to the north, west and south of the PCC Site is predominately flat agricultural land with numerous larger structures such as 400kv pylons and wind turbines dominating the landscape. Immediately adjacent west of the PCC Site and Keadby Common lies the Keadby Ash Tip, where land levels rise to that in excess of 19m AOD making it a significant land formation in the area. The land on which the PCC Site is located has always remain separated from the ash tip and its purpose.

3.4.2 The nearest settlement is the village of Keadby which is located immediately adjacent to the Water Discharge Corridor and approximately 1km east from the PCC Site at its closest point.

3.4.3 Other settlements nearby include: Crowle (3.6km) and Ealand (2.2km) to the west; Althorpe (1.7km) to the south-east and Gunness (580m) to the east on the eastern bank of the River Trent. Closer to the PCC Site are a small number of residential areas and individual residential properties

3.4.4 Keadby Canal bounds the south of the wider Keadby Power Station site, running from west to east and connecting with the tidal River Trent at Keadby Lock, which is located at the midpoint of Keadby as the village follows the shore of the river. The South Humberside main line railway (connecting Doncaster to Cleethorpes) follows the north side of Keadby Canal along the southern boundary of the Keadby Power Station site, until passing over a railway bridge and heading south east towards Althorpe and Sculthorpe.

3.4.5 Located directly south of the Site is the A18, which provides connectivity to the M18 and Ealand to the west and well as road links to Keadby, Gunness and Scunthorpe to the east of the Site. Chapel Lane, (a public highway) intersects the Site and Keadby Power station Site, travelling in from Keadby village and proceeding south across the canal and railway line via the Vazon Bridge, beyond which (on the south side of the canal) lies a functioning railway signal box and an isolated residential property.

3.5 Site Appraisal

3.5.1 It is clear from the above that the immediate context and surroundings of the Site is characterised by the large-scale buildings and structures associated with power generation. Whilst the PCC Site is located largely on agricultural land, it is surrounded by large-scale energy infrastructure to the north, south and east, including the Keadby Wind Farm, Keadby Power Station site and the National Grid Substation respectively. It is also bounded to the west by the significant man-made land formation of the Keadby Ash Tip.

3.5.2 The wider area around the Keadby Power Station site is generally rural and for the most part comprises agricultural land interspersed with small settlements, but is still dominated by Keadby 1 and Keadby 2, which are visible across the flat landscape for several kilometres. The wider area is also subject to other significant humanising influences, being crossed by major transport and power

infrastructure. The majority of the Site does not therefore sit within a setting or landscape that is particularly sensitive to change, the exception to this being the largely flat/undeveloped area surrounding the A18 access where minimal visible development is proposed.

3.5.3 Taking account of the above, the Site presents a number of potential opportunities for the Proposed Development:

- a flat site comprising a mix of previously developed 'brownfield' land and agricultural land;
- benefits from existing substations on adjacent land;
- benefits from existing Keadby 1 and Keadby 2 connection corridors and selected site infrastructure which can be reused;
- benefits from existing National Grid gas pipeline running from Bonnyhale Road to the south of the PCC Site from which natural gas will be suppled via a tie-in to the HP gas transmission network;
- the Site is surrounded by existing power generation infrastructure and man-made landforms;
- the wider Keadby Power Station site benefits from good road links, including existing robust construction and AIL accesses; and
- the Site and wider area are of relatively low environmental sensitivity.

3.5.4 The Site's context, setting and the above opportunities and constraints have influenced the approach taken by the Applicant to the design of the Proposed Development, as explained in Section 6.

3.6 Planning and Environmental Designations

3.6.1 To the south of and slightly overlapping with Work No. 4A (Canal Water Supply Connection Works), as shown in the Indicative Works Plan (**Application Document Ref 4.3**) is the Stainforth and Keadby Canal. The lock at the junction of the Canal and the River Trent are grade II listed and are designated by NLC as a heritage asset in their adopted Local Plan. The lock is located adjacent to the Waterborne Transport Offloading Area, specifically Work No. 10B.

3.6.2 The River Trent, immediately to the east of and slightly overlapping with Work No. 4B and Work No. 5 is part of the designated RAMSAR, Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC) for the Humber Estuary.

3.6.3 The Stainforth and Keadby Canal is designated as a Local Wildlife Site.

3.6.4 The Site is predominantly within the open countryside, albeit the proposed 'Water Connection Corridor' (Work No. 4B) is adjacent to Keadby Development Boundary. The 'Water Discharge Corridor' (Work No. 5) partially runs through the Keadby Development Boundary.

3.6.5 The allocations/designations and policies that apply to the Site are described in Section 3.0 of this document and in more detail within the Planning Statement (**Application Document Ref. 5.5**).

3.6.6 No public rights of way (PRoW) are located within the Site. The nearest PRoW are:

- KEAD 10: a bridleway which runs north-south from Chapel Lane to a point north of Warping Drain. The southernmost point of this footpath is approximately 40m from the Water Discharge Corridor;
- Footpath CROW11 located along Bonnyhale Road, approximately 250m north-west of the access road for the Site; and
- Footpath KEAD 9 which runs parallel to Warping Drain east-west from the northern terminus of Footpath KEAD 10 approximately 500m north of the PCC Site. Footpath LUDD9 joins Footpath KEAD 10.

3.6.7 A permissive 'traffic-free cycle route' south of the Stainforth and Keadby Canal is also noted, together with a number of other PRoW located within the wider area.

3.6.8 It is considered that the land located either side of the access road from the A18, some of which is proposed as Temporary Construction Laydown, (south of the North Pilfrey Bridge) is classified as best and most versatile ('BMV') agricultural land (i.e., constituting Grades 1, 2 or 3a by Natural England guidance and the National Planning Policy Framework ('NPPF')). Historic mapping obtained as part of ES Appendix 13A: Phase 1 Desk Based Assessment (**Application Document Ref. 6.3**) indicate agricultural uses dating back to 1885. More information on the selection of this land for temporary construction laydown areas is provided in Section 6.0 of this Report.

3.6.9 There are several undetermined planning applications for small and medium sized residential schemes within 5km of the Site, particularly towards the western boundary of Scunthorpe (see ES Chapter 19 – Cumulative and Combined Effects (DCO Doc Ref. 6.2.19)). It should be noted that the neighbouring Keadby Windfarm Extension Project, which was placed on hold in 2015 and has been paused indefinitely by SSE Generation Ltd.

4.0 DESIGN FLEXBILITY AND INFORMATION

4.1.1 The section of the DAS explains the flexibility that the Applicant has sought to incorporate within the design of the Proposed Development, within the overall parameters of the Application. It also explains the purpose and status of the design information that has been submitted as part of the Application.

4.2 Design Flexibility

4.2.1 It is important to recognise that the Proposed Development (if consented) would be one of the first examples of power, carbon capture and compression technologies being deployed at this scale in the UK. It has therefore been necessary to allow for a degree of flexibility in the design and layout of the Proposed Development, within the parameters of the Application.

4.1.1 A key reason for needing to incorporate flexibility within the Proposed Development at the consenting stage relates to the appointment of an Engineering Procurement and Construction ('EPC') contractor. This would not take place until after the Secretary of State has granted a DCO and the Applicant has made a final investment decision to proceed with the Proposed Development. Following the award of the construction contract, the appointed EPC contractor would then need to carry out a number of detailed design studies in order to inform the decisions on the exact technology selection for the various elements of the Proposed Development and also to optimise the design and layout of these. It is also important that the consent retains some flexibility to allow for changing economic conditions and the advancement of CCGT and CCP technology in the period between preparing the Application and starting construction. At this stage of the process, it is not therefore possible to finalise the detailed design of the Proposed Development.

4.2.2 In order to provide sufficient flexibility and ensure a robust Environmental Impact Assessment ('EIA'), the Applicant has adopted the principles of the 'Rochdale Envelope' approach and assessed maximum (and where appropriate minimum) design parameters for the elements of the Proposed Development where flexibility needs to be retained at the consenting stage. These parameters include the limits within which the various elements of the Proposed Development can take place (as defined by the Works Plans – **Application Document Ref. 4.3**) in addition to maximum dimensions for the main buildings and structures.

4.2.3 The maximum design parameters for the main buildings and structures that have been adopted for the purposes of the EIA of the Proposed Development are set out below in **Table 4.1** below while the Maximum Design Parameters for the main buildings and structures for the Proposed Development with the Proposed Development Changes incorporated (as adopted for the purposes of the ES Addendum reference **REP5-045**) are shown in **Table 4.2** below.

