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SECURING TEESSIDE'S ENERGY FUTURE



Teesside Combined Cycle Power Plant Scoping Report

Sembcorp Utilities UK Limited

February 2017


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Sembcorp Utilities UK Limited

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February 2017

Prepared by: Roderick Ellison

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| For and on behalf of Environmental Resources Management |
| Approved by: Kevin Murphy _____ |
| Signed:  _____ |
| Position: Partner _____ |
| Date: February 2017 _____ |

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ANNEX A - CUMULATIVE EFFECTS ASSESSMENT METHODOLOGY
ANNEX B - PHOTOMONTAGES/PHOTO WIRELINES

This Scoping Report, which includes a Regulation 6 Notification and Request for Scoping Opinion, has been prepared on behalf of Sembcorp Utilities UK Limited (Sembcorp), the applicant. It is part of the process of undertaking an Environmental Impact Assessment (EIA) of the applicant's proposal to construct and operate up to a 1,700 megawatts (MWe) combined-cycle gas turbine (CCGT) power station on land at Wilton International, near Redcar in Teesside (see *Figure 1.1*). The Project is referred to as the Teesside Combined Cycle Power Plant (Teesside CCPP) or 'the Project'.

As the electrical output of the Project will exceed 50 MWe it is classed as a Nationally Significant Infrastructure Project (NSIP) and therefore a Development Consent Order (DCO) is required under the *Planning Act 2008* as amended (the 'Act').

Consent for an NSIP may only be granted by a DCO through an application under Section 37 of the Act. Section 37 of the Act also governs the content of an application for a DCO, including the requirements for the necessary supporting documentation. These requirements are specified in the *Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009* (APFP Regulations).

The *Infrastructure Planning (Environmental Impact Assessment) Regulations 2009* (the '2009 EIA Regulations') (as amended by the *Infrastructure Planning (Environmental Impact Assessment) (Amendment) Regulations 2012* and the *Consequential Amendments Regulations 2012*) require an Environmental Statement (ES) to be submitted with the DCO for all projects within Schedule 1 of the 2009 EIA Regulations.

Schedule 1 development includes electrical generating stations with an output of 300 MWe or more. The electrical output of the Project will be greater than 300 MWe and therefore an EIA is required. The Planning Inspectorate (PINS) will then examine the application and make a recommendation to the Secretary of State (SoS) as to whether to grant the DCO. The decision of the SoS to grant consent will, amongst other matters, authorise construction and (with an Environmental Permit) operation of the Project.

1.2 *REGULATION 6 NOTIFICATION*

Sembcorp gives notice, pursuant to Regulation 6(1) (b) of the 2009 EIA Regulations, that the application for a DCO will be accompanied by an ES. The ES should include such of the environmental information referred to in Part 1 of Schedule 4 of the 2009 EIA Regulations as is reasonably required to assess the environmental effects of the Project and of any associated development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile.

1.3 *PROJECT OVERVIEW*

1.3.1 *General Setting*

The Project will be located on land at Wilton International, a major industrial complex located near Redcar in Teesside, northeast England. The Project location is shown on *Figure 1.1* and *Figure 1.2*.

1.3.2 *Project Components*

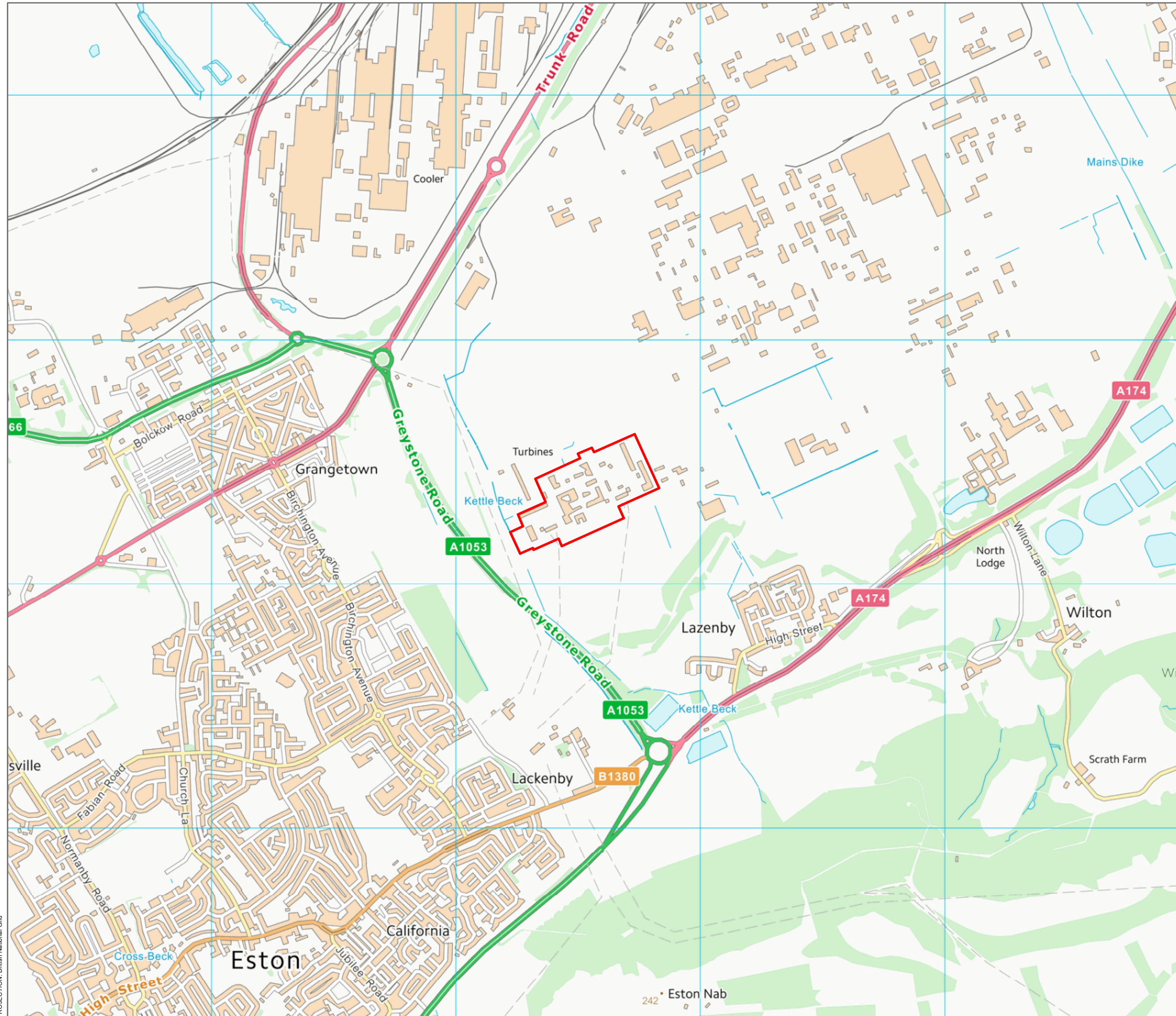
The main Project components are:

- two gas turbine generators;
- two waste heat recovery steam generators (HRSGs);
- two condensing steam turbines;
- hybrid cooling towers;
- two stacks up to 90 m;
- control room and instrumentation system;
- black start generator (s) and dedicated stack (s);
- administration building; and
- land set aside for carbon capture.

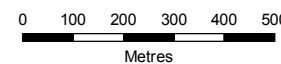
The Project is likely to also include the following:

- ancillary plant, equipment and buildings;
- internal roads plus car and heavy goods vehicle (HGV) parking;
- security fencing and noise control wall;
- connection to the existing electricity grid infrastructure;
- inter-connections with the existing utilities for water, natural gas, and other ancillary fuels / materials to the plant;
- surface water management systems and foul drainage provision; and
- lighting.

Chapter 3 of this report provides a more detailed description of the likely components of the Project.



Indicative Site Boundary



SCALE: 1:15,000
 SIZE: A3
 PROJECT: 0375193
 DATE: 15/02/2017

VERSION: A02
 DRAWN: WB
 CHECKED: RE
 APPROVED: RE

Figure 1.2
The Project Site



1.3.3 *The Application Site*

The site is located within the wider Wilton International site, which is made up of 810 hectares (2,000 acres) of development land with outline planning permission for heavy industrial use, brownfield land and light industrial development land. *Figures 1.2 and 1.3* show the Project site and surrounding area. Infrastructure including tunnels, roads, rail, pipe bridges, culverts, drains and effluent outfall management is already in place. Furthermore, there are existing gas connection and electricity export substations.

Figure 1.3 *The Application Site Setting*



Given the current operations underway at Wilton International, the long industrial history of the site, the low environmental sensitivity and the potential opportunities for job creation, the site is considered to offer an ideal location for the Project.

1.4 *REQUEST FOR SCOPING OPINION*

The primary purpose of this Scoping Report is to provide information and details on the Project, which will enable the Planning Inspectorate to respond to the accompanying request for an EIA Scoping Opinion, made pursuant to Regulation 8 of the 2009 EIA Regulations. This request for a Scoping Opinion is made pursuant to Regulation 8 of the 2009 EIA Regulations, and includes:

- a plan sufficient to identify the land (see *Figure 1.1* and *Figure 1.2*);
- a brief description of the nature and purpose of the Project (see *Chapter 3*) and of its possible effects on the environment (see *Chapter 6*); and
- such other information the applicant considers material (see *Chapters 4, 5, 7* and *8*).

This Scoping Report provides consultees with relevant information on the Project that will enable them to identify the key environmental issues from an early stage in the development of the Project thus allowing early recognition of these issues in the evolution of the Project. This Scoping Report also identifies baseline data to be acquired and the assessment methodologies to be

adopted for assessing the likely significant effects of the Project. The EIA will consider the likely significant effects of the Project on the environment, including direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects, resulting from:

- the existence of the Project;
- the use of natural resources, and
- the emission of pollutants, creation of nuisances and waste.

Where there is an evidence base that supports a conclusion of no likely significant effect, this Scoping Report also seeks to scope out certain matters from requiring further or detailed assessment.

On receipt of the request for an EIA scoping opinion and this Scoping Report, the Planning Inspectorate will consult with the applicant, Sembcorp, and the relevant consultation bodies. The Planning Inspectorate will adopt a scoping opinion and send a copy to Sembcorp, within 42 days of the date of receipt of the scoping request. The Planning Inspectorate may request further information if it is required to inform its scoping opinion.

It is important to note that the submission of a request for an EIA scoping opinion is a precursor to the more detailed EIA process. This includes the following two stages of reporting.

- Preliminary Environmental Information will be reported on as part of the pre-application consultation (pursuant to section 47 of the Planning Act 2008) and will represent a 'snapshot' point in time within the on-going assessment process.
- The completed assessment process will be reported on in the ES that will accompany the DCO application itself.

1.5 OTHER CONSIDERATIONS FOR THE EIA

1.5.1 Associated Development

The Project may require associated development off-site of the Draft DCO Application Boundary to enable the Project to be connected into the national grid and national transmission system.

Once the required third party studies have been fully determined then the nature, size and location of any required associated development and potential effects on the environment (direct, indirect and cumulative) will be considered as part of the Project's EIA.

1.5.2 *Cumulative Effects*

Schemes in the vicinity of the Project, which have been granted permission (whether in outline or full), or for which an application for consent has been submitted but not determined, will be considered together with the Project in the assessment of cumulative effects in the EIA, where relevant information is available.

The assessment of cumulative effects (discussed in further detail in *Section 5.10*) is an integral part of the EIA process and ensures that all aspects of potential environmental effects from the Project on communities and the environment have been addressed.

1.5.3 *Transboundary Effects*

The Project is not likely to have significant effects on the environment in another European Economic Area (EEA) State due to geographic separation and has been scoped out of further consideration.

1.6 *CONSULTATION TO DATE*

A promoter of an NSIP is encouraged to consult as early as possible on its Project, to enable appropriate regard to be given to concerns raised by consultees. With this in mind, Sembcorp has commenced informal consultation and sought feedback from a number of statutory and non-statutory organisations prior to and during the development of this Scoping Report.

A more detailed summary of the consultation undertaken to date and the bodies consulted is provided in *Chapter 7* of this Report.

1.7 *REPORT CONTENT AND STRUCTURE*

This Scoping Report has been produced in accordance with various guidance documents, including the following:

- ERM (2001) Guidance on EIA: Scoping, prepared for the European Commission, June 2001;
- Environment Agency (2002) Scoping Guidelines for the Environmental Impact Assessment of Projects, May 2002;
- Planning Inspectorate (April 2012) Advice note three: Consultation and notification undertaken by the Planning Inspectorate;
- Planning Inspectorate (April 2012) Advice note seven: Environmental Impact Assessment, screening and scoping;

- Planning Inspectorate (April 2012) Advice note nine: Rochdale Envelope;
- Planning Inspectorate (April 2012) Advice note eleven: Working with public bodies in the infrastructure planning process; and
- Planning Inspectorate (April 2012) Advice note sixteen: The developer's pre-application consultation, publicity and notification duties.

In particular, advice note seven observes that a Scoping Report is not a mandatory document but is recommended.

Table 1.1 shows the structure of this Scoping Report.

Table 1.1 *Structure of the Scoping Report*

| Chapter | Description |
|---|---|
| 1. Introduction | Overview of the Project including its setting, components and application site. Introduction to cumulative and transboundary effects. |
| 2. The Applicant and Study Team | The Sembcorp and EIA study teams, and introduction to other contributors. |
| 3. The Project | Overview of the requirement for the Project and its key features. Presentation of the construction schedule and employment opportunities. |
| 4. Planning Policy and Context | Description of the various National Policy Statements relevant to the Project, local policies and other consents that will be required. |
| 5. EIA Methodology | Introduction to the EIA process, regulations, mitigation measures, scope of the assessment and cumulative effects. |
| 6. Environmental Topics and Potential Effects (the effects of climate change are included within topics as applicable). | Covers the following topics: <ul style="list-style-type: none"> • Water Resources and Flood Risk • Ground Conditions and Contamination • Ecology and Nature conservation • Noise and Vibration • Air Quality • Archaeology and Cultural Heritage • Traffic and Transport • Socio-economic Characteristics • Landscape and Visual |
| 7. Consultation | Explanation for the requirement for consultation. |
| 8. Summary and next steps | Summarises the proposed technical scope for the EIA and sets out the next steps in the pre-application process. |

2.1 SEMBCORP UTILITIES UK LIMITED

Sembcorp Utilities UK Limited provides vital utilities and services to major international process industry customers on the Wilton International site on Teesside. Part of Sembcorp Industries, a Singapore-based group providing energy, water and marine services globally, Sembcorp Utilities UK also owns much of the industrial development land on the near 2,000 acre site which is marketed to energy intensive industries worldwide.