Table 4.1: Maximum Design Parameters (before Proposed Development Changes)

Component	Maximum length (m)	Maximum width (m)	Maximum height (m) (AOD)
Gas Turbine Hall	22	50	34.6
HSRG Building	28	50	58.6
HRSG Stack	-	8 (diameter)	87.6
Steam Turbine Hall	50	40	37.6
Carbon Dioxide Stripper	-	15 (diameter)	55.6
Absorber (if one developed)	16	43	101.6
Absorber Stack (if one developed)	-	6.7 (diameter)	107.6
Absorber (if two developed)	-	19 (diameter)	60.6
Absorber Stack (if two developed)	-	6.7 (diameter)	78.6

Table 4.2: Maximum Design Parameters (with Proposed Development Changes)

Component	Maximum length (m)	Maximum width (m)	Maximum height (m) (AOD)
Gas Turbine Hall	22	50	34.6
HSRG Building	28	50	58.6
HRSG Stack	-	8 (diameter)	87.6
Steam Turbine Hall	50	40	37.6
Carbon Dioxide Stripper	-	15 (diameter)	65.8
Absorber (if one developed)	16	43	101.6
Absorber Stack (if one developed)	-	6.7 (diameter)	107.6
Absorber (if two developed)	-	19 (diameter)	82.8
Absorber Stack (if two developed)	-	6.7 (diameter)	98.3

4.1.2 As part of this flexibility sought, the Proposed Development will determine one or two absorber columns, where flue gasses will be introduced for the removal of carbon dioxide from the gas stream. Consideration is being given to both a single absorber option of 107.6m high and the option of a smaller twin absorber configuration with two stacks up to 98.6m high (with the Proposed Development Changes).

4.1.1 A number of solvent licensors offer carbon capture systems, each having developed carbon capture solvents to optimise performance, in terms of carbon capture efficiency, minimising energy cost of solvent recovery and minimising environmental emissions. Many, but not all, solvents are based on amine solutions and amine-based carbon capture has therefore been included within the Proposed Development design considerations in order to minimise technology risks. The selection of the preferred licensor will be informed by an assessment of Best Available Techniques (BAT), this will inform and determine the selection of either the single or twin absorber configurations.

4.1.2 The final decision has not yet been made on the choice of vendor for the generating station or licensor for the CCP equipment and solvent provider and will not be made until the detailed design stage of the project. Therefore, the design of the Proposed Development at this stage incorporates a degree of flexibility in the dimensions and configurations of buildings and structures to allow for the future selection of the preferred technology and contractor

4.1.3 For the purposes of the assessment in the Environmental Statement, the CCP absorber units have been assessed at alternative locations within Work No. 1C (**Application Document Ref. 4.3**) of the Proposed PCC Site, with different building orientations as applicable, in order to determine the worst-case impacts at different receptors. Worst case scenarios for both single and twin absorber configurations have also been robustly assessed in the ES for both air quality (ES Volume I – Chapter 8: Air Quality, **Application Document Ref. 6.2**) and noise and vibration (ES Volume I – Chapter 9: Noise and Vibration, **Application Document Ref. 6.2**).

4.2.4 The exact positions of the CCGT and absorber stack(s) cannot be fixed until the detailed design stage as they will depend on the final technical configuration and plant optimisation. The height of the stacks above ground will also depend on the final finished ground level. Flexibility is also sought in the configuration and layout of the entire PCC Site. An Indicative Layout for the Proposed PCC Site is provided at Figure 4.1 (ES Volume II – **Application Document Ref. 6.3**).

4.2.5 Existing natural ground levels at the PCC Site are approximately 0m to 1m AOD on the northern part of Keadby Common (referred to in this ES as the 'Main Site') where the CCGT and CCP plant are proposed.

4.2.6 For buildings and structures within the Proposed PCC Site, the parameters set out in the above Tables 4.1 and 4.2 take into account the expected minimum finished floor design level of +2.8mAOD for CCGT/ CCP infrastructure within

the Proposed PCC Site including the administration/ control building that would provide a safe place of refuge in a breach event.

4.2.7 Further flood resilience measures are proposed for critical operational infrastructure associated with the CCGT (defined in **Appendix 12A**: Flood Risk Assessment (ES Volume II – **Application Document Ref. 6.3**) that provide a level of resilience of no less than 3.6m AOD and up to 4.4m AOD.

4.2.8 The Gas Connection AGI will have maximum height of 11m.

4.3 Design Information

4.3.1 The design information that has been submitted into examination has been based upon the maximum design parameters in **Table 4.2**. This information is set out in **Table 4.3** over the page.

Table 4.3: Design information submitted as part of the DCO Application

Application Document Ref.	Application Document	Purpose
4.3	Works Plans (Key Plan (1 & 2) and Sheets 1-26)	Confirms the location and extent of the Works Nos. comprised within the Proposed Development, as set out at Schedule 1 of the DCO, and also the limits of deviation within which these works may occur.
4.6	Highway Works Plans (General Arrangements: Key Plan and Sheets 2-3; Chainages & Cross Sections: Key Plan and Sheets 2-3; Long Sections; Cross Sections; Utilities Layout: Key Plan and Sheets 2-3; Site Clearance: Key Plan and Sheets 2-3; Drainage Layout: Key Plan and Sheets 2-3)	Showing details of highway works proposed to the A18 access and utilities and drains connections.
4.7	Indicative Proposed Power and Carbon Capture Layout, Elevations and Sections (Key Plan and Sheets 2-5)	Showing the indicative layout, elevations and sections for the main buildings and structures at the PCC Site.
4.8	Indicative Electrical Connection Plans (Key Plan and Sheets 2-5)	Showing the route and connection point for the electrical connection.
4.9	Indicative Cooling Water Connection Plans (Key Plan and Sheets 2-5)	Showing the routes for the cooling water connection works.
4.10	Indicative Towns Water Connections Plan (Sheet 1)	Showing the towns water connection area.
4.11	Indicative Gas Supply Pipeline Connection Plans and Gas Above	Showing the route and connection points for

Application Document Ref.	Application Document	Purpose
	Ground Installation Plans (Key Plan and Sheets 2-5)	the gas connection including AGI.
4.12	Indicative CO_2 Above Ground Installation Plans (Key Plan and Sheets 2-3)	Showing the CO_2 connection and AGI.
4.13	Indicative Surface Water Drainage Plan	Showing the routes for the surface water drainage.
4.14	Indicative General Arrangement and Elevations A18 Gatehouse	Showing the arrangement and elevations of the proposed gatehouse at the A18 access.
4.15	Indicative Landscape and Biodiversity Plan (Key Plan and Sheets 1-3)	Showing the proposed boundary landscaping and biodiversity enhancement proposed at the Site.
4.16	Mabey Bridge Replacement General Arrangement and Sections (Sheets 1-2)	Showing the replacement Mabey Bridge at the A18 access and sections.
4.17	Emergency Access Bridge General Arrangement and Sections	Showing the emergency access bridges and sections.
4.18	SSE Land Ownership Plan (Key Plan and Sheets 1-3)	Showing the Applicant's land holding.
4.19	Haul Road Plans (Sheets 1-9)	Showing the haul road route.
4.20	Pilfrey Laydown Plans (Sheets 1-6)	Showing the laydown area adjacent to the North Pilfrey Bridge.

4.3.2 Due to the nature of the Proposed Development and the need to incorporate sufficient flexibility within its design, much of the design information that has been submitted as part of the Application is indicative. However, the information that has been provided would feed into the detailed design of the Proposed

Development. The mechanisms by which the detailed design of the Proposed Development would be secured are dealt with at Section 8.0.

5.0 DESIGN APPROACH AND DEVELOPMENT

5.1.1 This Section sets out the approach that the Applicant has taken to the design of the Proposed Development and how the design has developed throughout the pre-application process.

5.2 Design Approach

5.2.1 The approach that the Applicant has taken to the design of the Proposed Development has been informed by the context within which it will sit, the opportunities that exist and the local planning policy framework.

5.2.2 As described in Section 3, the immediate context within which much of the Proposed Development Site (the 'Site') sits (e.g., the areas immediately surrounding the PCC Site) is already largely industrialised in terms of its character and appearance. It is characterised by the existing power generation buildings and structures associated with Keadby 1, Keadby 2 and Keadby Wind Farm, notably large turbine halls, emissions stacks, wind turbines and the NGET Substation as well as numerous overhead electric lines.

5.2.3 The Applicant acknowledged that their approach to design should be appropriate to the context and purpose of the Proposed Development, to generate and export electricity to the National Grid. It is also important to recognise that this is not a situation where large-scale development is being introduced into an area that is devoid of built development and that is characterised by particularly sensitive landscapes.

5.2.4 The Site was selected owing to the benefits of colocation within the Keadby Power Station site, such as the close proximity to the NG Substation, gas feeder and power station infrastructure on the wider site. A full list of reasons why the Site was selected as opposed to other sites is provided below:

- it has excellent existing electrical grid, gas, water and transport links, specifically the National Grid electricity and natural gas transmission networks;
- adequate supplies of cooling water can be provided via the nearby Stainforth and Keadby Canal or River Trent;
- it is in close proximity to the Zero Carbon Humber Partnership cluster and discussions with National Grid Ventures have determined that their proposed carbon dioxide pipeline can directly connect into the Site to enable the transport of captured carbon dioxide from the Proposed Development to permanent geological storage in the southern North Sea;
- the PCC Site is a brownfield site (owing to its history as landfill) which is considered more appropriate in general planning terms to redevelop for large-scale power generation than a greenfield site;
- the location of the PCC Site minimises interference with the Landscape and Creative Conservation Plan for Keadby 2 Power Station and specifically, the

Habitat Management Areas secured via Conditions 31-34 inclusive of the Section 36 consent for Keadby 2 Power Station;

- the PCC Site provides sufficient space to accommodate the required scale of power generation and carbon capture infrastructure (in particular, a single high efficiency CCGT unit and a CCP), without encroaching on the exclusion areas for the Keadby Wind Farm turbines to the north and the existing overhead lines to the south and east;
- the PCC Site (and the majority of the wider Site) is in the ownership of the Applicant; and
- the PCC Site is located in close proximity to the existing Keadby 1 Station and soon to be operational Keadby 2 Power Station, providing opportunities for economic and operational synergies and efficiencies. The potential reuse of existing infrastructure can also reduce the environmental impact of constructing the Proposed Development.

5.2.5 Further information on the selection of the Site over other potential alternatives can be found in ES Chapter 6 ('Consideration of Alternatives) – **Application Document Ref. 6.2.6** and (in relation to the Proposed Development Changes) ES Addendum Chapter 6 – **Application Document Ref. 10.7**.

5.3 Design Development

5.3.1 As part of the on-going design process, consideration has been given to a range of design options. Decisions taken regarding the concept design of the Proposed Development have, where relevant and possible, been informed by environmental appraisal and assessment work and by consultation with stakeholders.

PCC Layout

5.3.2 Changes to the design and layout which have resulted from engineering design development and environmental consultations. As part of the design process, a number of options were considered via preliminary assessment for the site layout of the Proposed Development within what would become known as the PCC Site. Early engineering assessments reviewed the capacity of the PCC Site against necessary clearance distances and exclusion zones (such as from existing National Grid pylons and adjacent wind turbines) required to safely build the plant/technology for the Proposed Development.

5.3.3 A plan showing the final layout of the PCC Site is shown on the Indicative Proposed Power and Carbon Capture Layout, Elevations and Sections **(Application Document Ref. 4.7)**.

Cooling Towers

5.3.4 An internal 'Cooling Options Study' was undertaken by the Applicant to determine which type and configuration of cooling was the optimum choice for the Proposed Development. The study resulted in the selection of hybrid

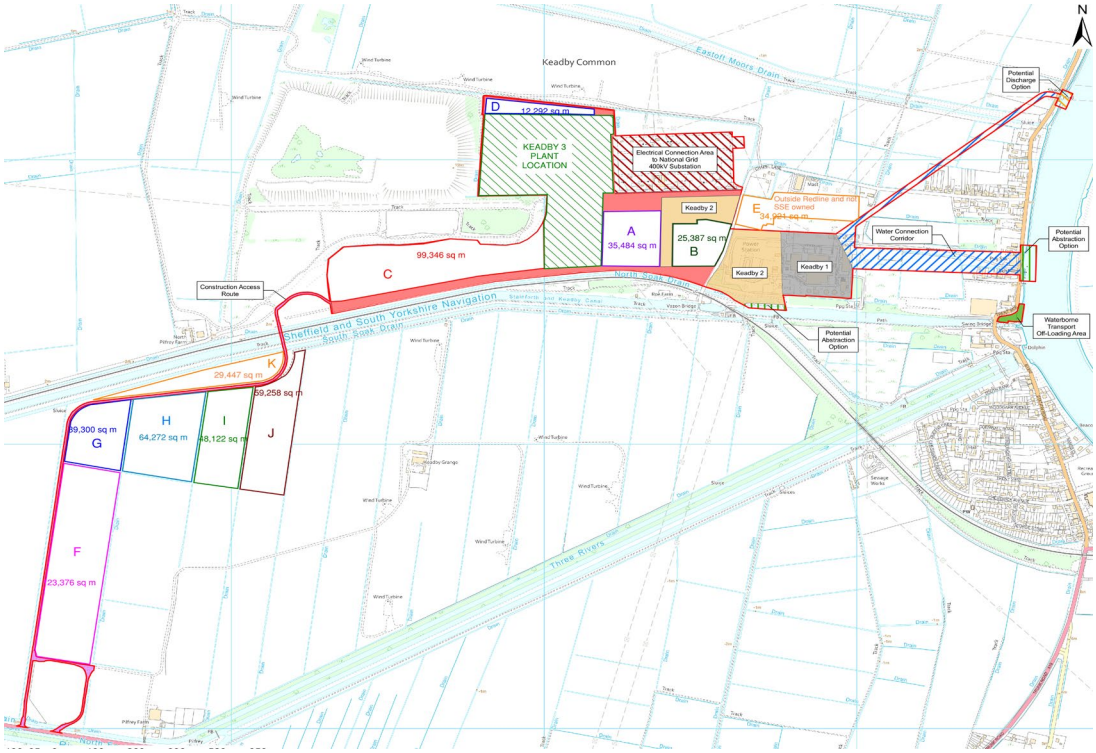
cooling towers shared between the capture plant and the power plant. As part of the Cooling Options Study, fin-fan air coolers were considered for the capture plant but were ruled out as this option would take up more space on the PCC Site than would be available for cooling.

Construction Laydown Areas

5.3.5 The EIA Scoping Report (Appendix 1A – ES Volume II **– Application Document Ref. 6.3**), included an area within the Proposed Development Site boundary to the south-west of the PCC Site for 'construction laydown and biodiversity'. This area is currently unused and vegetated, with mounds and spoil heaps which are anticipated to contain Pulverised Fuel Ash (PFA) associated with historic coal-fired power use. Over time, semi-natural habitat has become established on this disturbed ground associated with the former Keadby Ash Tip.

5.3.6 Following the ecological assessment and surveys associated with ES Chapter 11: Biodiversity and Nature Conservation (**Application Document Ref. 6.2**) it was determined that the land associated with the former Keadby Ash Tip was of high biodiversity value and therefore the Applicant sought alternatives for the proposed laydown area(s). In order to locate further suitable areas of the total size required for laydown purposes, the Applicant undertook an internal quantitative exercise, with a view to selecting the most appropriate sites from a long list. **Figure 5.1** below illustrates the potential laydown sites (A-F) considered as part of the selection exercise. Certain areas of brownfield land were not part of the long list due to being oversailed by multiple overhead lines, or having particular constraints around space or access.

Figure 5.1: Sites considered for Construction Laydown



5.3.7 The Applicant chose to maximise use of existing land (under KGL control) of lower biodiversity value that may be suitable for temporary laydown, whilst supplementing additional land (Areas G, and H, above) in agricultural use, where necessary, to be leased from the landowner. This additional land was identified to be required on the basis that there was not suitable space available at the Keadby Power Station Site without using the biodiversity rich 'Area C', and that the full reinstatement of the ecology/biodiversity may be unachievable following its use.

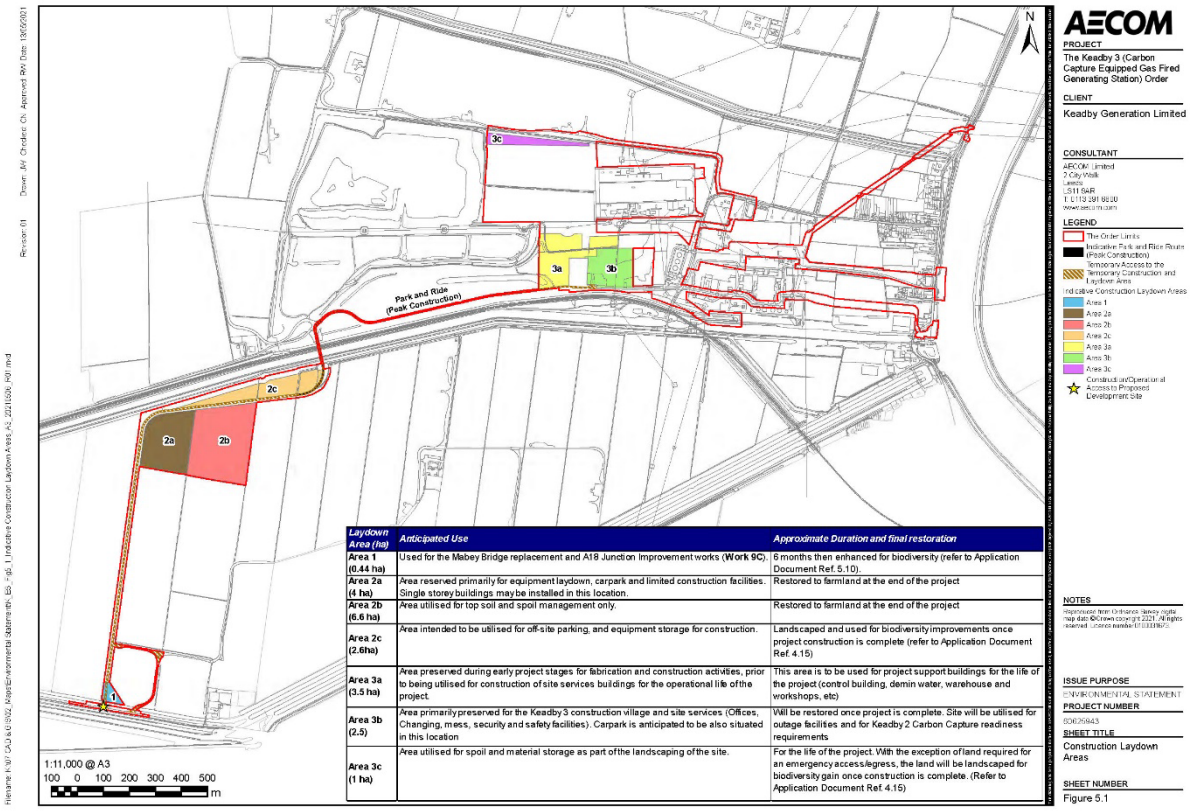
5.3.8 Prior to the selection of the additional agricultural areas of land for laydown use, a number of other alternative solutions were considered, including increasing phasing flexibility and construction method flexibility at available brownfield parts of the KGL landholding. Area A is reserved for CCR land associated with Keadby 2 and therefore while identified for potential use for the construction of Keadby 3 is likely to be constrained in terms of the duration and nature of activities that could be carried out. Area C, as mentioned above was ruled out due to the biodiversity rich nature of the area.