2.2 EIA STUDY TEAM

The preparation of the EIA is being led by Environmental Resources Management (ERM) with support from other specialist organisations. ERM is a member of the Institute of Environmental Management and Assessment's (IEMA's) EIA Quality Mark, a scheme which allows organisations to make a commitment to excellence in their EIA activities, and have this commitment independently reviewed.

Specific environmental topics in this Scoping Report and the EIA are being addressed by the following:

- Legal and Policy Framework, Dalton Warner Davis LLP;
 - Technical lead and DWD Partner Geoff Bullock, BA (Hons) BPL MRTPI;
- Geology and Ground Conditions, ERM;
 - Technical lead and ERM Partner Russell Cullen, BSc (Hons), MSc, FGS;
- Ecology and Nature Conservation, Industry Nature Conservation Association (INCA);
 - Technical lead ecologist Ian Bond, CEnv MCIEEM
- Water Resources and Flood Risk Assessment, ERM;
 - Senior Consultant Dr Andrew Gregory, BSc (Hons), PhD
- Noise and Vibration, ERM;
 - Principal Consultant Michael Fraser, BSc, MIOA
- Air Quality, ERM;
 - Principal Consultant Dr Chris Hazell-Marshall, BSc, PhD, MIAQM, MIES;
- Archaeology and Cultural Heritage, ERM;
 - Principal Consultant Charles Le Quesne, MA Hons, MCIfA
- Traffic and Transport, Mayer Brown Ltd;
 - Mayer Brown Director Vera Lamont, BE (Civil) CEng MICE MCIHT MCMI;
- Socio-economic Characteristics, ERM;
 - Consultant Catriona Munro, BSc (Hons); and

- Landscape and Visual Impact, ERM;
 - Principal Consultant Naushad Tahsildar, B'Arch, M Plan (Urban), MSc, PIEMA.

2.3

OTHER CONTRIBUTORS

In addition to the above, legal advice to the Project is being provided by Bond Dickinson and Project engineering is being undertaken by Sembcorp Group Project Development Team.

3.1 PROJECT JUSTIFICATION AND NEED

The Climate Change Act 2008 sets an ambitious and binding target of at least an 80% reduction in greenhouse gas emissions by 2050 relative to the 1990 level, including an interim 'budget' of 26% by 2020. This has led to, and will continue to lead to, a substantial array of government legislation (such as the Energy Acts 2004, 2008 and 2011) and policy that requires the development of energy sources with reduced carbon emissions.

The Planning Act 2008 (the 'Act') fundamentally reformed the planning system for nationally significant infrastructure, seeking to create a more efficient, transparent and accessible approach. The Act states that decisions on NSIPs must be taken in accordance with the relevant National Policy Statement (NPS) (where published), and noting what else the SoS must take into account. The NPSs set out types of infrastructure that are needed and the criteria by which proposals to develop them should be assessed.

The first National Policy Statements published were those for energy infrastructure, given the need to replace around a third of our electricity generating capacity over the next twenty years to maintain a resilient and secure supply. NPS EN-1 (Overarching National Policy Statement for Energy) and EN-2 (Fossil Fuel Electricity Generating Infrastructure) are relevant to this Project and were designated on 19 July 2011.

The need for such development as the Project is proven by virtue of it falling within the categories of development set out in the Planning Act 2008, and given the very clear statements of need in the NPS.

The Act also requires that decisions on NSIPs for energy infrastructure must be taken in accordance with the relevant NPSs except to the extent that the SoS is satisfied that to do so would:

- lead to the UK being in breach of its international obligations;
- be in breach of any statutory duty that applies to the examining or decision-making bodies;
- be unlawful;
- result in adverse impacts from the Project outweighing the benefits; or
- be contrary to regulations about how its decisions are to be taken.

EN-1 states that the decision-maker "*should start with a presumption in favour of granting consent to applications for energy NSIPs*" (paragraph 4.1.2).

The policy context for the Project is discussed in more detail in *Chapter 4*.

3.2

SITE SUITABILITY

Historically the land at Wilton International, Teesside, housed a 1,875 MWe CCGT power station with the ability to generate steam for utilisation within the wider Wilton site. More recent technology, however, has seen newer, more efficient plants take more market share.

In 2008 the then site operator secured approval from Redcar and Cleveland Borough Council for modernisation of the CCGT chiefly via the upgrading of the gas and steam turbines. Subsequently in 2010 the then site operator made an application to extend the life of the 2008 application from the original expiry date of 19th of March 2011 for five years until 19th of March 2016. The plant was, however, mothballed in 2011 and because of its inability to compete with more efficient power stations it was subsequently decommissioned and demolished. Thus an 'upgrade' to this power station is not possible.

Sembcorp has identified the Project site, based on this historical land use, the need for electricity / steam locally and the availability of utilities as a suitable site for the Project. The benefits of the Project site include:

- Sembcorp owns the freehold to the Project land;
- existing internal access roads connecting to a robust public road network;
- on-site electrical connection, utilising existing national grid infrastructure;
- on-site gas connection, utilising existing national grid infrastructure;
- availability of a cooling water supply using an existing contracted supply (from the mains) and existing permitted discharge consent for trade effluent;
- screening provided by an existing noise control wall (see *Figure 3.1* below);
- existing services, including foul water connections; and
- a site with a history of previous industrial use rather than a greenfield site.

The development of the Project will be in keeping with the character and nature of the area's immediate surroundings. The main characteristics of the site are described further below in the remainder of this chapter.

Figure 3.1 Existing Noise Control Wall



3.3 KEY FEATURES OF THE PROJECT

3.3.1 Main Structures and Layout

The Project will comprise a natural gas fired CCGT generating station with an output capacity of up to 1,700 MWe. The station will include two gas turbine units, two steam turbine units, ancillary plant and equipment located in the main power island in the western part of the Project site. The northern part of the site will include hybrid cooling towers and, in accordance with policy requirements for new generating infrastructure, an area of land for possible future carbon capture equipment has been set aside in the eastern part of the site.

The Project site also includes land provision for connections to gas transmission infrastructure and connections to the national grid.

The dimensions for the main components are list in *Table 3.1*.

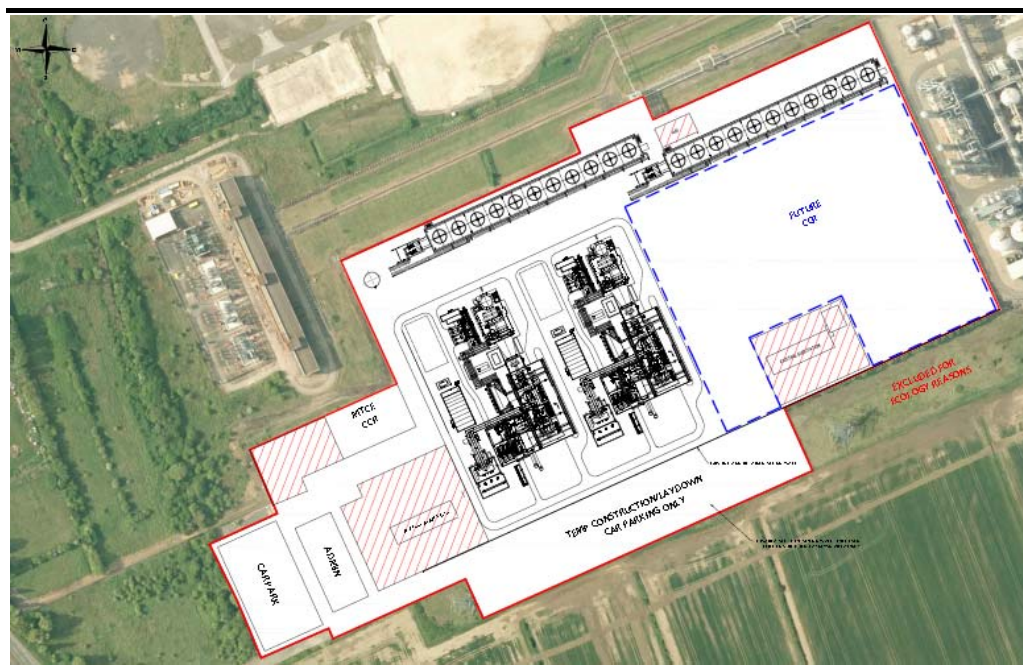
Table 3.1 Approximate Dimensions for the Main Structures of the Project

| Item | Length | Width | Height |
|--|-----------|--------|------------|
| Gas turbine building | 73 m | 30 m | 23 m |
| Heat recovery steam generator building | 47 m | 30 m | 34 m |
| Stacks | - | 10 m Ø | Up to 90 m |
| Cooling towers | 150 m x 2 | 18m | 25 m |
| Control and office building | 50 m | 25 m | 9 m |
| Workshop | 40 m | 30 m | 12 m |

In recognition that the final contractor for the build is yet to be appointed the topic assessments within the EIA will adopt a reasonable worst case scenario in terms of their models / assessments in terms of dimensions / emissions / operating scenarios.

The proposed layout of the Project is shown in *Figure 3.2*.

Figure 3.2 *Layout of the Main Structures*



3.3.2 *CCGT Technology*

Overview

In a CCGT natural gas fuel is fired in the combustion system to drive the gas turbine, which is connected to a generator producing electricity. An amount of heat remains in the gas turbine exhaust, and this is passed into a Heat Recovery Steam Generator (HRSG), a type of boiler, to make steam to generate additional electricity via a steam turbine. The exhaust steam from the steam turbine is condensed back into water which is returned to the HRSG to continue the process.

The electrical efficiency of a modern CCGT is in the range of about 58-62% (gross) which is considerably higher than that for an open cycle gas turbine or a conventional coal, oil or gas fired boiler with steam turbine generating plant.

The fuel source for the turbines will be natural gas supplied from the National Grid via an existing gas pipeline as further discussed below.

Power Generation Process

The Project will consist of two main gas generating modules, two steam turbines, and two electrical generators (rated at 850 MWe) with a total output of up to 1,700 MWe. The final total being is dependent on the selection of turbine manufacturer prior to construction of the plant.

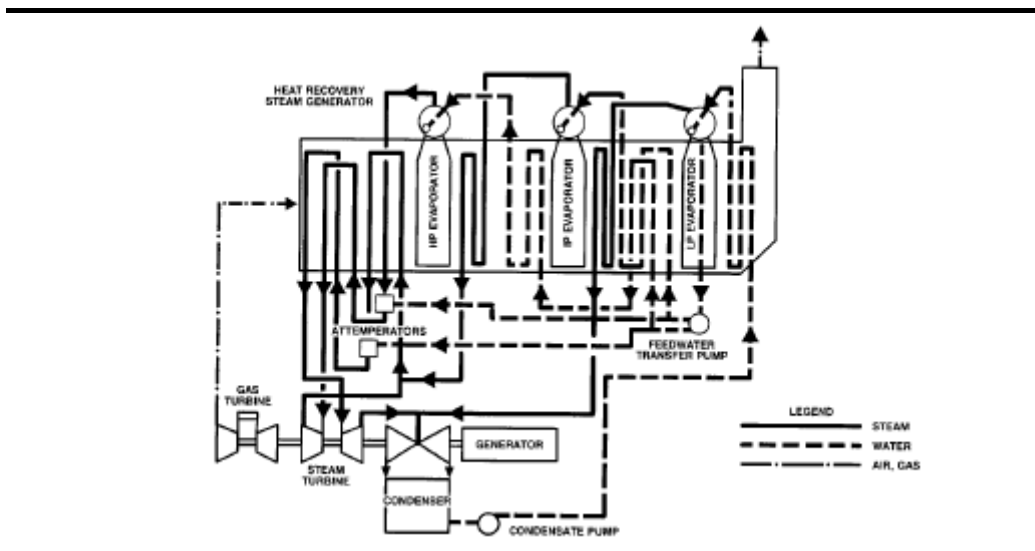
In the gas turbine, gas will be mixed and combusted with compressed air and the hot combustion gases will expand, rotating the turbine blades at high speed. This will drive the generators to produce electricity for export to the national transmission system.

The hot exhaust gases from the gas turbine will then be passed through a Heat Recovery Steam Generator (HRSG) to produce high pressure steam. This will in turn be used to drive a steam turbine connected to the same generator; thereby maximising electricity generation from the fuel being combusted. The -exhaust gases from the HRSG will be released into the atmosphere via an exhaust stack.

Each generating module may have an individual stack (i.e. a maximum of two stacks overall for the main power generation infrastructure).

A schematic of the power generation process associated with the Project is provided below in *Figure 3.3*.

Figure 3.3 Schematic of Power Generation Process



Black Start

The Project will include an additional packaged equipment to allow 'black-start' capability in line with National Grid's requirements. This equipment will confer the capability of being able to start without any assistance from the grid in the event of a total or partial shutdown of the national transmission

system (black-start). Thereby the Project could be used to help restart the national transmission system, whereas power stations without black-start capability need to draw power from the transmission system to start operation.