5.3.9 Incorporating the additional agricultural land (Areas 2a 2b and 2c below), the construction laydown area sites selected are listed below and illustrated on Figure 5.2:

- Area 1 – an unused parcel of land owned by the Applicant adjacent to the A18 junction improvement option;
- Area 2a and 2b – agricultural land adjacent east and south of the A18 access road;

- Area 2c – comprises a strip of unused (partially agricultural land between the Stainforth and Keadby Canal and the access road, part of which (at its north east corner) is already in use as temporary laydown for Keadby 2 Power Station construction;
- Area 3a and 3b – brownfield land to the south of the PCC Site (area 3b is in use as temporary laydown for Keadby 2 Power Station construction); and
- Area 3c – a strip of land along the northern boundary of the Proposed PCC site.

Figure 5.2: Selected Construction Laydown Areas



Laydown Area (ha)	Anticipated Use	Approximate Duration and final restoration
Area 1 (0.44 ha)	Used for the Mabey Bridge replacement and A18 Junction Improvement works (Work 9C).	6 months then enhanced for biodiversity (refer to Application Document Ref. 5.10).
Area 2a (4 ha)	Area reserved primarily for equipment laydown, carpark and limited construction facilities. Single storey buildings may be installed in this location.	Restored to farmland at the end of the project
Area 2b (6.6 ha)	Area utilised for top soil and spoil management only.	Restored to farmland at the end of the project
Area 2c (2.6ha)	Area intended to be utilised for off-site parking, and equipment storage for construction.	Landscaped and used for biodiversity improvements once project construction is complete (refer to Application Document Ref. 4.15)
Area 3a (3.5 ha)	Area preserved during early project stages for fabrication and construction activities, prior to being utilised for construction of site services buildings for the operational life of the project.	This area is to be used for project support buildings for the life of the project (control building, demin water, warehouse and workshops, etc)
Area 3b (2.5)	Area primarily preserved for the Keadby 3 construction village and site services (Offices, Changing, mess, security and safety facilities). Carpark is anticipated to be also situated in this location	Will be restored once project is complete. Site will be utilised for outage facilities and for Keadby 2 Carbon Capture readiness requirements
Area 3c (1 ha)	Area utilised for spoil and material storage as part of the landscaping of the site.	For the life of the project. With the exception of land required for an emergency access/egress, the land will be landscaped for biodiversity gain once construction is complete. (Refer to Application Document Ref. 4.15)

5.4 Design through consultation

5.4.1 The Applicant adopted a two-stage approach to its pre-application consultation. This consisted of a stage of non-statutory consultation (the 'Stage 1 Consultation') which informed the development of its proposals as well as the methodology of the second stage of statutory consultation (the 'Stage 2 Consultation'), the latter in accordance with the requirements of the PA 2008. Stage 1 Consultation commenced on 22 June 2020 and concluded on 3 August 2020. The Stage 2 Consultation commenced on 24 November 2020 and concluded on 20 January 2021. The consultation is discussed and analysed in detail in the Consultation Report (Application Document Ref. 5.1).

5.4.2 At the Stage 1 'informal' Consultation participants were asked for their opinion on the Proposed Development, which generated feedback on principle of the Proposed Development, such as if the Site was suitable rather than specific design elements. Whereas during Stage 2 'statutory' consultation, more detailed design proposals were shown and participants were asked their opinions on aspects such as 3D visualisations of the Proposed Development, potential building finishes/colours and alternative access locations.

5.4.3 It should be noted that many of the technical aspects of the Proposed Development are fixed by the Applicant (or fixed by the Applicant in discussion with technical consultees such as the Environment Agency). These include the use of the Applicant's land for the CCGT power station itself, the proposed generation capacity, the proposed technology/fuel choice, the type and length of connections and the type and location of termination points, the amount of land required for laydown and construction, the proposed maximum dimensions (height, width and length) of key buildings and items of plant (for example, the height of stacks to ensure dispersion), and proposing mitigation for significant predicted environmental impacts. While SSE Thermal will have regard to the views and information provided by local communities on these aspects, this is on the basis that they are unlikely to result in changes to the Proposed Development.

5.4.4 In some areas, consultation responses and results (in addition to technical reviews and study work) contributed to the key design evolution choices that were made during the Proposed Development's design development. This was particularly the case for the Stage 2 Consultation.

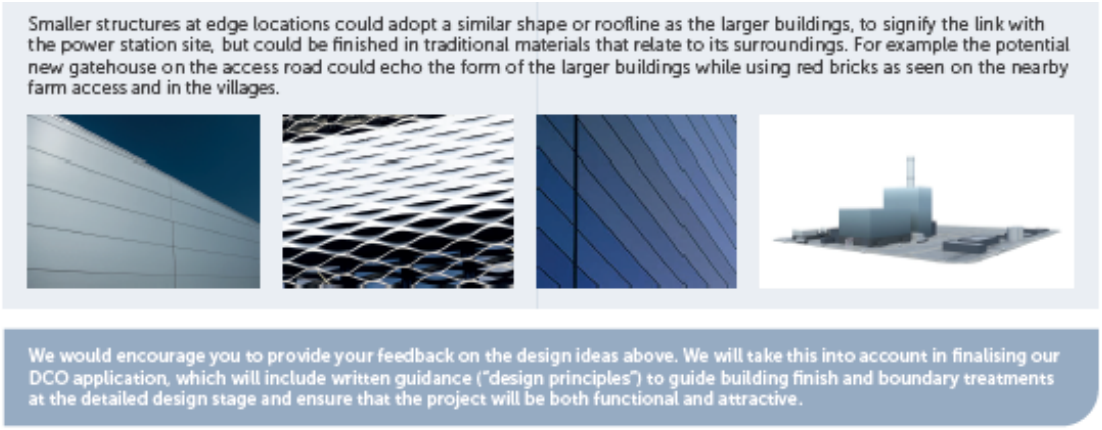
Building Design

5.4.5 The architectural form of the CCGT power station was considered during the design development of the Proposed Development, with a functional design similar to that of Keadby 1 and Keadby 2 preferred as to be in keeping with the wider Site aesthetic. Consideration was also given to potential alternatives in terms of building materials, finishes and colours. KGL and its advisors wanted to explore the potential options available, but were conscious that the selection of materials should not represent a considerable shift away from the established industrial context of the wider Keadby Power Station Site. Therefore prior to the Stage 2 Consultation, a number of materials and finishes were assessed internally by the Project Team in terms of their viability, practicality and their capacity to assimilate with the existing surrounding architectural vernacular.

5.4.6 The Applicant decided that for the Stage 2 Consultation it would be prudent to present certain alternative design components (such as materials, shapes, colours) to the public, rather internal determining designs. Consequently, participants were provided with information and options relating to the design of the CCGT power station reflective of the context within which it would sit. In particular the consultation banners provided ideas as to the types of finishes, textures (such as mesh and cladding) and shapes/rooflines which could be

adopted in the final design of the CCGT. The design options were also included and discussed with attendees of each of the virtual webinar events held over the consultation period. The **Figure 5.3** below is an image taken from the Stage 2 Consultation banners illustrating some of the potential ideas and options for building details which were presented to the public and mentioned in feedback forms.

Figure 5.3: Example building finishes suggested at the Stage 2 Consultation



5.4.7 Participants were encouraged to provide feedback on the design ideas via a specific question in the feedback form. The limited number of responses from participants on design at the Stage 2 Consultation was generally positive, with most suggesting they were content with the design ideas for Keadby 3. A number of suggestions were also received in response to the design question, such as a request for stepped colouring and to avoid bland colours. A more in-depth analysis of the responses to this question at Stage 2 can be found at Section 11 of the Consultation Report (**Application Document Ref. 5.1**). See Section 6.0 for further details of the design and finishes selected for the Proposed Development.

5.4.8 Whilst feedback received at Stage 2 was considered by the Applicant, the limited number of responses on the subject indicated that building form/design was less of a priority for the local area (when compared to mitigating environmental effects, traffic etc.). As previously noted, the Applicant would prioritise and develop a design which is functional in appearance whilst according with the NPS EN-2 guidance on 'good design'.

Operational Access (A18 Option)

5.4.9 The Applicant took the decision to seek views from the public on an alternative option for the operational access during the Stage 2 Consultation. The Applicant suggested that the Keadby 3 construction access from the A18 (formerly the Keadby Windfarm construction access) be considered as the primary operation access for the Proposed Development. It was thought that

the possible use of the A18 entrance would be of benefit for both the staff using the Site and local people, by diverting traffic away from Keadby Village.

5.4.10 Participants were consulted at Stage 2 on the prospect of retaining the construction access from the A18 for operational use, including the creation of a new gatehouse, parking and junction improvement works to facilitate it. A specific question in the feedback form for Stage 2 asked participants for their opinion on the access. The majority of respondents who responded stated that they were content with the A18 entrance being selected and used for operation. A more in-depth analysis of the response to this question at Stage 2 can be found at Section 11 of the Consultation Report.

5.4.11 As a result of the positive discussions and feedback received at Stage 2, the Applicant continued design work to create an appropriate junction that would take account of the current layout and physical constraints such as adjacent watercourses. The design includes road widening and a ghost island for right-turn lane, this was considered by the Applicant as the preferred solution when considered against a number of other configurations. A plan illustrating the final design of the proposed operational access from the A18 to the Site is shown on the Access and Rights of Way Plans **(Application Document Ref. 4.4).**

6.0 DESIGN COMPONENTS AND FINAL ARRANGEMENT

6.1.1 This section of the DAS describes the key design components of the Proposed Development. This includes in relation to use, layout, amount, the scale of the main buildings and structures, appearance and the approach taken to landscaping.

6.2 Use

6.2.1 The Proposed Development Site (the 'Site') encompasses land adjacent to and partially within the operational area of the Keadby Power Station Site. The Site comprises land required for the CCGT, carbon capture plant (CCP), electrical connection, gas connection, water abstraction and discharge corridors, towns water, construction laydown, AIL haul route, wharf works and access road.

6.2.2 The majority of the PCC Site, where the CCGT and CCP are proposed to be located (known as the 'Main Site') are presently occupied by grassland previously used for arable production. A portion of this grassland area has been used for the storage of excavated material from Keadby 2, with the Ash Tip also comprising a significant land form immediately to the west. Whilst the boundary to the south and east is dominated by the electrical generation infrastructure uses of the wider Keadby Power Station Site, the north of the site comprises of flat agricultural land covered in wind turbines and pylons.

6.2.3 The primary use of the Keadby Power Station site is for electricity generation with ancillary activities and uses. The primary use of the land required within the wider Keadby Power Station Site for the Proposed Development will also be for electricity generation. As such, much of the land within the Site Boundary would retain the same use and character of the land as existing. Furthermore, while some components of the Proposed Development, notably the cooling water and gas connections and AGI involve agricultural land, the works will for the most part (with the exception of the AGI compounds) be below ground and the land would be reinstated and returned to its previous use at the end of construction.

6.3 Layout

6.3.1 The power element of the PCC Site (the CCGT) will be for the most part accommodated on Keadby Common, to the centre and north of the Site. The main built elements of the CCGT will comprise the Gas Turbine Hall, Steam Turbine Hall, Heat Recovery Steam Generator (HRSG) and HRSG Stack. Two banks of wet / dry (hybrid) cooling towers are proposed to be located to the north of the PCC Site.

6.3.2 The CCP and associated stacks will be located in the central and south west corner of the PCC Site, including flue gas pre-treatment, flue gas blower, carbon dioxide absorption column (absorber) and carbon dioxide removal column (stripper/ regenerator).

6.3.3 Located within the CCP area and adjacent south of the hybrid cooling towers is the carbon dioxide conditioning and compression facilities and National Grid high pressure carbon dioxide apparatus.

6.3.4 The Natural Gas reception facility (for the reception of natural gas from the NTS via the Gas Connection) will be located in the south-east corner of the PCC Site. In the southernmost part of this area, the National Grid Gas natural gas compound is proposed to be located, adjacent north of which is proposed to house the undertaker natural gas compound.

6.3.5 The southern area of the PCC Site will include a gatehouse, security building and staff parking. North of the gatehouse, the PCC Site will also house administration/control buildings (including a main reception, offices and welfare) and store buildings.

6.3.6 The indicative layout of the PCC Site is shown at ES Volume II, Figure 4.1: 'Indicative Site Layout for the Operation Proposed Development' (**Application Document Ref. 10.9**).

6.3.7 Located within the eastern section of the PCC Site and continuing into and across the adjacent National Grid Substation is the above or below ground 400kV electrical connection.

6.3.8 Two connection routes for a 132 kV underground electrical connections are proposed to run east from the PCC Site, running either side of the National Grid Substation to the existing Northern Power Grid Substation on Chapel Lane.

6.3.9 The indicative electrical connection layout is shown at (**Application Document Ref. 4.8**), 'Indicative Electrical Connection Plans (Key Plan and Sheets 2-3)

6.3.10 The routing of the water abstraction and discharge corridors is described at Section 3.0 of this report and is illustrated on the Works Plans (**Application Document Ref. 4.3**).

6.3.11 The cooling water connections are shown at (**Application Document Ref. 4.9**), 'Indicative Water Connection Plans (Key Plan and Sheets 2-5)

6.3.12 A description and plans showing the locations of the proposed construction laydown areas across the Site is provided at Section 5.0 and on Figure 5.2 of this Report.

6.3.13 A description of the proposed construction, operational and emergency accesses is provided at Section 3.0.

6.3.14 A description of the proposed temporary haul road and waterborne transport offloading area is provided at Section 3.0.

6.3.15 Other site infrastructure and utilities, (including heat exchangers, air compressors, pumps, chemical storage, water treatment plant and associated inter-connecting pipework. The perimeter of the PCC Site will be landscaped and securely fenced.

6.4 Amount

6.4.1 The amount of development in terms of the total area of the Proposed Development Site (the 'Site') including the Proposed Development Changes is approximately 69.7 hectares, of which 20.7 is located within the PCC Site. The approximate areas for the main parts of the Site are as follows:

- PCC Site – 20.7 hectares
- Gas Connection – 1.6 hectares
- 400 kV Electrical Connection and National Grid Substation – 10.3 hectares
- 132 kV Electrical Cable works to DNO Substation – 5.8 hectares
- Water supply connection options;
  - Keadby canal water supply connection – 7.9 hectares
  - River Trent water supply connection – 9.1 hectares
- Cooling water discharge pipeline – 10.0 hectares
- Towns water connection – 8.5 hectares
- Construction and operation access – 5.8 hectares
- Emergency access – 2.8 hectares
- Temporary access to construction laydown areas – 2.6 hectares
- Construction laydown areas – 20.3 hectares
- Temporary Haulage Route – 4.0 hectares
- Jetty works and waterborne transport offloading facilities – 0.3 hectares (plus 0.3 hectares of river bed for use of barges moored here)
- Landscaping and biodiversity management and enhancement areas – 10.6 hectares

6.4.2 The above areas and their extent are shown upon the Works Plans (Document Ref. 4.4). A number of the areas overlap.

6.4.3 New permanent buildings and structures will be largely confined to the PCC Site and the AGI Site. The largest are as follows:

- Gas Turbine Hall – 1100 sqm.
- HRSG – 1400 sqm
- Steam Turbine Hall – 2000 sqm
- Cooling Towers – 7602 sqm
- Absorber – 520 sqm

6.5 Scale

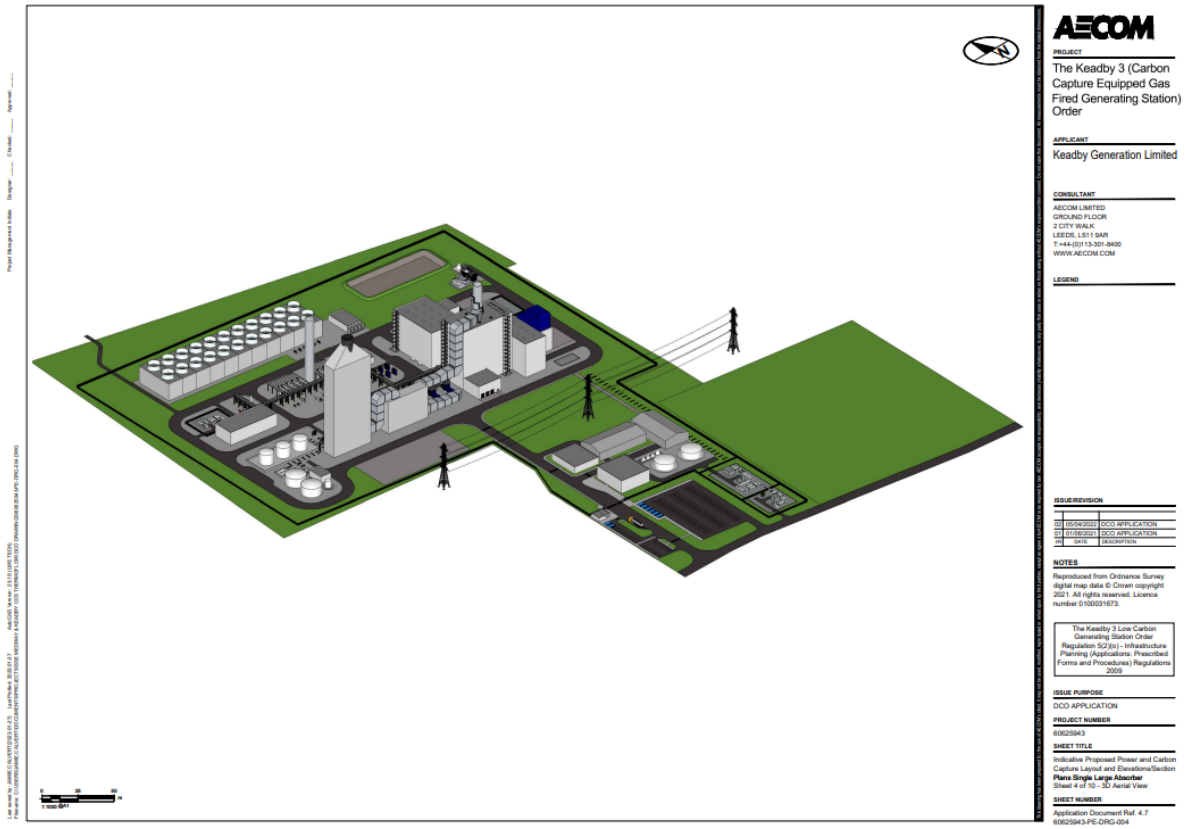
6.5.1 The scale of the Proposed Development relates to the dimensions (length, width and height) of the main buildings and structures that would be constructed. All of the main buildings and structures will be located at the PCC