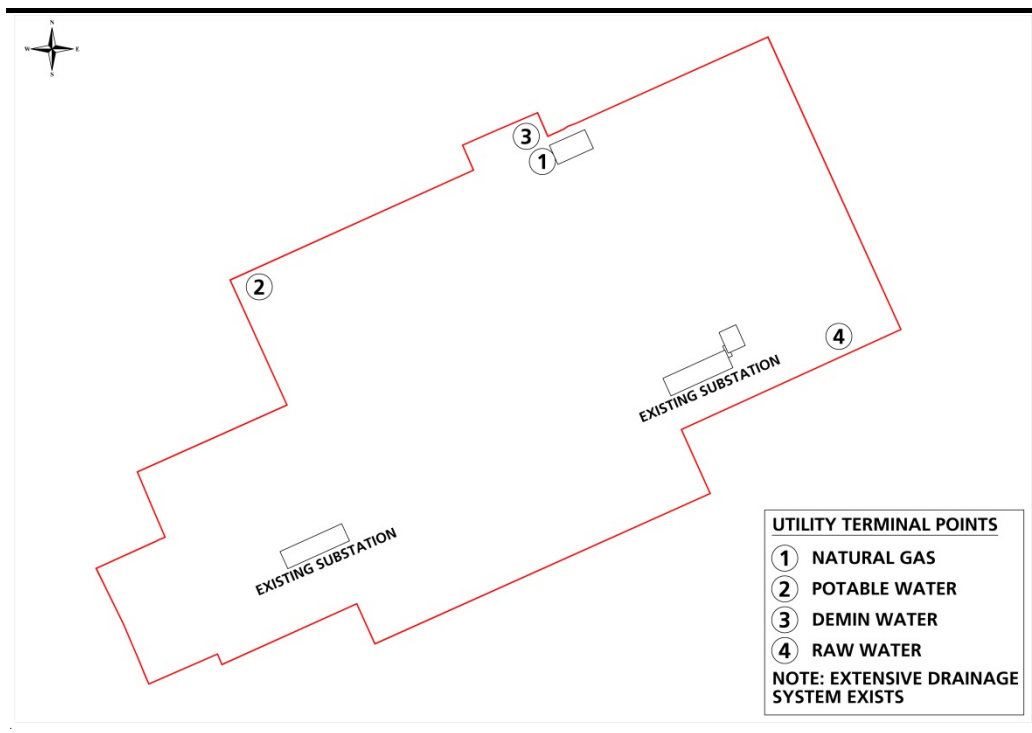
This black-start facility may require the Project to be able to run on diesel fuel in addition to natural gas, at start-up; on site diesel storage (below 2,500 litres of storage) would therefore be required if this option is taken forward. This option is subject to further ongoing investigation to determine if there is a need for including black start capability and what represents best available technique (BAT). Separate stack(s) would be needed for this black-start equipment which would be significantly lower height than the proposed main stacks. The diesel storage requirement is small and is included in the packaged equipment arrangement.

3.3.3 *Connections and Utilities*

Connection to Gas Transmission System

There are two existing gas pipelines which supplied the former power station: a 20 cm line and a 60 cm line. The 60 cm line connects to national transmission system via an above ground installation (AGI) at Billingham, Teesside and connects within the red line plan shown on *Figure 3.4*. This will be the primary supply route to the Project. The 20 cm pipeline may optionally be used as a back-up connection to receive gas from an on-shore gas processing plant at Seal Sands, Teesside.

Figure 3.4 *Connections to Utilities*



Subject to engineering confirmation being undertaken by National Grid, it is not expected that any upgrades will be required to deliver the necessary gas supply to the Project.

A gas connection application to National Grid will be undertaken in due course.

Connection to National Grid Electricity Transmission System

There are two existing substations within the Project site. These substations are capable of exporting 1,700 MWe and are currently in operation supporting the broader Wilton complex. The substations are shown on the *Figure 3.4* above.

An electricity connection application to National Grid will be undertaken in due course.

3.3.4 Cooling Water System

Overview

There is a requirement for a cooling system to condense the steam used in the power generation process once it has been exhausted through the steam turbine, and before it is returned to the HRSG. This cooling process involves the transfer of all of the rejected heat in the steam turbine condenser to a large mass of cooling water and three methods of cooling are available (natural draft is discounted from this list):

- once-through cooling systems;
- closed circuit evaporative cooling (hybrid cooling towers); and
- direct air cooled condensers.

Both once-through cooling systems and hybrid cooling towers require a cooling water supply.

Once-Through Cooling Systems

Once-through, or direct, cooling systems pump water directly through the condenser and fully discharge it to an outfall. Typically abstraction is from the sea or a suitable river abstraction and the cooling water is returned to source. For the Project this would necessitate abstraction from the Tees Estuary and return downriver of Teesport in the proximity of Dabholm Gut. Extensive piping and pumping infrastructure would be required to be installed, part of which would not be in existing industrial service corridors and would be within the Teesmouth and Cleveland Coast SPA. The return temperature of water would be approximately 9°C higher than the ambient river temperature.

The potential of utilising the Teesside Industrial raw supply and Wilton Site drains as an alternative for direct cooling can be discounted as the flow requirement ($30,800 \text{ m}^3 \text{ hr}^{-1}$) exceeds the Teesside Industrial Raw Supply capacity ($18,000 \text{ m}^3 \text{ hr}^{-1}$).

Air Cooled Condenser (ACC)

Air can be used as the heat transfer medium for sites where cooling water is scarce, or the cost and / or practicability of pumping the large quantities of water required is considerable. Using air as the cooling medium eliminates the need for the construction of a water intake / outlet infrastructure or a tall cooling tower; therefore this represents the most simple infrastructure and environmental option. However, it has the largest footprint and the most detrimental impact in term of visual and noise and reduces the overall plant efficiency.

Selection of Cooling Technology: Closed Circuit Evaporative Cooling (hybrid cooling towers)

Hybrid water coolers are considered to represent best available technique (BAT) in this instance due to the relatively low level of water use (140 kg s^{-1} versus $8,560 \text{ kg s}^{-1}$ for once through), lower noise emissions than ACCs and lower vapour emissions than natural draught systems. Water for the coolers will be sourced from an existing raw water connection which is currently in service providing water to the existing electrical substations. This water pipeline has sufficient capacity to supply the requirements of the Project without variation to existing agreements.

3.3.5 Other Utilities

All other utilities will be connected within the limits of the Project site and in turn connect to the existing Sembcorp infrastructure.

3.3.6 Access

The Project requires good road access to accommodate road delivery of materials, equipment, personnel and removal of wastes during construction and decommissioning and, to a lesser extent, during operation.

The Project will be accessed from the public highway through an existing access point from the A1053 Greystones Road. Internal roads will provide construction access within and around the site. Appropriate emergency access routes and site security, including fencing, will be installed.

It is anticipated that the components will be manufactured abroad and shipped into a port located on the east coast of the UK. The most likely destination is the adjacent Tees Port.

Any abnormal loads from Tees Port will be transported primarily via the local Road Network Teesdock Road and A1053. Contract requirements will include

establishment of relevant procedures for scheduling arrival of abnormal loads to the site through discussions with the relevant local authorities, including identification of suitable routes, temporary protection to carriageway surfaces (if necessary), statutory undertakers' plant and equipment. The transport arrangements for the delivery of abnormal loads are already an established practise and will take place off peak and wherever possible overnight to minimise the disruption caused to general traffic.

Loads of between 20 and 40 tonnes will be restricted to outside the general peak periods as far as possible when using the Strategic and Local Road networks in the area. Specified routes using the main road network will be agreed with haulage firms servicing the Wilton site. The agreed routes will be written into contracts with contractual penalties issued for those using unspecified routes.

3.3.7 *Design and Appearance*

Design will have regard to appropriate guidance, including the Design Council (to include the Commission for Architecture and the Built Environment) guidelines. As well as intrinsic function, the architectural design will take into account the following themes:

- scale (including height and massing of buildings and other structures);
- visual appearance;
- sustainability;
- materials;
- access and infrastructure; and
- landscaping and biodiversity.

A provisional photomontage of the Project is shown below in *Figure 3.5* with further provisional photomontages / wireframes provided within *Annex B*.

Figure 3.5 Provisional Photomontage of the Project



3.3.8

Combined Heat and Power

The Government's policy is that, from fuel efficiency and climate change perspectives, waste heat from large power stations should be utilised, where possible, for community heating and industrial uses. Guidance has been issued for developers to enable an assessment of such combined heat and power (CHP) opportunities. This guidance will be applied to the Project to ascertain whether CHP is viable. The extent to which the EIA will assess the potential effects of CHP (insofar as they are relevant to the power station site and immediate surroundings, or further afield) will be informed by a CHP assessment to be undertaken as part of the DCO application.

3.3.9

Carbon Capture Readiness

Carbon capture and storage (CCS) technology and transport of CO₂ will not form part of the DCO application as the detailed implications of CCS are unquantifiable at this time. For the purposes of this DCO application and in accordance with UK requirements, CCS will be considered through preparation of a standalone supplementary report to the EIA that addresses the government guidance on consents and planning applications for national energy infrastructure projects, which in turn refers to the DECC Carbon Capture Readiness (CCR) guidance published in November 2009.

In accordance with UK CCR requirements, the Project will incorporate an area set aside for the potential future installation of carbon capture technology. It is recognised that technological progress and developments in the regulatory framework for the use of carbon capture technology are likely to occur within the lifetime of the Project. Therefore, the design of the Project will be developed with consideration for the possible future retrofitting of carbon capture technology at some future date.

The CCR requirement means that an applicant must demonstrate that CCS technology (of which there are three key types: pre-combustion capture, post-combustion capture and oxy-fuel combustion) has been considered as part of the application and that there is sufficient land available for the future retrofit of that technology in the event that it is commercially proven at some point in the future, i.e. that the Project is considered CCR.

CCR needs to be demonstrable for all new combustion generating stations with a generating capacity at or over 300 MWe (and of a type covered by the European Union Large Combustion Plant Directive as set out in Section 4.7 of the Overarching National Policy Statement for Energy (EN-1)).

Accordingly, an area of approximately 3.8 ha has been reserved in the eastern part of the Project Site (see *Figure 3.2*) to allow for the provision of equipment for carbon capture technology. The EIA will describe the CCR requirements for each of the key stages of CCS, namely capture, transport and eventual storage of carbon, although any future installation of carbon capture technology would be subject to a separate formal consent application at the

time, since the details associated with any such technology are not yet available. For the purposes of this DCO application therefore, only a high level evaluation of carbon capture readiness would be undertaken in accordance with the CCR requirements.

An assessment will be undertaken to show the feasibility of future carbon capture for the Project and will identify the options for transporting any captured CO₂ offshore to suitable geological storage sites or the ability to tanker and transport the CO₂ by road and rail will also be considered in the CCR Report. The report will also consider how the Project can link as appropriate with the emerging strategies of the Teesside Collective, a cluster of energy intensive users who are looking to establish a carbon capture and storage industrial zone locally (<http://www.teessidecollective.co.uk/>).

The CCR Report will be submitted as a separate document along with the DCO application.

3.3.10 *Land Ownership and Acquisition*

All of the Project will be located on land owned by Sembcorp.

It will not be necessary to acquire Crown Land for the Project.

Sembcorp will ensure that it has all necessary land rights and permissions to carry out the Project.

3.4 *CONSTRUCTION PHASE ACTIVITIES*

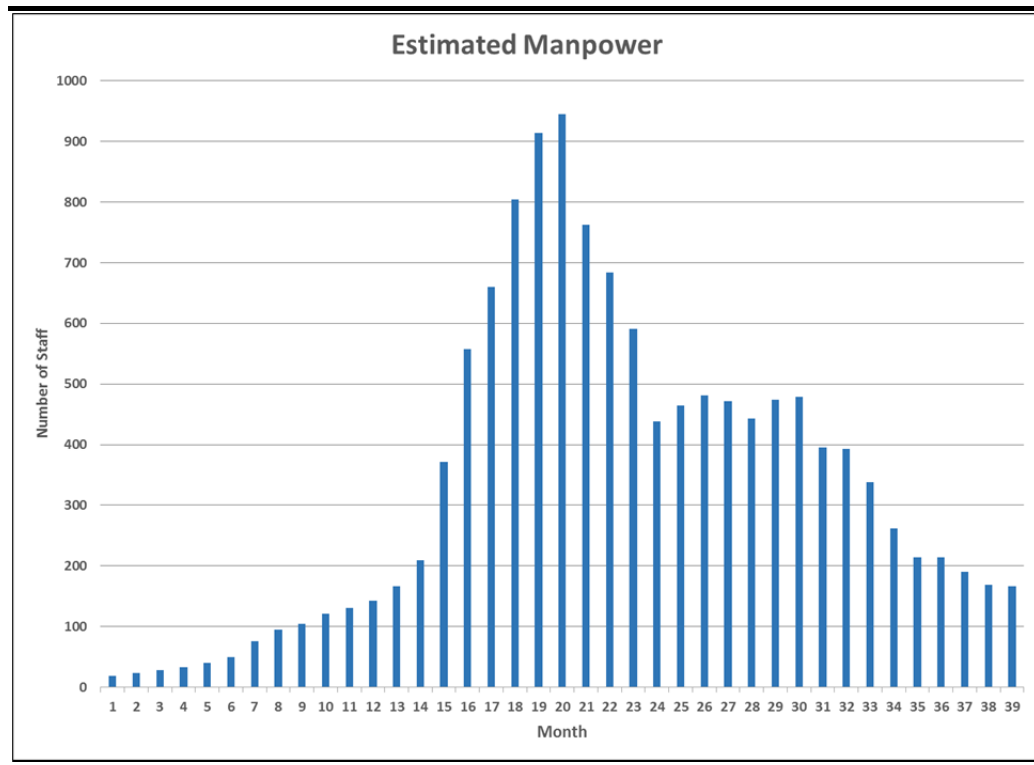
The construction works will broadly fall into the following delineations. All are measured in months from notice to proceed (NTP).

- NTP + 1 to NTP + 14 - mobilisation and civil infrastructure;
- NTP + 15 to NTP + 26 - major equipment installation;
- NTP + 27 to NTP + 32 - mechanical and electrical integration; and
- NTP + 32 to NTP + 39 - commissioning.

3.5 *EMPLOYMENT*

The construction period will involve approximately 945 employees at its peak during the 39 month construction period (*Figure 3.6*). It is anticipated that there will be approximately 60 full-time jobs associated with the operational phase of the Project.

Figure 3.6 Estimated Workforce - Direct and Indirect Staff



4.1 INTRODUCTION

This chapter provides an overview of the legislative context for the Project and the planning policy framework against which it will be considered.

A more detailed review will be conducted during the EIA process and during the drafting of the DCO application.

4.2 LEGISLATIVE CONTEXT

The Planning Act 2008 (the 'Act') introduced a new system for consulting on, examining and determining NSIPs as defined by section 14 of the Act.

The main legislative and procedural requirements relating to NSIPs are set out within the following:

- The Act;
- The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (the APFP Regulations); and
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the 2009 EIA Regulations).

The Project falls within the definition of a NSIP under sections 14(1)(a) and 15(1) and (2) of the Act, being an onshore electricity generating station in England with a capacity exceeding 50 MWe. It also falls under Schedule 1 of the EIA Regulations, under the category of 'Thermal power stations and other combustion installations with a heat output of 300 megawatts or more'. As such, an EIA is required for the Project and an ES must be prepared in accordance with the 2009 EIA Regulations.

Before a NSIP can proceed, an application for a DCO must be submitted to PINS pursuant to section 37 of the Act. PINS acts on behalf of the relevant SoS; in this case the SoS for Business, Energy and Industrial Strategy (BEIS). The PINS is responsible for examining the application and making a recommendation to the SoS who then makes the decision as to whether a DCO should be made authorising the construction and operation of the development in question. A DCO can provide for or remove the need to obtain a number of authorisations and consents (e.g. planning permission), meaning applicants do not need to make multiple consent applications. It can also provide powers of compulsory acquisition, enabling the acquisition of land or rights in land required to deliver the development.

In advance of an application for a DCO being submitted, the Act and related regulations require the applicant to consult widely. This includes consulting

the local community (i.e. those living in the vicinity of the land to which the development relates); certain prescribed persons and bodies (including relevant technical consultees and statutory undertakers); relevant local authorities; and affected or potentially affected landownership interests and persons. The applicant must demonstrate how it has had regard to the responses received to the consultation in deciding the final form of development sought within the application for a DCO. This must be documented in a consultation report that is required to form part of the application under section 37 of the Act.

4.3

NATIONAL POLICY

The Act grants the SoS power to designate statements as National Policy Statements (NPSs) setting out policy relevant to the examination and determination of different types of NSIPs. Notably, where a NPS has effect in relation to a type of NSIP development (such as energy generation), section 104 of the Act requires the SoS to determine applications for NSIPs in accordance with the relevant NPSs, unless this would:

- lead to the UK being in breach of its international obligations;
- be in breach of any statutory duty that applies to the SoS;
- be unlawful;
- the adverse impacts of the development outweigh its benefits; or
- be contrary to any regulations that may be made prescribing other relevant conditions.

NPSs which have effect are therefore the primary (but not only) matter against which applications for NSIPs are judged. In taking decisions on applications for NSIPs, section 104 of the Act states that the SoS must also (in addition to the NPSs) have regard to appropriate marine policy documents, local impact reports (these are submitted by local authorities during the examination of DCO applications) and any other matters that the SoS considers to be both 'important and relevant' to the decision. Such matters can include local development plan documents.

In July 2011 the SoS for BEIS (then Energy and Climate Change) designated a number of statements as NPSs for energy infrastructure. These included an overarching NPS setting out general policies and assessment principles for energy infrastructure and a number of technology specific NPSs. Those NPS considered of most relevance to the Project are considered to be:

- the Overarching National Policy Statement for Energy (EN-1) (Department for Energy and Climate Change);
- the National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2);
- the National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4); and

- the National Policy Statement for Electricity Networks Infrastructure (EN-5).

Key policy in each of these is described below.

In making decisions on applications for NSIPs, Section 104 of the Act states that the SoS must also (in addition to the NPSs) have regard to any other matters that they consider to be both 'important and relevant' to their decision. Paragraph 4.1.5 of EN-1 provides some clarification on such matters, stating that these may include local development plan documents or other documents in the local development framework.

4.3.1 *The Overarching NPS for Energy (EN-1)*

NPS EN-1, in conjunction with related technology specific NPSs, provides the primary basis for decisions by the SoS in relation to nationally significant energy infrastructure.

Part 2 of EN-1 sets out 'Government policy on energy and energy infrastructure development'. It confirms the following:

- the Government's commitment to meet its legally binding target to cut greenhouse gas emissions by at least 80% by 2050 compared to 1990 levels;
- the need to effect a transition to a low carbon economy so as to reduce greenhouse gas emissions; and
- the importance of maintaining secure and reliable energy supplies as older fossil fuel generating plant closes as a result of the European Union Emissions Trading System (EU ETS) and the UK moves towards a low carbon economy.

Part 3 of EN-1 defines and sets out the need that exists for nationally significant energy infrastructure. Paragraph 3.1.1 states that the UK needs all the types of energy infrastructure covered by the NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions. Paragraph 3.1.2 goes on to state that it is for industry to propose new energy infrastructure and that the Government does not consider it appropriate for planning policy to set targets for or limits on different technologies.

Notably, paragraph 3.1.3 of EN-1 stresses that the Secretary of State should assess applications for development consent for the types of infrastructure covered by the energy NPSs "...on the basis that the Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need..." is as described for each of them. Paragraph 3.1.4 continues that the SoS should give substantial weight to the contribution that all projects would make toward satisfying this need when considering applications under the Act. As such, EN-1 is clear that the need that exists for new energy infrastructure is not open to debate or interpretation.

The urgency of the need for new electricity generating capacity is underlined by projections within EN-1 that indicate up to 22 gigawatts (GWe) of existing capacity will close over the period to 2020 in part due to the Industrial Emissions Direction but also as a result of some power stations reaching the end of their operational lives (paragraph 3.3.7). In response to this, EN-1 identifies a minimum need for 59 GWe of new generating capacity over the period to 2025 (paragraph 3.3.23).

Part 4 of EN-1 sets out a number of 'assessment principles' that must be taken into account by applicants, PINS and the SoS in (respectively) preparing, examining and determining applications for nationally significant energy infrastructure. General points include (paragraph 4.1.2), given the level and urgency of need for the infrastructure covered by the energy NPSs, the requirement for the SoS to start with a presumption in favour of granting consent for applications for energy NSIPs. This presumption applies unless any more specific and relevant policies set out in the relevant NPS clearly indicate that consent should be refused or any of the considerations referred to in Section 104 of the Act (noted above) apply.

Paragraph 4.1.3 goes on to state that in considering any application, and in particular, when weighing its adverse impacts against its benefits, the SoS should take into account:

- its potential benefits, including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and
- its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts.

Paragraph 4.1.4 continues by stating that within this context the SoS should take into account environmental, social and economic benefits and adverse impacts, at national, regional and local levels.

Other assessment principles include the matters to be covered within the ES produced for the application; the Conservation of Habitats and Species Regulations 2010; the consideration of alternatives; criteria for 'good design'; consideration of the feasibility of combined heat and power; consideration of the requirements of the carbon capture readiness regulation; grid connection; climate change adaptation; pollution control and environmental regulatory regimes; safety; hazardous substances; health; common law and statutory nuisance and security, amongst others.

Part 5 of EN-1 lists a number of 'generic impacts' that relate to most types of energy infrastructure, which both applicants and the SoS should take into account when preparing and considering applications. These include land use; socio-economic aspects; air quality and emissions; noise and vibration; dust, odour, artificial light, steam and smoke; traffic and transport; civil and military aviation; biodiversity and geological conservation; historic

environment; landscape and visual; water quality and resources; flood risk and waste, amongst others. Paragraph 5.1.2 stresses that the list of impacts is not exhaustive and that applicants should identify the impacts of their projects in the ES in terms of both those covered by the NPSs and others that may be relevant. In relation to each of the generic impacts listed within Part 5 of EN-1, guidance is provided on how the applicant should assess these within their application and also the considerations that the SoS should take into account in decision-making.

In addition to a number of the assessment principles and generic impacts covered by EN-1, NPS EN-2, EN-4 and EN-5 set out the factors (e.g. those influencing site selection) and 'assessment and technology specific' considerations to be taken into account in the preparation and assessment of applications for fossil fuel generating stations, gas pipelines and electricity network infrastructure, including relevant environmental matters. These are considered briefly below.

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

Taken together with NPS EN-1, EN-2 provides the primary basis for decisions on applications for fossil fuels electricity generating stations, including gas-fired power stations (such as the Project). The document provides additional policy guidance against which to assess such proposals.

Section 2.2 outlines the factors influencing site selection for fossil fuel power stations. These include land use and size of site; transport infrastructure for the delivery and removal or construction materials, fuel, waste and equipment; and water resources, for example, some power stations have high water demands for cooling; and grid connection. However, in outlining such factors, paragraph 2.2.1 makes clear that "...it is for energy companies to decide what application to bring forward and the Government does not seek to direct applicants to particular sites for fossil fuel generating stations."

Technology specific considerations to be taken into account in the assessment of fossil fuel power stations (in addition to the assessment principles and generic impact set out in EN-1) include emissions to air; landscape and visual; noise and vibration; release of dust; residue management; and water quality and resources.

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

Section 2.19 of EN-4 provides guidance on the assessment of applications for new gas pipelines and may be of some relevance to the Project as it includes a connection to an existing gas pipeline.

Key technology specific considerations for gas pipeline and connections include proximity to sensitive land uses (e.g. residential development and

schools) when planning routes; pipeline safety; noise and vibration; biodiversity; landscape and visual; water quality and resources; and soils and geology.

4.3.4 *The NPS for Electricity Networks Infrastructure (EN-5)*

EN-5 outlines principles which the SoS will apply to applications for new electricity transmission lines as well as associated infrastructure, such as substations and may also be of relevance to the Project. It should be noted that the Project will involve relatively small scale electricity grid connection works to existing substation infrastructure.

Technology specific considerations to be taken into account for such works include biodiversity and geological conservation, landscape and visual, noise and vibration and the impacts of electric and magnetic fields.

4.3.5 *National Planning Policy Framework (NPPF) and Planning Practice Guidance (PPG)*

The National Planning Policy Framework (NPPF) was adopted in March 2012 (Department for Communities and Local Government (DCLG), 2012) and replaced the majority of Planning Policy Statements and Planning Policy Guidance Notes. The policies contained within the NPPF are expanded upon and supported by the Planning Practice Guidance, which was published in March 2014.

The NPPF sets out the Government's planning policies for England and how these are to be applied. It is a material consideration in planning decisions. Paragraph 3 of the NPPF makes it clear that the document does not contain specific policies for NSIPs and that applications in relation to NSIPs are to be determined in accordance with the decision making framework set out in the Act and relevant NPSs, as well as 'any other matters that are considered both important and relevant'. However, paragraph 3 goes on to confirm that the NPPF may be considered to be a matter that is both important and relevant for the purposes of assessing DCO applications. The EIA undertaken for the Project will therefore have regard to the relevant policies of the NPPF as part of the overall framework of national policy.

Paragraph 6 of the NPPF is clear that the purpose of the planning system is to contribute to the achievement of sustainable development and that the policies that are set out in the NPPF, taken as a whole, constitute the Government's view of what sustainable development in England means in practice. Paragraph 7 goes on to identify three dimensions to sustainable development: economic, social and environmental. It states that these dimensions give rise to the need for the planning system to perform a number of key roles as follows:

- an *economic role*, contributing to a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in

the right places and at the right time to support growth and innovation; and by identifying and coordinating development, including the provision of infrastructure;

- a *social role*, supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generation and by creating a high quality built environment, with accessible local services that reflect communities needs and support their health, social and cultural well-being; and
- an *environmental role*, contributing to protecting and enhancing our natural, built and historic environment, and as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change, including moving to a low carbon economy.

Paragraph 8 emphasises that these roles should not be undertaken in isolation, because they are mutually dependent. For example, economic growth can secure higher social and environmental standards, while well designed buildings and places can improve the lives of people and communities.

Central to the NPPF is ‘a presumption in favour of sustainable development’. This is highlighted at Paragraph 14. For decision-making, this means approving applications that accord with the development plan without delay.

Paragraph 17 sets out a number of core land-use planning principles that should underpin decision making. Those of particular relevance to the Project include to:

- proactively drive and support sustainable economic development to deliver the infrastructure that the country needs;
- always seek to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings;
- support the transition to a low carbon future in a changing climate, taking full account of flood risk and encouraging the reuse of existing resources and the use of renewable energy sources (for example, by the development of renewable energy);
- contribute to conserving and enhancing the natural environment and reducing pollution;
- encourage the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental value; and
- actively manage patterns of growth to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable.

NPPF policies of particular relevance include promoting sustainable transport; requiring good design; promoting healthy communities; conserving and

enhancing the natural and historic environment; and meeting the challenge of climate change and mitigating its effects.

4.4

LOCAL POLICY

The Project lies entirely within the administrative area of Redcar and Cleveland Borough Council (RCBC) which is a unitary authority.

The local (statutory) development plan for the area is currently made up of the following documents:

- the 'saved' policies of the Redcar & Cleveland Local Plan, adopted June 1999;
- the Core Strategy Development Plan Document, adopted July 2007;
- the Development Policies Development Plan Document, adopted July 2007;
- the Tees Valley Joint Minerals and Waste Development Plan document, adopted September 2011;
- the Local Development Framework Proposals Map; and
- Interim Policy on Hot Food Takeaways.

RCBC is currently preparing a 'New Local Plan' to replace the saved policies of the 1999 Local Plan and the above Development Plan Documents. The Plan is at a relatively advanced stage and RCBC has prepared a publication version for submission to the Secretary of State later this year. According to the November 2016 Local Development Scheme, the Local Plan is anticipated to be adopted in August 2017.