Site. The maximum dimensions of these are set out in Table 4.2 (Maximum Design Parameters) (with Proposed Development Changes).

6.5.2 The tallest buildings and structures will comprise the single Absorber Stack option (107 m) and Absorber (101 m) (if selected), the HRSG Stack (87 m), the twin absorber stacks option (98.3m) (if selected), HRSG Building (58 m) and Carbon Dioxide Stripper (65.8 m) AOD.

6.5.3 The Indicative PCC Site Plan for the single absorber layout (**Application Document Ref. 4.5**) is reproduced at **Figure 6.1** below and provides an indication of the scale and massing of the buildings and structures at the PCC Site. The twin absorber equivalent is also available in **Document Ref. 4.5**.

Figure 6.1: Indicative PCC Site Plan (Single Absorber Layout) (With Proposed Development Changes)



6.6 Appearance

6.6.1 The most visible components of the Proposed Development will be the Absorber Stack, Absorber, HRSG stack, HRSG and Gas Turbine Hall. However, these buildings and structures will be set within the PCC Site, situated between the Keadby Power Station Site, Keadby Wind Farm and the Keadby Ash Tip.

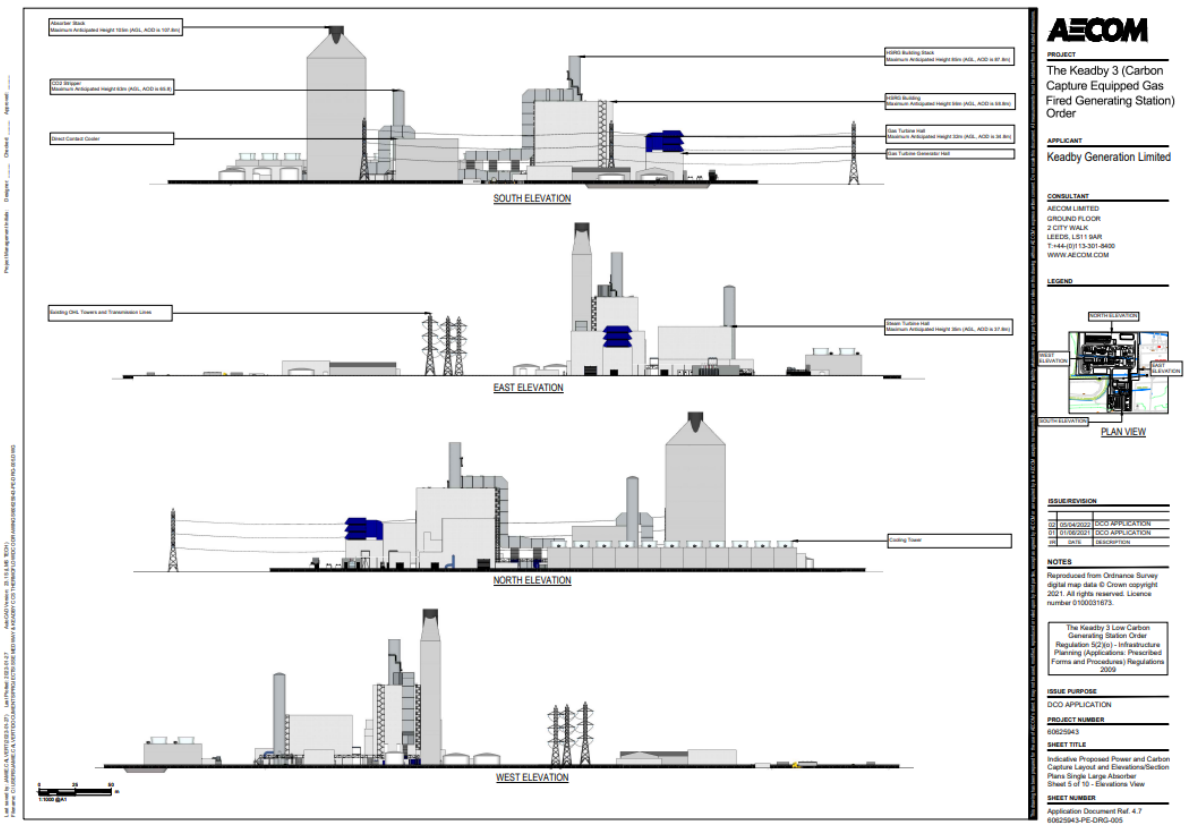
6.6.2 The appearance of the buildings and structures at the PCC Site will be consistent with the industrialised context within which they sit, with the area

already being characterised by large industrial structures, including the complexes of Keadby 1 and Keadby 2 (which is nearing the completion of its construction programme). The appearance of the buildings and structures is representative of their function and purpose.

6.6.3 The Applicant considers a clean functional appearance to be in-keeping and reflective of the surrounding industrial setting of the Keadby Power Station Site. It is envisaged that the external finishes for the buildings and structures at the PCC Site will comprise predominately metal cladding and concrete. After receiving largely positive feedback on design/materials questions at the Stage 2 Consultation, KGL took the view that the preferred design should be simple and functional in form and detailing. Cladding will be utilised to achieve holistic colour and treatment of the buildings/structures. There are a number of possible cladding solutions and a decision on those to employ would be made at the detailed design stage.

6.6.4 The elevations shown at **Figure 6.2** along with the 3-D visualisations presented on the following pages provide an indication of how the PCC Site may appear, including the colouration of the cladding employed. These elevations, and the twin absorber layou elevations, are available in **Document 4.5**.

Figure 6.2: PCC Elevations (Single Absorber Layout) (With Proposed Development Changes)



6.6.5 The AGI building will comprise a number of small metal clad kiosks for housing equipment.

6.6.6 The gas and water will involve below ground or low-level works and will not therefore be highly visible within the area.

6.6.7 The detailed design of the Proposed Development, including the design and appearance of buildings and the type and colour of materials to be employed would be secured by Requirement 4 'Detailed design' of the DCO.

6.7 Landscaping

6.7.1 The perimeter areas of the PCC Site will be landscaped and there will be opportunities for planting and biodiversity enhancement. Further details are shown upon the Indicative Landscape and Biodiversity Plans (**Application Document Ref. 4.15**) and explained within the Framework Landscape and Biodiversity Management Plan (**Application Document Ref. 5.10**), including how these areas will be managed and maintained.

6.7.2 A Biodiversity and Landscape Strategy will be secured through Requirement 6 ('Landscaping and biodiversity protection management and enhancement') of the DCO. This document will set out the principles of habitat mitigation, management and enhancement and landscape design that will be adopted in the detailed design process, as well as the areas of the Site retained for landscaping purposes.

6.8 Other Design

6.8.1 The Proposed Development includes a number of other design components, including:

- Lighting will be required for the safe operation of the Proposed Development during hours of darkness. This would be on demand or on activation by sensors in less visited parts of the site such as the gas AGI. A Framework Lighting Strategy has been included with the DCO application (**Application Document Ref. No. 5.11**).
- Security systems will be provided in respect of the Proposed Power Plant Site and Proposed AGI Site. This will include paladin (or similar) fencing, intruder alarms and turnstiles for the PPC Site to manage people access.
- Gatehouses will be located at the entrance to the PCC Site and at the construction/operation access off the A18.
- Surface water drainage and stormwater attenuation – An Outline Drainage Strategy is included as part of the Flood Risk Assessment included as Appendix 12A (ES Volume III, **Application Document Reference 6.3**).
- Internal roadways will be required for access within the Site. These will be hard surfaced with appropriate drainage systems to manage surface water runoff and pollution risk. Where possible, existing roadways will be used at the Keadby Power Station Site.

- Workshop and store building(s) will be required for operation and maintenance activities and storage of materials.
- Car parks will be surfaced and provided with oil interceptors.

7.0 ACCESS ARRANGEMENTS

7.1.1 This section considers access to, and also has regard to access within the Proposed Development. Access is considered more generally within Chapter 10 'Traffic and Transport' of the ES (**Application Document Ref. No. 6.2.10**).

7.1.2 Permanent access to the Proposed Development Site (the 'Site') during operation would be via the existing road access road from the A18 which passes via the existing North Pilfrey Bridge over the Stainforth and Keadby Canal and the Scunthorpe to Doncaster passenger rail line. Vehicles would access the Site from the A18, via this existing access road/ Bonnyhale Road/ existing private access roads and a new main access road to be constructed into the PCC Site. The route was previously used for the construction of the Keadby Wind Farm and most recently for construction movements associated with Keadby 2.

7.1.3 As part of the Proposed Development, Work No. 8 comprises of maintenance and improvement of this existing private access road from the junction with the A18, including A18 Junction Improvement, replacement of private bridge (Mabey Bridge); installation of layby and gatehouse. Operational traffic movements are detailed within the Transport Assessment (TA) (Appendix 10A, ES Volume II - **Application Document Ref. 6.3**).

7.1.4 As referred to above, the Mabey Bridge (a structure which enables access from the A18 over the Hatfield Waste Drain) is proposed to be replaced as part of the Proposed Development. This is required for the new structure to support the necessary loads associated with the construction and operation lifespan of the project.

7.1.5 The skewed access was constructed to carry oversized turbine blades into the Keadby Wind Farm site. The angle of the skewed bridge means that any oversized loads are forced to travel to and from the west. The skewed access would be used, where required, to transport certain oversized AIL into the Site during construction.

7.1.6 The proposed gatehouse, required for security purposes, is to be constructed on the foundations/area of the existing Keadby 2 gatehouse at the entrance to the Site off the A18. The proposed gatehouse will incorporate a minimal brick design of up to 4m in height above ground level (5.5m AOD), 6m length and 7m in width, making it relatively small and un-intrusive within the surrounding landscape.

7.1.7 The PCC Site includes a main car park, including muster point (upwind of the CCP) in the event of emergency, a manned gatehouse and a control building which shall be designed as a place of safety in the event of emergency.

7.1.8 Emergency access is proposed via an existing private track running between the PCC Site and Chapel Lane, Keadby and including new private bridge. Three further emergency accesses are proposed as follows:

- western emergency exit (pedestrian only), located south-west of the CCP and therefore in an emergency scenario, upwind of a potential release;
- an eastern emergency exit (pedestrian only), located adjacent to the northern perimeter fence and existing 400kV National Grid Substation; and
- the southerly route main access (described in paragraph 7.2 above) – (pedestrian and two-lane vehicular). This main access to the Site that would also be available for emergency purposes.

7.1.9 Secure cycle parking facilities will be provided within the PCC Site close to the Administration Block and there will be shower and changing facilities for those cycling to work.

7.1.10 Where possible, pedestrian routes, parking areas and buildings within the PCC Site will be designed to provide for inclusive access. This will need to take account of operational and safety considerations given the nature of the use and operations.

7.1.11 Buildings will comply with the access requirements set out in the Buildings Regulations except where exemptions apply. Building Regulations approval would only be sought once an EPC contractor has been appointed and detailed design has been completed.

7.1.12 The locations of access points to the Site are illustrated on Access and Rights of Way Plans **(Application Document Ref. 4.4)**.

8.0 SECURING DETAILED DESIGN

8.1.1 Where flexibility is being sought in the design of a development it is important to ensure that appropriate mechanisms are in place to provide certainty to the Secretary of State, the LPA and any other relevant bodies, that its detailed design will be in accordance with the design parameters upon which the EIA has been based including the dimensions shown in Tables 4.1 and 4.2 of this document.

8.1.2 The Applicant has drafted the DCO for the Proposed Development (**Application Document Ref. 2.1**) to ensure that it must be carried out in accordance with the limits shown upon the Works Plans (**Application Document Ref. 4.3**) and the maximum design parameters set out in the Environmental Statement, Volume I, Chapter 4 'The Proposed Development' (Document Ref. 6.2.4). The DCO therefore includes a number of 'articles' and 'requirements' to secure the detailed design of the Proposed Development. The details secured by the requirements must be submitted to the relevant LPA for approval. The articles and requirements are summarised in **Table 8.1**.

Table 8.1: DCO Articles and Requirements relating to Detailed Design

Article or Requirement	Title	Description
Article 3	Development consent etc. granted by this Order	Requires the Proposed Development to be constructed within the limits defined on the Works Plans.
Schedule 11	Design parameters	Defines the maximum design parameters for the main buildings and structures (Work Nos. 1, 8B).
Requirement 5	Detailed design	Requires details of Work Nos. 1 to 10 to be submitted to the relevant planning authority for approval, and that they comply with the maximum design parameters noted above.
Requirement 6	Landscaping and biodiversity protection, management and enhancement	Requires a landscaping and biodiversity management and enhancement plan to be submitted to the relevant planning authority for approval in respect of soft landscaping, including shrub and tree planting and biodiversity and habitat enhancement at the Site. Also requires the plan to set out maintenance and management details.
Requirement 7	External lighting	Requirement 7(2) requires details of all permanent external lighting (with the

Article or Requirement	Title	Description
		exception of aviation warning lighting covered by Requirement 29).
Requirement 8	Highway accesses	Requires details of any new or modified permanent means of access to a public highway.
Requirement 9	Means of enclosure	Requirement 9(3) requires details of any permanent means of enclosure.
Requirement 10	Site security	Requires a written scheme detailing security measures to minimise the risk of crime.
Requirement 12	Surface water drainage	Requirement 12(3) requires details of all permanent surface water drainage systems.
Requirement 14	Flood risk mitigation	Requirement 14(3) requires a scheme for the mitigation of flood risk during operation.
Requirement 32	Combined heat and power	Requirement 32(1) requires the undertaker to demonstrate to the satisfaction of the relevant planning authority that it has allowed space and routes within the design of the Proposed Development for the later provision of heat pass-outs for off-site users of process or space heating and its later connection to such systems, should they be identified and commercially viable.
Requirement 34	Aviation warning lighting	Requires the submission of details of aviation warning lighting in respect of Work No. 1.
Requirement 40	Approved details and amendments to them	40(1) requires all details submitted for approval of the relevant planning authority under the requirements to be in accordance with the parameters of the Environmental Statement ('ES') and to reflect the principles set out in the documents certified under Article 42.
Article 42	'Certification of plans etc.'	Requires the undertaker to certify certain plans and documents (e.g., the Works Plans and ES) and in effect ensures that the Proposed Development must be carried out in

Article or Requirement	Title	Description
		accordance with these documents in line with Requirement 40.

8.1.3 The above will ensure that the detailed design of the Proposed Development is controlled and secured.

9.0 CONCLUSIONS

9.1.1 This DAS sets out how the Applicant has had regard to design and access considerations in designing the Proposed Development and the Proposed Development Changes. The document explains how the Site's context, wider setting and planning policy has been taken into account in the design of the Proposed Development.

9.1.2 While flexibility has been sought in the design of the Proposed Development and the Proposed Development Changes, the Applicant has defined design parameters upon which to base the EIA to ensure that the likely significant effects of the Proposed Development have been robustly assessed. The Applicant has also included appropriate articles and requirements within the DCO to ensure that the detailed design of the Proposed Development is controlled and secured.

9.1.3 The final design of the Proposed Development and the Proposed Development Changes, notably the PCC Site, is functional, reflecting the purpose of the Proposed Development and the context within which it will sit. In terms of siting and layout, the main buildings and structures are set well within the plot and have been grouped together where feasible from a technical and safety perspective to consolidate the built form.

9.1.4 In conclusion, it is considered that the Proposed Development, and the Proposed Development Changes, represents 'good design' for the purposes of energy infrastructure and policy set out in the relevant National Policy Statements, other planning policy documents and also local design guidelines.