While section 104 of the Act states that other matters that are 'important and relevant' (and to which the SoS must also have regard) include local development plan documents, EN-1 is clear that in the event of any conflict between a NPS and a local development plan document, the NPS prevails for the purpose of SoS decision-making given the national significance of the infrastructure concerned.

The documents considered to contain relevant policies are; The Core Strategy Development Plan Document (2007), the Development Policies Development Plan Document (2007), and the draft 'New Local Plan'.

The relevant policies are summarised below.

Core Strategy Development Plan Document (2007) policies of note included the following.

- **CS1 Securing a Better Quality of Life:** focusing upon sustainable development underpinning development proposals.

- **Spatial Strategy for South Tees Employment Area:** employment, access and environmental aims for South Tees.
- **CS8 Scale and Location of New Employment Development:** up to 160 hectares of general employment land will be brought forward in the period up to 2021.
- **CS9 Protecting Existing Employment Areas:** land and buildings within existing business parks and industrial estates will continue to be developed and safeguarded for business and general industry.
- **CS10 Steel Chemical and Port Related Industries:** the continued development and expansion of the chemical, steel and port industries will be supported.
- **CS11 Innovation and New Technologies:** proposals will be supported that strengthen the development of the Borough as a centre for energy and recycling industries. Such development will be centred at Wilton International and the wider South Tees area.
- **CS22 Protecting and Enhancing the Borough's Landscape:** the overall approach will be to protect and enhance the Borough's landscape based on the character areas identified through the Landscape Character Assessment.
- **CS24 Biodiversity and Geological Conservation:** the Borough's biodiversity and geological resource will be protected and enhanced.
- **Policy CS25 Built and Historic Environment:** development proposals will be expected to contribute positively to the character of the built and historic environment of the Borough.
- **CS26 Managing Travel Demand:** development proposals will be required to support the Redcar and Cleveland Local Transport Plan.

Development Policies DPD Development Plan Document (2007) policies are as follows.

- **DP1 Development Limits:** within development limits, development will generally be acceptable where it accords with site allocations and designations in the Local Development Framework.
- **DP3 Sustainable Design:** all development must be designed to a high standard.
- **DP6 Pollution Control:** development that would give rise to increased levels of noise or vibration or which would add to air, land or water pollution, by itself or in accumulation with existing or other proposed

uses, will only be permitted under specific circumstances that may require mitigation to create acceptable conditions.

- **DP7 Potentially Contaminated and Unstable Land:** development on or near potentially contaminated or unstable land will not be permitted unless effective measures are agreed to deal with any contamination or instability.
- **DP10 Listed Buildings:** any development affecting the setting of a listed building will only be permitted under specific circumstances.
- **DP11 Archaeological Sites and Monuments:** development that would adversely affect important archaeological sites or monuments will not be approved.

Draft Publication Local Plan (November 2016) policies are as follows.

- **SD 1 Sustainable Development:** when considering development proposals, the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework.
- **SD2 Locational Policy:** development will be directed to the most sustainable locations in the borough.
- **SD 3 Development Limits:** within development limits, development will generally be acceptable where it accords with the site allocations and designations in the Local Plan.
- **SD 4 General Development Principles:** in assessing the suitability of a site or location, development will be permitted where it fulfils general development principles identified within SD4.
- **SD6 Renewable and Low Carbon Energy:** renewable and low carbon energy schemes will be supported and encouraged, and will be approved where their impact is, or can be made, acceptable.
- **SD 7 Flood and Water Management:** flood risk will be taken into account at all stages in the planning process to avoid inappropriate development in areas at current or future risk.
- **LS 4 South Tees Spatial Strategy:** a number of economic, connective, and environmental aims for areas within South Tees including Wilton International.
- **ED 6 Protecting Employment Areas:** land and buildings within existing industrial estates and business parks will continue to be developed and safeguarded for general industrial and business uses (B1, B2 & B8 uses).

- **N 1 Landscape:** aim to protect and enhance the borough's landscapes.
- **N 4 Biodiversity and Geological Conservation:** protect and enhance the borough's biodiversity and geological resources.
- **HE 3 Archaeological Sites and Monuments:** development that would adversely affect archaeological sites or monuments that are designated heritage assets, or their settings, or archaeological sites of equivalent significance will only be approved in the most exceptional circumstances.
- **TA 1 Demand Management Measures:** the LTP will provide an overarching framework for demand management that will ensure that a comprehensive approach is taken to include the provision of public transport alternatives; and the identification of the full range of demand management measures, including parking policies, that should be considered for implementation through programmes, bespoke to particular areas of the borough.
- **TA 2 Travel Plans:** development proposals will be required to support the Redcar and Cleveland Local Transport Plan.

Following a review of the Redcar and Cleveland Local Development Framework (LDF) Proposals Map the site is identified as having 2 currently adopted policies overlapping the sites boundaries, these are: CS10, Steel, Chemical and Port Related Industries, and DP1, Development Limits. Whilst overlapping the site, neither policy gives a direct comment on the site for energy uses; furthermore Wilton International is specifically identified for chemical related activities. It is however noted that the proposed use is considered to be of a similar classification as those identified within CS10, and as such it is considered by the applicant that the proposed land use is appropriate.

It is considered that the Tees Valley Joint Minerals and Waste Development Plan document (2011) and the Interim Policy on Hot Food Takeaways document contain no relevant policies with regards to the Project.

With regards to energy policies it is noted that within policy CS4, 'South Tees Employment Area', subsection 'e' states an aim to develop energy industries including a Fuel Cell Application Centre centred on Wilton, focused on hydrogen and renewable energy. In addition subsection 'k' supports the development of renewable energy projects where they are compatible with surrounding uses and acceptable in environmental terms. Whilst the Project is not renewable, it is considered to be lower in emissions than traditional coal fired power stations. In addition within the post-text (pg 3.22) of CS4 it is stated *'the following challenges are identified that the Spatial Strategy for South Tees aims to address: To support the development of the steel, chemicals and energy industries and the port so that they can continue to be drivers of the Tees Valley economy'*. This clearly indicates an allowable use for energy development

within South Tees, and also shows the compatibility of chemical and energy uses.

Whilst not a statutory document, the Council's Economic Strategy 'New Realities' recognises the potential of the emerging new energy and recycling markets for stimulating a step change in the local economy. In particular the Economic Strategy supports the further investment at Wilton International for chemical, energy and recycling industries; and the revival of underused land for recycling or energy based industries.

4.5 *ADDITIONAL CONSENTS*

4.5.1 *The Environmental Permitting (England and Wales) Regulations 2016*

The Project will be required to comply with the Environmental Permitting Regulations 2016. PINS require a written indication from the Environment Agency (EA) that the EA can regulate the operational process, specifically in relation to atmospheric emissions, noise and aqueous discharges. The EIA which is to accompany the DCO application will contribute to informing the permit application.

4.5.2 *Grid Connection*

Consent for connection will be required from National Grid. The location of the grid connection will be within the redline boundary of the plot utilising two existing National Grid substations.

4.5.3 *Industrial Emissions Directive 2010*

Environmental legislation has required emissions from power stations to be reduced progressively over the years. On 6th January 2011, the *Directive on Industrial Emissions 2010/75/EU* (IED), recast a number of earlier Directives, including the *Large Combustion Plants Directive* (LCPD). The purpose of IED is to achieve a high level of protection of the environment as a whole from the effects of various industrial activities including power stations. The requirements of the IED were transposed into UK law in 2013 and are therefore applicable to the Project. The IED is implemented in the UK through the Environmental Permitting (England and Wales) Regulations 2016.

The Project is classed under category 2 above and as a 'new installation post January 2013' will be required to meet the emission limits set out in the IED (Annex V, Part 2, 6). The emissions limits for the two gaseous pollutants of relevance to a natural gas-fired CCGT are:

- CO - 100 mg m⁻³; and
- NO_x - 10 - 30 mg Nm⁻³ yearly average.

NO_x expressed as 10 - 30 mg m⁻³ does not readily convert to a ppm concentration as in practice it is a mixture of gases but on the worst-case basis that all the NO_x was NO₂, an approximate value of 15 ppm would apply.

4.6

SUMMARY

The NPSs form the primary basis for decisions by the SoS on applications for NSIPs. In addition to setting out the strong need for new energy infrastructure, they provide detailed guidance on the matters to take into account when both preparing and assessing applications for NSIPs. They also confirm that the SoS must have regard to any other matters that he/she considers are both 'important and relevant', which can include the NPPF and local development plan policy. Both the NPS and NPPF are clear, however, that in the event of any conflict between a NPS and another document, the NPS prevails.

The DCO application will include a detailed assessment of the Project, taking account of the findings of the EIA as reported within the ES, against the relevant NPSs and other relevant policy documents such as the NPPF and local development plan.

5.1 INTRODUCTION

This section describes the broad principles of the methodology that will be adopted for the EIA. It describes the approach that will be used to identify, evaluate and mitigate environmental effects. It also sets out the proposed temporal, spatial and technical scope of the EIA. Further details on individual topics are given in *Chapter 6*.

5.2 EIA REGULATIONS AND GUIDANCE

EIA is a procedure required under the terms of European Union Directives 85/337/EEC, 97/11/EC and 2014/52/EU ⁽¹⁾ on assessment of the effects of certain public and private projects on the environment.

The primary objective of an EIA is inscribed under Article 2 of the directive which states that:

“Member States shall adopt all measures necessary to ensure that, before consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location are made subject to a requirement for development consent and an assessment with regard to their effects.”

Article 8 of the Directive also states that:

“The results of consultations and information gathered pursuant to (the EIA procedure) must be taken into consideration in the development consent procedure”.

In practical terms, the purpose of the ES is to inform the decision-maker (and the Planning Inspectorate, who will examine the application and make a recommendation as to whether to grant consent) and to provide a source of information for stakeholders, regarding the likely significant environmental issues associated with the Project during its construction, operation and (where relevant) decommissioning.

The likely significant environmental effects of the Project will be identified for each relevant environmental topic (air quality, traffic, socio-economic characteristic etc.). This will be done by comparing baseline environmental conditions (i.e. the situation without the Project) with the conditions that would prevail were the Project constructed and operated. The significance of

(1) The new Environmental Impact Assessment (EIA) Directive (2014/52/EU) has to be transposed into UK legislation by 16 May 2017.

these changes will be assessed against such matters as the possible breach of a limit or capacity of the natural environment to absorb the resultant effect.

Effects will be assessed in relation to environmental receptors, that is: people (e.g. residents of buildings, users of facilities, employees of businesses), built resources (e.g. listed buildings) and natural resources (e.g. a site of ecological importance).

In addition to the relevant Directives, and where relevant, the EIA will be undertaken with reference to the following documents, amongst others:

- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the 2009 EIA Regulations);
- Advice note three: EIA consultation and notification, Planning Inspectorate, April 2012;
- Advice note seven: Environmental Impact Assessment, screening and scoping, Planning Inspectorate, April 2012;
- Advice note nine: Rochdale Envelope, Planning Inspectorate, April 2012;
- Advice note eleven: Working with public bodies in the infrastructure planning process, Planning Inspectorate, April 2012;
- Environmental Impact Assessment: A Guide to the Procedures, DETR, 2000;
- Preparation of Environmental Statements for Planning Projects that Require Environmental Assessment – A Good Practice Guide, DoE, 1995; and
- Guidelines for Environmental Impact Assessment, IEMA, 2004.

5.3 ***BASELINE FOR THE EIA***

Schedule 4 of the 2009 EIA Regulations (Part 1 paragraph 19) requires the EIA baseline to describe:

... the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.

Sections 6.2 to 6.10 describe the baseline studies that will be undertaken.

5.4 ***IDENTIFICATION AND ASSESSMENT OF EFFECTS***

Figure 5.1 sets out the general approach to assessment of likely significant effects that may arise from the Project.

Figure 5.1 EIA Methodology

Identify Impact

The scoping process will identify the potentially most important/significant impacts and effects (including secondary, indirect and cumulative) for the assessment to address. This will be done through a combination of:

- looking at the nature of the project activities and the impacts they will give rise to;
- looking at the project's environmental and social setting and those aspects which are likely to be most sensitive/vulnerable to impacts from the project;
- applying professional understanding gained from the evidence base; and
- considering inputs from stakeholders through consultation.

Decisions will then be made on which impacts and effects to assess or to prioritise in the assessment (scoping in and scoping out) and how to assess them (proposed methodology).

Predict Magnitude

The project's impacts will be quantified in terms of eg:

- landtake area or habitat loss;
- proportion of an ecological population exposed to impact;
- change in noise levels or pollution at a receptor; and
- numbers of jobs generated in the local economy.

In predicting magnitude the effect of all the project mitigation in place (i.e. committed to by Sembcorp) will be taken into account.

For some impacts, especially noise, air and water pollution, significance can be assessed directly against numerical criteria and standards. For exceedances, further mitigation must be incorporated by the project to reduce the magnitude of the impact (and the significance of its effect).

For other impacts nominal levels of magnitude (e.g. small, medium, large) may be adopted based on widely recognised factors such as: the nature of a change (what is affected and how); its size, scale or intensity; its geographical extent and distribution; its duration, frequency, reversibility and, for unplanned events, likelihood of occurrence .

Some activities will result in changes to the environment that may be immeasurable or undetectable or within the range of normal natural variation. Such changes will be assessed as having no impact or to be of negligible magnitude and will not lead to significant effects.

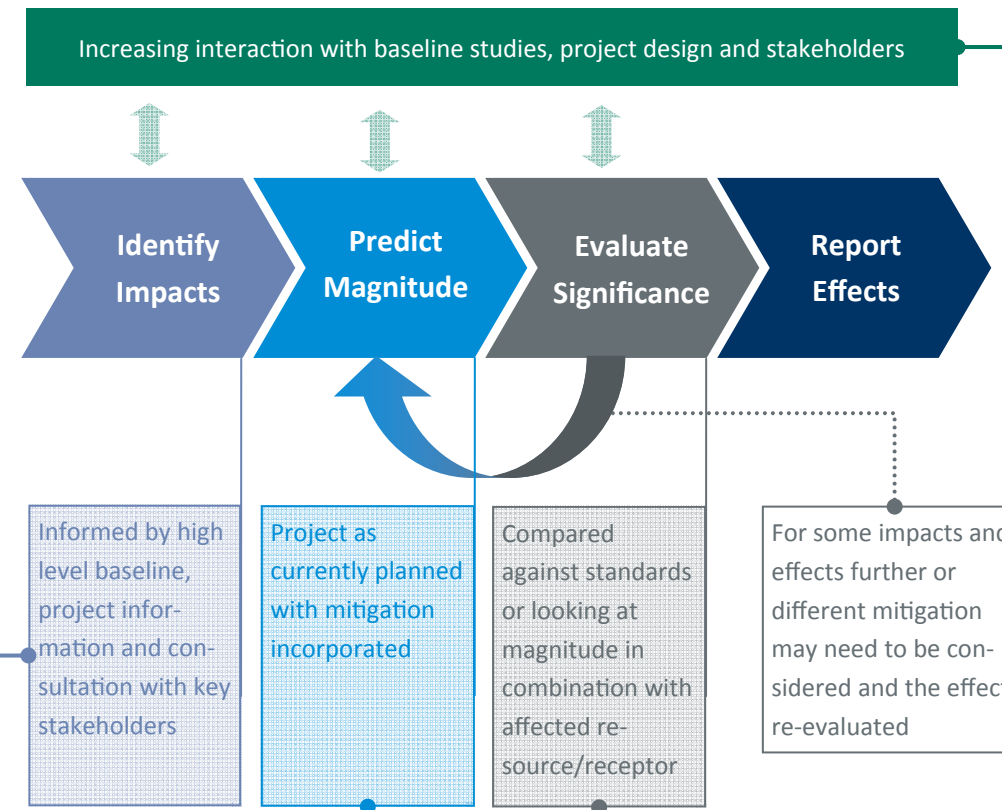
Evaluate Significance

In evaluating significance, the EIA process seeks to inform regulators and stakeholders about the effects of the project in a way that helps them make decisions on whether to approve and allows them to develop suitable conditions to attach to an approval. The evaluation of significance should ideally demonstrate legal compliance at least (e.g. compliance with quantified standards, avoidance of effects on legally protected resources).

In the absence of quantified standards, significance can be evaluated through considering the magnitude of an impact in combination with the importance/quality/value of the receptor or resource that is affected, also considering the response (or sensitivity) of a resource or a receptor to a particular impact. Effects of more than minor significance may warrant re-examination to see if an impact magnitude can be reduced further. Different mitigation options may be examined and the reasons for selecting one and rejecting others explained. Some impacts/effects that cannot be adequately mitigated may need to be addressed through the consideration of offsets or compensation.

The evaluation process may go through one or more iterations of working with project design to develop suitable mitigation and re-evaluating impacts and effects.

While the above provides a general framework for identifying impacts and assessing the significance of their effects, in practice the approaches and criteria applied across different environmental and socio-economic topics vary.



Describe Baseline

Baseline data will be collected to better understand the potentially most important impacts and effects identified in scoping. Baseline data may quantify existing exposure levels (e.g. for noise, air and water pollution), identify vulnerable populations of animals or people, more clearly delineate valued cultural property and ecosystem services etc.

Where a baseline aspect cannot be quantified then nominal levels of importance, quality or value (low, medium, high) will be assigned based on widely accepted criteria in fields such as ecology, cultural heritage, landscape and socioeconomic assessment. Inter-relationships between elements of the baseline will be identified.

Interact with Project Design

The EIA process will interact with the project design team to develop a basis for the assessment (for example quantities of emissions, noise levels of equipment, sizes of structures). The EIA process will also interact with design to assess 'best available technology' and mitigation options, especially when after initial assessment some impacts may need to be further reduced.

Consult Stakeholders

Ongoing stakeholder consultation, post-scoping, is good practice in EIA and is undertaken to refine the assessment and present preliminary findings to stakeholders to elicit early responses and help make the Environmental Statement as fit for purpose as possible.

| | | Magnitude of Impact | | |
|---|--------|---------------------|----------|-------|
| | | Small | Medium | Large |
| Quality/Importance/Sensitivity of Resource/Receptor | High | | | Major |
| | Medium | | Moderate | |
| | Low | Not Significant | | |

While *Figure 5.1* provides a general framework for identifying impacts and assessing the significance of their effects, in practice the approaches and criteria applied across different environmental and socio-economic topics vary. *Sections 6.2 to 6.10* outline the proposed approaches to the technical topics that will be addressed in the EIA.

To the extent necessary all the technical topics will address the construction, operational and decommissioning phases of the Project.

In accordance with Schedule 4 Part 1 paragraph 20 of the 2009 EIA Regulations, the identification and assessment of effects for each topic will also include an assessment of secondary, indirect and cumulative impacts and effects.

Where inter-relationships exist between different aspects of the environmental and socio-economic setting for the Project, then where an impact or effect on one aspect is identified, the assessment will address the effect (or effects) this may have on the related aspect (or aspects) of the receiving environment. Inter-relationships may include:

- traffic and noise;
- traffic and air quality;
- the value of a feature of cultural heritage being related to its setting.

Projects, plans and proposals with which the Project may have cumulative effects will be identified in consultation with the local planning authority and assessed accordingly. A cumulative effects assessment methodology is supplied in *Annex A*.

There is no widely accepted definition of 'indirect' effects and the term is often used interchangeably with 'secondary' effects. However the 2009 EIA Regulations do distinguish between the two terms. For the purposes of this EIA 'secondary' (and higher order) effects are taken to be part of a chain of impacts or effects that can be readily traced back to an action of the Project. Indirect effects may be the consequence of an action of the Project but occur much later in time or are much farther removed in distance, albeit still reasonably foreseeable. Indirect effects may include the consequences of economic or population growth induced by the Project and other effects related to induced changes in the pattern of land use, population growth rate, and related effects on air, water and soil and ecosystems in general. In the context of the Project 'indirect effects' falling within this definition are scoped out, with the possible exception of some socio-economic effects.

5.5

MITIGATION

Schedule 4 (Part 1 paragraph 21) of the 2009 EIA Regulations requires that where significant effects are identified, "a description of the measures envisaged to

prevent, reduce and where possible offset any significant adverse effects on the environment” should be included in the ES.

The achievement of high environmental standards is integral to the Project. Measures to avoid, minimise and reduce environmental impacts will be integrated into the design of the Project as well as into how it is implemented.

For each significant negative effect of the Project that is identified during the EIA, the specialists undertaking the assessments will identify mitigation measures consistent with statutory requirements and good practice in their respective field. These measures will be committed to through a number of means, for example: integration into design; by imposition of conditions; or through a Code of Construction Practice or equivalent.

Residual effects, once mitigation measures have been incorporated into the Project, will be classified as not significant or still significant (albeit reduced), as appropriate. Where effects are still significant, the mitigation options considered and the reasons for selecting particular measures will be reported in the ES.

5.6 *ENVIRONMENTAL MANAGEMENT*

In addition to the specific mitigation measures identified for each of the environmental topics, the Project will conform to general environmental management practices. Under the Construction (Design and Management) Regulations 2015, the Project’s Construction Environmental Management Plan (CEMP) will include general environmental and health and safety considerations.

It is no longer a formal requirement for developers to produce a Site Waste Management Plan. Nevertheless, it is recognised that construction, operation and demolition stages all have the potential to create waste. The applicant will adopt good construction and management practices to ensure waste is minimised as far as possible and that the storage, transport and eventual disposal of waste have no significant environmental effects. Management and collection of the waste streams will be carried out under the requirements of the UK waste regulatory regime and within the framework provided by Sembcorp’s environmental management system which will be accredited to ISO 14001.

5.7 *SCOPE OF THE ASSESSMENT*

5.7.1 *General Considerations*

The scope of the assessment falls under three broad categories:

- technical scope;

- spatial scope; and
- temporal scope.

5.7.2 *The Technical Scope*

Sections 6.2 to 6.10 set out the approach to be adopted for each technical topic (the ‘technical scope’) that makes up the EIA. In some instances reference is made at the topic level to the spatial and temporal scopes and these will be refined further in the course of the EIA and reported in the ES.

Following the topic by topic discussion of technical scopes in *Sections 6.2 to 6.10*, the proposed technical scope for the EIA is summarised in *Section 8.1*.

5.7.3 *The Spatial Scope*

In general terms, the spatial, or geographical, scope of the assessment takes into account the following factors:

- the physical extent of the proposed works, as defined by the Project design;
- the nature of the baseline environment and the manner in which the impacts are likely to be propagated; and
- the pattern of governmental administrative boundaries, which provide the planning and policy context for the Project.

For example, any potential effects on buried archaeology would tend to be confined to those areas physically disturbed by the works, whilst the effects of noise or visual intrusion could potentially be experienced at some distance from the works.

Appropriate study areas will be considered for each environmental topic by the specialists undertaking that assessment, and in agreement with the relevant consultees.

5.7.4 *The Temporal Scope*

Overview

The temporal scope of the assessment generally refers to the time periods over which impacts may be experienced. This will be established for each discipline, where appropriate through discussion with the relevant statutory consultees.

Terms used to qualify the duration of an impact or effects will tend to be specific to the topic being considered.

Construction Phase

Construction phase impacts may potentially arise during the whole of the construction works, which is expected to last approximately 39 months.

The construction phase will not be one continuous activity of the same intensity. There will be periods of noisy activity and periods of more intensive traffic movements. The overall construction phase will be divided up into component activities so that the durations of particular impacts and effects can be assessed and clearly reported.

The construction phase would be timed to avoid overlapping with any other significant Sembcorp activity in the Wilton area to the extent this is practicable.

The assessment will also take into account the time of day during which works are likely to be undertaken, notably whether they are undertaken during daytime or night-time periods.

Operational Phase

For the operational phase, the temporal scope will be determined by the predicted date of the commencement of generation which will be within approximately three years of commencement of construction, and thereafter the anticipated operating lifetime of the Project.

Decommissioning Phase

The Project will have a lifespan of at least 25 years and is not expected to result in any abnormal environmental conditions as a result of or following decommissioning.

5.8

APPLYING THE 'ROCHDALE ENVELOPE' APPROACH

Flexibility to respond to emerging economic circumstances and technological advances is essential if the Project is to proceed and be successful. A degree of flexibility will, therefore, be built into the Project.

This does, however, introduce some complexity into the EIA process common to many large scale developments, which are dependent on market conditions for their delivery. The 2009 EIA Regulations require an ES to provide a description of the location, design and size of a scheme to enable the likely significant environmental effects to be assessed and to enable the decision maker, statutory consultees and the public to make a properly informed response.

A balance has to be sought, therefore, between defining the Project in enough detail to predict its impacts, while leaving enough flexibility to enable the Project to be successfully delivered under conditions which may be subject to change. These parameters will provide an 'envelope' for assessing the impacts of the Project. It is intended that, in order to ensure that likely significant effects of the Project on the environment are described and assessed,

parameters will be set which are broad enough to encompass the potential variations in design and other aspects of the Project. The EIA will take account of all the reasonable variations in the form of the Project that would be permissible under the parameters, and describe and assess the likely significant effects on the environment as appropriate.

Such an approach is good practice, as reflected in case law on the 'Rochdale Envelope' principle. Suitably applied in EIA it can help to avoid the need for protracted re-submission procedures at a later stage, whilst giving a comprehensive assessment of the likely environmental effects.

5.9

CONSIDERATION OF THE MAIN ALTERNATIVES

It is noted that Schedule 4 (part 1 paragraph 18) of the 2009 EIA Regulations requires developers to outline the main alternatives studied by them and an indication of the main reasons for their choice, taking into account environmental effects. The EIA will consider the main alternatives, and set out the main reasons for the applicant's choice taking into account the environmental effects and the applicant's overall objectives for the Project.

The EIA will address alternatives including location and technology. It will also include consideration of the Project design or methods of construction or operation that will avoid, minimise, reduce or remedy likely significant environmental effects. Where appropriate, the main reasons for selecting a particular alternative will be explained taking into consideration technical and economic feasibility, as well as the environmental effects.

5.10

CUMULATIVE EFFECTS

The Project will be considered in the context of both baseline conditions and together with schemes which are in development or may be developed in future, and the resultant environmental effects of the schemes coexisting. These effects are termed cumulative effects.

The assessment will consider the accumulation of effects on people and the environment, even if the Project, when assessed on an individual basis, has effects that are not significant.

EN-1 ⁽¹⁾ makes reference to consideration of cumulative effects in paragraph 4.2.5, stating that:

"The ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development

(1) Overarching National Policy Statement for Energy (EN-1), July 2011

(including projects for which consent has been sought or granted, as well as those already in existence)."

Further, the 'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions' ⁽¹⁾ provides the following guidance on cumulative effects:

"In practical terms, the extent of the assessment in terms of how far into the past and into the future will be dependent upon the availability and quality of information..."

"...it is only reasonable to consider current events and those that will take place in the foreseeable future. Furthermore, the assessment can only be based on the data that is readily available."

It should be noted that for a scheme to be considered in the cumulative assessment, the principles set out in the guidance documents discussed above will be followed, meaning that only schemes that could reasonably be presumed to go ahead and for which sufficient information was available will be taken into account.

For the purposes of this EIA, this has been taken to be made up of those schemes that have planning permissions or for which planning applications have been submitted to the relevant authority, and are of a scale and nature to contribute to potential cumulative effects along with the Project. This EIA scoping exercise has identified the likely significant effects of the Project, planning applications submitted to Redcar and Cleveland Borough Council and National Significant Infrastructure Application submitted to PINS. The exercise focuses on developments in proximity to the Project which may generate significant levels of construction traffic, generate emissions to atmosphere, or have other effects on the same resources and receptors as the Project. Generally, only schemes where an EIA was required are considered appropriate for inclusion. The schemes identified as having potential to result in cumulative effects with the Project are set out in *Annex A, Table A6.3*. Each of these schemes has been screened to establish the likelihood of adverse cumulative effects with the Project. Where potential cumulative environmental effects have been identified, these will be considered in the relevant topic assessments in the ES.