APPENDIX 1: DESIGN PRINCIPLES

Design Principle	Description	Relevant DCO Document
Built Appearance	The design of the Proposed Development will seek to minimise adverse impacts on visual amenity through appropriate siting of infrastructure and selection of appropriate materials and colours (in line with EN-1, EN-2, N1, SD8). The following impact avoidance measures in relation to built structures are highlighted as part of the landscape and visual amenity assessment (Chapter 10: Landscape and Visual Amenity (ES Volume I - Application Document Refs. 6.2 and 10.8) and will be taken into consideration as part of the detailed design of the Proposed Development. Implementation of these measures is secured by a Requirement of the draft DCO (Application Document Ref. 2.1): • suitable materials will be used, where reasonably practicable, in the construction of structures to reduce reflections and to assist with breaking up the massing of the buildings and structures; and • the selection of finishes for the buildings and other infrastructure will be informed by the finishes of the adjacent developments including Keadby 2 Power Station, in order to reduce the visual impact of the Proposed Development including using lighter coloured materials on the taller structures to enable them to recede against the sky. Finishes and materials will be agreed with relevant consultees and approved by NLC at the detailed design stage, secured through a Requirement of the draft DCO, in order to minimise the visual impact of the Proposed Development.	ES Chapter 10: Landscape and Visual Amenity (ES Volume I - Application Document Refs. 6.2 and 10.8 & Indicative Proposed Power and Carbon Capture Layout, Elevations and Sections (Key Plan and Sheets 2-5) (Document 4.7).
Cladding	Suitable materials will be used, where reasonably practical, in the construction of structures to reduce reflections and to assist with breaking up the massing of the buildings and structures. The selection of finishes for the buildings and other infrastructure will be	Indicative Proposed Power and Carbon Capture Layout, Elevations and Sections (Key

Design Principle	Description	Relevant DCO Document
	informed by the finishes of the adjacent developments (including Keadby 2 Power Station), in order to reduce the visual impact of the Proposed Development. Buildings and structures will where feasible be covered in appropriate forms of metal cladding and use neutral colours (e.g., greys, whites and blues) and potentially graded (i.e., employing bands of different darknesses of the same colour, or of different colours). This can achieve holistic colour and treatment of the buildings/structures to improve coherence and legibility of the site from nearby locations and may also assist in reducing the visibility of larger buildings from more distant locations when viewed against the skyline. There are a number of possible cladding solutions and a decision on those to employ would be made at the detailed design stage. The elevations and 3-D visualisations presented at Document Ref. 4.7 provide an indication of how the Proposed Power Station may appear, including the colouration of the cladding employed.	Plan and Sheets 2-5) (Document 4.7)
Gatehouse Design	The proposed gatehouse will use a minimal design, consisting of traditional brick materials considered typical to the setting and area. The restrained design of the gatehouse will minimise intrusion within the surrounding flat landscape.	Indicative General Arrangement and Elevations A18 Gatehouse (Document Ref. 4.12).
Landscaping and Biodiversity Enhancement	Proposals for landscape and biodiversity enhancement (as set out in the Landscaping and Biodiversity Management and Enhancement Plan Document Ref. 5.10) ('LBMEP') have been designed to achieve the following outcomes: • no net loss of biodiversity and a quantifiable gain for biodiversity as a result of the Proposed Development; • enhance field drain habitats for the benefit of water vole to compensate for temporary and permanent losses of habitat to the Proposed Development;	Landscaping and Biodiversity Management and Enhancement Plan (Document Ref. 5.10 & 4.15 (Sheets 1-3)).

Design Principle	Description	Relevant DCO Document
	• enhance grassland habitats for the benefits of pollinators and other invertebrates, birds, badger, brown hare and other species; • provide nesting and roosting features for birds and bats to address a general lack of natural features in the local area to meet this need; and • enhance the habitat and green infrastructure network adjacent to and through the Proposed Development Site. <u>Habitat Creating Principles</u> Where new native habitats are to be created, or new native planting undertaken, the following principles will apply: • all seed mixes and planting stock will be ordered as early as reasonably practicable following a decision to commence the project to allow supply to be met without risk of substitution; • all seed mixes and planting stock will be sourced from a specialist producer of British grown native plants and seed who can source-identify all stock (i.e., not a non-specialist nursery that buys in stock or an agricultural/ general merchant that buys stock from diverse sources, including non-British sources); and • terms of supply will include a condition that no part of the order shall be substituted with stock of alternative species or origin and that any change must be mutually agreed. The above requirements will be incorporated into contractor specifications and contracts, as appropriate, to deliver genuinely native plantings in accordance with the biodiversity objectives of the submitted LBMEP (Document Ref. 5.10). The LBMEP also provides a full list of parts of the Site proposed for enhancement.	
Habitat Reinstatement	Minor/small scale temporary disturbances to specific habitats across the Site are expected	Landscaping and Biodiversity

Design Principle	Description	Relevant DCO Document
	during the construction period. These are listed in full in the Landscaping and Biodiversity Management Plan (LBMP) (Document Ref. 5.10). Habitats that will be disturbed during construction, mainly comprising small areas of species-poor road verge and flood bank grassland and arable farmland, will be reinstated (i.e., returned to a condition consistent with the existing baseline) following the completion of construction. This includes land affected by replacement of Mabey Bridge, installation of an eel screen and the Potential 132kV Electrical Connection to Northern Powergrid 132kV Substation option, and use of arable fields for temporary construction laydown. As this land is not in the permanent control of the Applicant, no ecological enhancement measures are proposed within these areas. Some habitats lost during construction of permanent infrastructure will also be restored. These areas will remain within the permanent control of the Applicant so will be managed with the aim of increasing (relative to the existing baseline) their biodiversity value. This includes land within and immediately adjacent to the Proposed PCC Site on Keadby Common where the existing species-poor improved grassland and unvegetated disturbed ground will be sown with a locally appropriate native wildflower meadow mixture and appropriately managed thereafter. The following areas will be reinstated to the original baseline conditions: • *Land Affected by the Temporary Construction Haul Road* • *Drains Crossed by Electrical Connections* • *River Trent Flood Bank* • *Stainforth and Keadby Canal* • *Highway Improvements at the Access off the A18*	Management and Enhancement Plan (Document Ref. 5.10 & 4.15 (Sheets 1-3)).

Design Principle	Description	Relevant DCO Document
Boundary Treatments	Where existing vegetation is present along the Proposed Development Site boundary, this will be retained, as far as reasonably practicable, and managed to support its continued presence to aid the screening of low-level views into the Proposed Development Site.	Landscaping and Biodiversity Management and Enhancement Plan (Document Ref. 5.10).
Lighting	Construction temporary lighting will be arranged so that glare is minimised outside the Proposed Development Site as far as reasonably practicable. Measures to minimise the impact of lighting are detailed in the Lighting Strategy (Application Document Ref. 5.11) and Framework CEMP (Application Document Ref. 7.1). The submitted Light Strategy (Application Document Ref. 5.11) also sets out details of aviation lighting requirements (including legislation and CAA guidance), such details will be secured by a requirement of the draft DCO (Application Document Ref. 2.1) In terms of operational lighting for the Site, the main overarching lighting design principles for the Proposed Development are: • to ensure the health and safety of employees and visitors performing normal working duties; • to ensure the safe movement of vehicular and pedestrian traffic around the Proposed Development Site during the hours of darkness; • to minimise light pollution in terms of light trespass, sky glow and glare to the identified sensitive receptors; and • to ensure the security of the Proposed Development Site and its occupants including lighting suitable for the correct functioning of the preferred CCTV system. The overarching philosophy underpinning the design of the lighting for the Proposed Development is to have a reduced light site. Lighting will be restricted to focused point use where reasonably practicable. Permanent	Lighting Strategy (Application Document Ref. 5.11)

Design Principle	Description	Relevant DCO Document
	lighting will be for general pedestrian movement, safety and security purposes only. Any lighting that may be required for maintenance purposes will be produced by temporary lighting sets specific to the required task. Lighting shall be further reduced to only critical lighting from 23:00 to 05:00 hours to reduce the impact of obtrusive lighting on the local environment (i.e., 23:00 hrs as per recommendation from the ILP GN01/20 (ILP, 2020) and 05:00 hrs as per the usual recommendation from local authorities and the PPG). Lighting will be designed so as not to illuminate foraging habitats adjacent to the Proposed Development Site of greater potential value to bats including the former Keadby Ash Tip, habitat being created to maintain habitat connectivity between the Ash Tip, and adjacent habitats including the Stainforth and Keadby Canal habitat corridor).	
Access Road and Works	Junction works for the A18 access area will enhanced and widened at its bell mouth for use by construction and operational vehicles. The works will accommodate a ghost island for traffic turning right into the Proposed Development Site from the A18, permitting traffic to continue along the highway. Junction works will be designed to allow for speeds of 60mph on the A18 can be retained.	Highway Works Plans (General Arrangements: Key Plan and Sheets 2-3; Chainages & Cross Sections: Key Plan and Sheets 2-3; Long Sections; Cross Sections; Utilities Layout: Key Plan and Sheets 2-3; Site Clearance: Key Plan and Sheets 2-3; Drainage Layout: Key Plan and Sheets 2-3) (Document Ref. 4.6)
Replacement Mabey Bridge	The Mabey Bridge replacement will comprise a wider structure with the ability to sustain heavier loads. The structure will be designed	Mabey Bridge Replacement General

Design Principle	Description	Relevant DCO Document
design & colourway	to be capable of serving the Proposed Development over its 25-year lifetime. The replacement bridge will adopt similar materials and colours, where possible, to that of the North Pilfrey Bridge (using dark green or other dark neutral colours for metal surfaces) for consistency within the area and to minimise apparent bulk when viewed against surrounding undeveloped land.	Arrangement and Sections (Sheets 1-2) (Document Ref. 4.16)
A18 Access Track and Emergency Access	The semi-rural character of the existing tracks will be retained where possible. Surfacing of the existing A18 access road will be kept the same with some maintenance works and improvements where appropriate. The emergency access to the PCC Site from Chapel lane will also be surfaced and rendered accessible to emergency vehicles as required.	N/A