5.11

UNCERTAINTY

Even with a final project description and an unchanging environment, predictions of impacts and their effects on resources and receptors can by definition be uncertain. Predictions can be made using varying means ranging from qualitative assessment and expert judgement (including

(1) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (<http://ec.europa.eu/environment/eia/eia-studies-and-reports/guidel.pdf>).

reference to the evidence base) through to quantitative techniques (e.g. modelling). The accuracy of predictions depends on the methods used and the quality of the input data for the Project and the environment. Where an assumption has been made, the nature of any uncertainty which stems from it will be presented.

Where uncertainty affects the assessment of effects a conservative (i.e. reasonable worst case) approach to assessing the likely residual effects will be adopted with mitigation measures developed accordingly.

To verify predictions and to address areas of uncertainty monitoring will be proposed as a key aspect of environmental management for the construction and operation of the Project.

6.1 INTRODUCTION

This chapter sets out the broad scope of each of the main ‘topic’ assessments for the EIA. Descriptions are given, under each topic heading, of the baseline conditions and sensitivities, potential impacts during the construction and operational phases and the proposed EIA methodology to be applied in assessing effects for each topic.

Based on an understanding of the design and location of the Project and the local and regional environmental issues that are likely to be relevant, the scoping exercise has identified and reviewed those issues that may be material considerations, i.e. scoped in to the EIA process.

6.2 WATER RESOURCES AND FLOOD RISK

6.2.1 Introduction

The ES will describe the likely significant effects of the Project on local water resources. The section will also provide a brief summary of the main issues and risks posed to and from flooding. However, these will be assessed in detail through a separate Flood Risk Assessment, submitted in a separate dedicated document as part of the DCO application. Additionally, potential effects on hydrogeology will be assessed as part of the section describing geology, contamination and ground conditions (outlined in *Section 6.3* of this Scoping Report).

The supply of water for construction of the Project will ultimately be the responsibility of the principal construction contractor. In addition, the discharge of any effluents during construction, including site drainage, will also be the responsibility of the principal construction contractor who will be required to reach agreement with the EA, and the local sewerage undertakers with regards to detailed methods of disposal. As such, in combination with standard good working practices described in the draft Code of Construction Practice (CoCP), this should ensure that any impacts resulting from discharges from the site would be negligible.

At present, it is assumed that the Project will utilise a hybrid cooling system, as described in *Chapter 2*. This process will require a supply of water during operation. This water will be supplied by the existing onsite water supply which is abstracted from the River Tees and within the Wilton site.

During natural gas firing, water would also be required on a day-to-day basis for make-up to the HRSG. The total water use will be presented in the water balance for the Project.

Small quantities of water (blowdown) will be discharged to avoid the build-up of impurities in the HRSG steam/water cycle. The blowdown is virtually pure water containing very small quantities of various chemicals that are used to prevent corrosion and scaling in the system.

6.2.2 *Baseline Conditions and Sensitivities*

Surface water bodies in the vicinity of the Project will be identified and described along with their importance. Based on an initial, high level assessment, the main water bodies are considered to be:

- the River Tees / Tees Estuary approximately 3.5 km northwest of the Project site boundary;
- the Kettle Beck which flows south to north along the western boundary of the Project site boundary;
- two reservoirs located at approximately 900 m south of the Project site boundary adjacent to the A174 / A1053 roundabout;
- one pond located at approximately 500 m east of the Project site boundary; and
- a series of reservoirs approximately 1.5 km east of the Project.

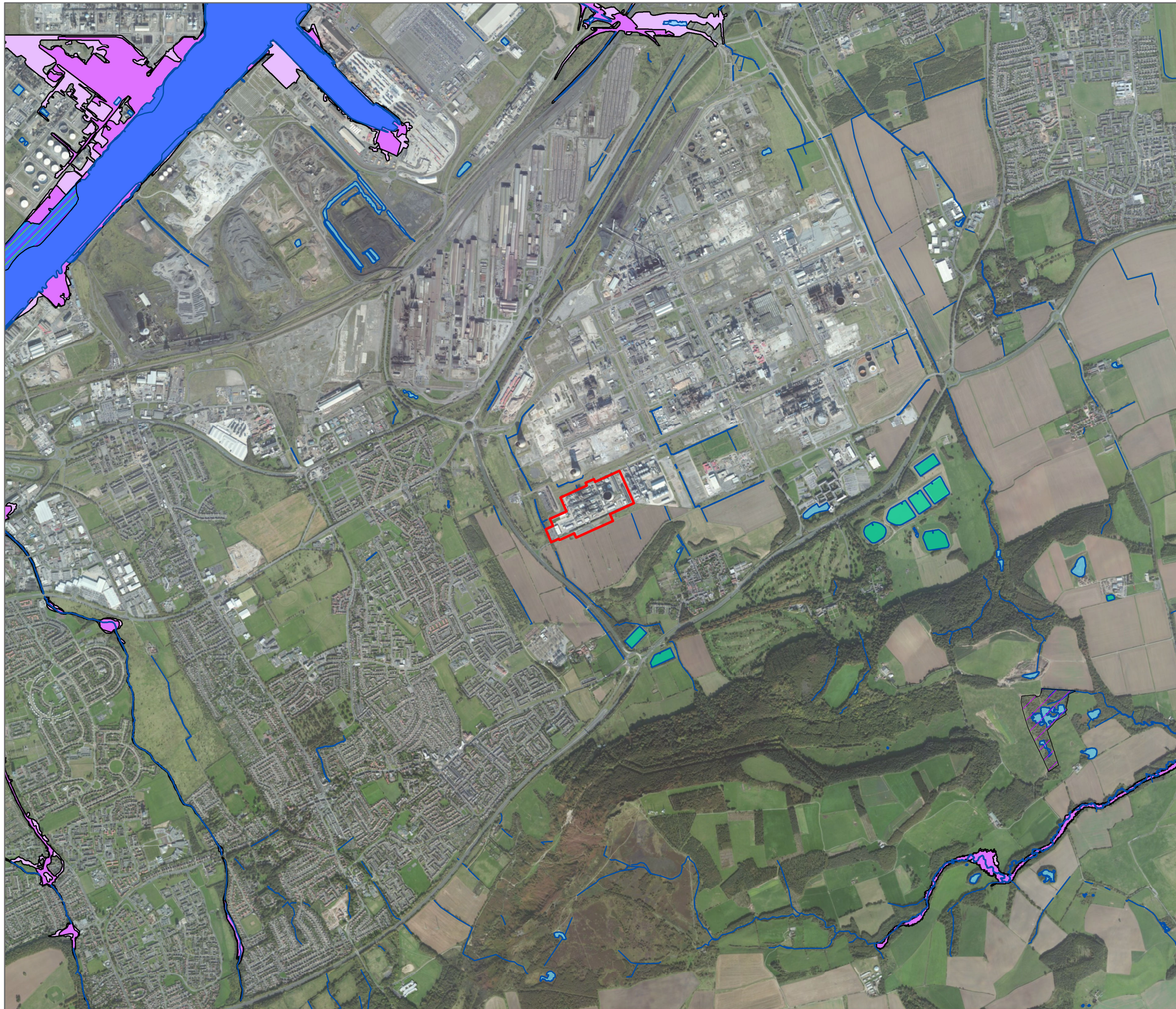
In addition, the site is located on the edge of the SSSI risk impact zone of the Lovell Hill Pools SSSI, which is located approximately 3 km southeast of the site. However, given that the SSSI is located at an elevation of approximately 98 mAOD, and the Project site is at an elevation of approximately 20 mAOD, there is almost certainly no potential for hydrological connectivity from the Project site to the SSSI. As such, the potential for surface waters from the site to have an impact on the Lovell Hill Pools is negligible.

The Project site is also located approximately 1.5 km north of an area of 250 ha of statutory designated moorland. As with the Lovell Hill Pools SSSI, this moorland is located at an elevation substantially higher than the Project site, and is thus expected to be hydrologically disconnected from any potential surface water impacts.

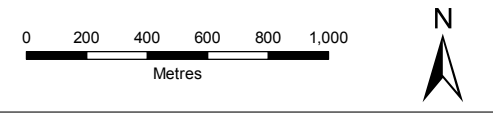
All of the surface water bodies and water sensitive receptors described above are presented on *Figure 6.1*.

As part of further baseline assessment, abstraction points and licences in the area will be investigated and summarised, and the potential impact on these abstractions will be qualified.

Historical maps will also be studied to identify the course of any culverted watercourses and/or subterranean rivers which could be affected.



- Indicative Site Boundary
- Site of Special Scientific Interest (SSSI)
- Special Protection Area (SPA)
- Ramsar
- Watercourse
- Reservoir
- River/Estuary
- Surface Water Pond
- Flood Zone 3
- Flood Zone 2



| | |
|----------------------|--------------|
| SCALE: See Scale Bar | VERSION: A02 |
| SIZE: A3 | DRAWN: WB |
| PROJECT: 0375193 | CHECKED: AG |
| DATE: 15/02/2017 | APPROVED: RE |

Figure 6.1
Water Quality and Flood Risk

| | |
|---|--|
|  ERM |  TEES CCPP <small>SECURING TEESIDE'S ENERGY FUTURE</small> |
|---|--|

PROJECTION: British National Grid

Construction Phase

Construction has the potential to result in a number of potentially significant adverse effects on the surface water environment.

The main risk to surface water quality during the construction phase would likely be as result of chemical / fuel spillage and the mobilisation of construction site sediments into watercourses.

During construction, it may be necessary to install a temporary diesel storage tank for onsite construction machinery, generators etc. In the event it is required it would be double-skinned and/or contained within an impermeable bund sized to hold 110% of the total tank contents in order to prevent releases to the environment. Maintenance of construction machinery, on-site, will be forbidden outside suitably kerbed or bunded areas to prevent the accidental leakage of lubricating and hydraulic fluids. Therefore the impact of accidental spillages during construction will be controlled and potential impacts will be mitigated through best construction practices.

A small amount of water will also be required each day for general construction works (e.g. wheel washing and dust suppression) and hygiene. This water will likely be delivered to the site and disposed of through the existing site water supply and drainage infrastructure, and therefore no additional abstractions or discharges are expected to be required. The impact of construction on water use from local sources is therefore expected to be negligible.

Construction activities, if uncontrolled, could potentially cause leaching to surface waters from the creation of soil piles formed during excavation, levelling and other such on-site works. Impacts could include the potential eutrophication of surrounding watercourses. However, it is anticipated that there will be no impacts on the water bodies listed above as the majority (with the exception Kettle Beck) are separated by some distance from the Project site and therefore will not be linked hydraulically in any way to construction activity. Consequently, there will be no pathway for potential pollutants to move from the construction site to the receptor.

With regard to the Kettle Beck, processes will be put in place through the agreed Code of Construction Practice (CoCP) to ensure that stockpiles and other sources of potential pollution are sufficiently distant from the watercourse to ensure there is no pathway for pollution to move from the construction site to the receptor.

Given the above considerations, at this stage it is considered that a WFD Compliance Assessment is not required to assess construction impacts on the surrounding water bodies. Further consultation will be undertaken with the EA to confirm this.

The Preliminary Environmental Information Report (PEIR) and formal EIA will provide further details of these potential construction effects and details of further mitigation measures if assessed to be necessary.

Operational Phase

The largest operational demand for water in the majority of UK power stations is cooling. This will also be the case for the Project which will be cooled by hybrid cooling towers. This technology provides benefits over wet cooling towers as they reduce the overall water demand of the plant, and also keep the operational water and cooling water separate, reducing the risk of contamination.

Water may also be required on-site for the purposes of NO_x control, potable water for drinking and sanitation purposes and plant washing.

Calculation of the Project's water balance requirements will be dependent upon the design to be assessed in the EIA; however, at this stage it is expected that all operational water demand for the site will be met by the onsite water supply infrastructure within Wilton International, which is owned and operated by the Sembcorp. As such, the impacts on water use are expected to be of negligible magnitude.

If required, water for NO_x control will be used up (i.e. evaporated) during the process, and therefore no residual water will be discharged.

The Project site will be equipped with a surface water drainage system and a sewerage system which will be connected to the existing Wilton International infrastructure. The sizing and layout of these systems will be confirmed within the detailed design stage.

As the EIA proceeds, the PEIR will provide further details of these potential operational effects and details of further mitigation if assessed to be necessary.

Decommissioning Phase

During decommissioning, it is not anticipated that there will be any material differences in the potential effects on water resources and flood risk from those described for the construction phase. Given the design life of the Project, any potentially significant effects that are identified will be mitigated through the implementation of measures to be set out in a decommissioning mitigation plan to be agreed with the local authorities prior to the onset of decommissioning. Designing the decommissioning mitigation in the future will ensure that all relevant local and national regulations and standards prevailing at the time can be met.

Environmental Impact Assessment

The water resources assessment will be undertaken using a risk based approach to determine the significance of effects and will adopt a Source-Pathway-Receptor model to identify which receptors could realistically be affected by a given Project action.

All aspects of supply, demand and disposal of water and process effluents will be addressed for the construction, operational and decommissioning phases of the Project.

Any sources of pollution that have the potential to affect surface water bodies will be identified.

The disposal of all surface water drainage and process effluents to the sewage system will be discussed with the engineering design team with a view to maximising the opportunities for water recovery and re-use as far as is reasonably practicable.

Potential discharge locations for site surface waters and process waste waters will be identified. A site drainage plan, which may incorporate a sustainable drainage system (SuDS), will be discussed at a high level subject to the findings of the site drainage and flood risk assessment and the process will also be advised by initial conversations with the EA to establish strategic drainage objectives for the site and its surroundings.

In terms of the Project there are not anticipated to be any significant effects on the water bodies listed at *Section 6.2.2*. The majority of these potential receptors are a substantial distance from the site and therefore will not be directly affected during construction. It is not anticipated that the Project will directly abstract or discharge water to or from any of these sources during its construction, operation and decommissioning.

Where projects are away from, or unlikely to interact with any water courses, it is unlikely that a Water Framework Directive (WFD) Compliance Assessment Report will be required and it may be scoped out. However, if the EA does state that a WFD Compliance Assessment Report is required, this will be incorporated into the overall assessment of effects on water resources. An assessment for the WFD Report would involve consideration of the WFD status of surrounding water bodies. The WFD Report would need to be approved by the EA and would form an Appendix to the ES.

Flood Risk Assessment

The NPPF states that a flood risk assessment (FRA) is required when, as in the case of the Project, a development has an area greater than 1 ha and is located in Flood Zone 1.

Being located within Flood Zone 1, it is already clear that the risk of flooding to the site from rivers and the sea is very low. As such, the FRA will concentrate on the potential flood risks to the site from other sources, including surface water, ground water, and artificial sources (such as reservoirs or canals).

The FRA will also investigate the potential for the Project to increase the risk of flooding to other areas in the catchment as a result of increasing surface water run-off from the site. This risk will be addressed through an assessment of the un-attenuated surface water run-off from the site and the capacity of the local drainage network to attenuate that flow to safe levels.

It is proposed that the ReFH2 plot scale method will be used to establish the potential increase in surface water runoff from the site for a range of return periods, and that these figures will be assessed against the present drainage system. If it is found that the current drainage system does not have capacity to attenuate the runoff from the site to the discharge limit case defined by the strategic drainage objectives, additional mitigation will be incorporated into the Project. If necessary, such mitigation will aim to apply a SuDS approach where reasonably practicable.

Given that the site is located within Flood Zone 1, and on the site of a former power station surrounded by similar development, it is not anticipated that the sequential or exceptions tests will need to be applied.

Potential Mitigation Measures

Potential embedded mitigation measures which will be included during the construction to limit impacts on water quality include siting of stockpiles an adequate distance away from watercourses to avoid pollution runoff and adhering to best practice working guidelines to avoid spillages near watercourses.

Additionally, during construction and operation, silt traps and oil interceptors would be placed in any drains on site. No untreated surface or waste waters would be allowed to drain to drainage ditches or watercourses during construction or operation. A SuDS management train prioritising: prevention; source control and site control of surface water runoff would be implemented if found to be required.

The British Standard Code of Practice for Earthworks BS 6031:2009 contains detailed methods that should be considered for the general control of drainage on construction sites. Further advice is also available in the British Standard Code of Practice for Foundations BS 8004: 1986. These will be taken into account.

All aqueous process effluents will be discharged via the plant drainage systems and will be in accordance with EA limits. The use of biocides in the

cooling system will be optimised to ensure that the least amount possible is required.

All oil and chemical storage tanks and areas where drums are stored will be surrounded by an impermeable bund. Single tanks will be within bunds sized to contain 110 per cent of capacity and multiple tanks or drums will be within bunds sized to contain the greater of 110% of the capacity of the largest tank or 25% of the total tanks contents.

During operation, the EA will set limits on the quality of water that is discharged from the site under the Environmental Permit. The need, or otherwise for further, specific mitigation measures will be determined through the EIA consultation process.

Legislation and Guidance

NPS EN1 recognises the need for EIA to account for the existing status of, and impacts of a proposed project on, water quality, water resources and physical characteristics of the water environment (paragraph 5.15.2).

NPS EN1 Paragraph 5.2.7 also states that the ES should describe any potential eutrophication impacts.

The NPPF and associated Technical Guidance set out the requirements for assessing flood risk and are consistent with EN1.

RCBC's Local Development Framework (2007) seeks to promote sustainable development by controlling development in areas at risk of flooding and ensuring that the location of new development will avoid areas at risk of flooding in line with the requirements set out in PPG25.

Data Sources

The primary data sources that will be used in assessing potential effects on the water environment and flood risk are listed below:

- Environment Agency Flood Zone Maps (FZ2, FZ3, uFMfSW, reservoir and canal flooding);
- topographic data of the site and surrounding area (LiDAR);
- water balance calculations for the operational plant; and
- details of the site water supply infrastructure and drainage infrastructure.

6.3 GROUND CONDITIONS AND CONTAMINATION

6.3.1 Introduction

This section assesses the likely effects of the Project in relation to ground conditions and potential contamination.

The Wilton International facility as a whole has experienced industrial activity such as chemical manufacture, power generation and waste recycling. These activities have influenced the ground profile over time and also had some effect on the physical and chemical nature of the superficial soils.

Within the subject site, previous operations included a former gas fired power station and before that a largely agricultural use. It is understood that some site investigation and monitoring has been completed to support the former Environmental Permit at its surrender. Therefore some information has been made available on the condition of the ground, which generally suggests that the risks of encountering gross contamination is likely be low.

It is known however that some below ground structures are still present at the site including ground bearing slabs, shallow footings and deeper piled foundations. They will have to be removed and the potential for unforeseen contamination to be exposed at this point cannot be discounted. The potential for contamination and the requirements for remediation can however be appropriately managed, and are discussed further in this section.

6.3.2 *Assessment Scope and Methodology*

Spatial Extent of the Assessment

The spatial extent of the area considered in this assessment includes the main development, temporary laydown and construction areas, and land allocated for CCR. *Figure 6.1* shows the study area for the assessment and surface water features.

Areas outside of this footprint are associated with the infrastructure for gas supply, electricity export and cooling water. It is not proposed they are assessed given that this infrastructure is already present. If minor works are required to any of this infrastructure it is assumed that it will be undertaken by the respective utilities company and considered within the Project's cumulative effects assessment if appropriate.

Assessment Scope

The scope of work completed in developing this section of the Scoping Report, i.e. with regards to ground conditions and potentially contaminated land, was based on a review of the studies that have been undertaken for the Project site to assess the status of the area. These studies were reviewed in light of the construction, operation and decommissioning of the Project, with an assessment of the likely environmental risks.

Assessment Methodology

The assessment methodology is made up of five principal tasks, namely:

- review of salient information sources and relevant policy and legislation;
- definition of the baseline ground conditions that exist for the Project site;

- assessment on the scale and significance of temporary, permanent, or cumulative impacts relevant through construction and after-use;
- definition of measures, where practicable and appropriate, to avoid, mitigate or compensate for any predicted significant impacts, or maximise the potential for positive impacts occurring as a result of the Project; and
- identification of the scale and nature of residual impacts and further work required to understand and mitigate these risks.

6.3.3 *Legislation and Policy Review*

General Policy on Contaminated Land

This section provides background information on the regulatory context which governs the assessment and remediation of potentially contaminated sites in England and Wales. With respect to the Project site, which is moving forward to redevelopment, the planning regime is considered the primary regulatory framework, although it should be noted that implicit within this is the requirement that the site should not meet the definition of contaminated land under Part 2A of the Environmental Protection Act 1990.

The UK takes a risk-based approach suitable for use in dealing with land contamination. An assessment of risk is based on either current or proposed future land use, depending upon the circumstances of the assessment. A framework for risk assessment and management is set out in the Model Procedures for the Management of Land Contamination (CLR 11). This provides the basis for good practice in dealing with brownfield and industrial land, whether subject to sale or acquisition, development for new use, or assessment in the context of risks posed to current users and the wider environment. The exception to the risk-based approach lies in the Environmental Permitting system, where there is an absolute requirement to remediate incremental pollution caused over the lifetime of the permit by the permitted processes, irrespective of the risk it poses.

Building Control

The Building Regulations 1991 require that contaminated land issues be taken into account early during the construction phase. Unlike Part IIA controls however, the Building Regulations 1991 only consider the effects of contamination where it comes into direct contact with the building materials themselves as opposed to the whole development site.

Environmental Permitting (England and Wales) Regulations 2016

The Environmental Protection Act 1990, Part I is the legislative tool to control polluting processes to all media. With the advent of the new Environmental Permitting (England and Wales) Regulations 2016 (the Environmental Permitting Regulations), the Government has set controls which require that new and existing process operators must be responsible for the conditions of the land both during and following the closure of the process. In this respect,

information will be collected through a new Environmental Permit application.

Currently, within the Project site there are no processes or operations that are controlled under an Environmental Permit. It is understood that the former power station was operated under an IPPC permit which was surrendered in July 2016.

Prior to the Project becoming active (i.e. electricity generation), the operation will require an Environmental Permit.

Health and Safety

Health and safety issues are controlled by both the Health and Safety Executive (HSE) and the Local Authority, as defined in regulations made under the Health and Safety at Work Act 1974. Remediation and reclamation operations involving the 'handling' of contaminants require that the relevant safety standards and guidelines be followed.

Statutory Nuisance

Until the introduction of Part IIA legislation, the statutory provisions of Part III of the Environmental Protection Act 1990 were the traditional means of achieving remediation of any risk of pollution arising on premises. This legislation has now been amended to provide that no land in a 'contaminated state' can now be defined as a statutory nuisance. Both the implementation of the contaminated land inspection strategy and the investigation of statutory nuisance issues are to be conducted by Environmental Health Officers of the Environment and Development Department so permitting the coordination of information gathering.

6.3.4 *Baseline Conditions*

Sources of Information

Existing site specific investigations within the Project site are limited to the investigation, monitoring and the ultimate surrender of the former Environmental Permit. It is also understood that some decontamination and validation was completed as part of the decommissioning works and final permit surrender.

Site History

The site is situated on the western edge of the Wilton International facility, a 810 ha site operated by Sembcorp. A review of the Envirocheck Report reference 111168878_1_1 and dated 20th January 2017 shows that the site formerly housed the Teesside Power station which commenced generation in 1993. Prior to this the Project site was open fields although some industrial landuse was apparent on the Project site boundary to the northwest.

The former power station was mothballed in 2011 and subsequently demolished in 2013. The ground bearing slabs and below ground foundations are still present.

Two former transformer houses are also still present on Project site together with the connections to water, gas and National Grid.

Geology and Hydrogeology

British Geological Survey (BGS) England and Wales (Stockton (Sheet No. 33) and Guisborough (Sheet No. 34), 1:50,000) and the BGS online geology (1:50,000) indicate that the site is underlain by Devensian glacio-lacustrine deposits, comprising clay and gravel or clay and silt across 25% of the site, particularly focussed in the west and northwest of the site. Devensian Till is located across the remainder of the site, comprising a gravelly clay. Both deposits are classified as Unproductive Strata.

The superficial deposits overlie the solid geology of the Redcar Mudstone Formation, comprising mudstone which is classified as a Secondary B aquifer. The mudstone is likely to be at depth.

ERM has reviewed the Surrender Site Condition Report for Teesside Power Station dated October 2015 as prepared by Environ. As part of this report, a Phase II Environmental Site Assessment was completed, dated April 2015.

Within this report the following reports were reviewed by Environ:

- ENVIRON Phase I Environmental Site Assessment Report for Teesside Power Station, reference UK22-19783 dated August 2014; and
- Examination of Potential Ground Contamination at Proposed Enron Site, Teesside, Cremer and Warner, dated 23rd July 1990, reference 90154).

The scope of the ground investigation is understood to have been discussed and verbally agreed with the Enviro EA during a site meeting on 25th February 2015.

A total of nineteen boreholes were drilled across the site, thirteen to 3 metres below ground level (m bgl) and six to 5m bgl. Groundwater samples were recovered from seven new wells and seven existing wells.

Surface

A surface of concrete was present at 14 of the 19 locations, ranging in thickness from 0.12m (WS08) to 0.4m (WS09).

Made Ground

Made ground was encountered underlying the surface at all locations to depths ranging from 0.4m (WS02) to 2.0m (MW03), sandy gravel (fill) was

encountered with varying proportions of manmade fragments of ash, slag, brick and concrete.

No borehole information has been provided in relation to the site at this stage; however, two BGS boreholes are recorded close to the western boundary of the Project site. A review of the borehole logs indicates that the typical geology comprises shallow topsoil (0.15 m to 0.2 m thick) overlying a red brown stony clay/boulder clay to the full depth of each borehole (10 m bgl).

Superficial Deposits.

Strata considered to represent Till according to BGS published geology was encountered in 15 of the 19 locations. The remaining four (4) locations (MW04, WS06, WS08, and WS11) were terminated in made ground due to refusal on obstructions. The till was encountered at depths ranging from 0.4m bgl (WS02) to 2.0m bgl (MW01) and comprised slightly sandy slightly gravelly clay. Sand bands of up to 1.0m in thickness were encountered within the till in MW02 and WS05.

The solid geology of the Redcar Mudstone Formation was not encountered during this investigation.

The EA has classified the superficial deposits (Devensian deposits) at the site as unproductive strata, comprising drift deposits with low permeability that have negligible significance for water supply or river base flow. Records relating to the permeability of the superficial deposits indicate a low to very low permeability.

The EA has classified the underlying bedrock (Redcar Mudstone Formation) as a Secondary (undifferentiated) Aquifer, relating to layers that have previously been designated both minor and non-aquifers in different locations due to the variable characteristics of the rock type.

There are no known groundwater abstraction licences or potable water abstraction licences recorded within 2 km of the site.

The site is not located within 500 m of a Source Protection Zone (SPZ) or any SPZ within the confined aquifer.

Given the information presented above, the environmental setting of the site is considered to be low risk, with the receptors being of low vulnerability.

Soil Contamination

A range of land uses within the site have been identified during the previous operation of the site, particularly the former gas-fired power station and associated infrastructure including:

- cooling towers;

- electrical substations;
- control rooms;
- office buildings;
- plant auxiliary systems; and
- 'black start' gas turbines including fuel storage.

Summary of Contamination Results

A response to a 'Notice of Request' (under Schedule 5 of the Environmental Permitting Regulations) made by Ramboll Environ to the EA dated 30/06/2016 was also made available.

In brief, the follow spills and incidents were reported at the site:

"A leak of the sulphuric acid tank to its bund occurred on 19th December 2012 in the plant area. The mechanism of potential failure was a possible loss of bund integrity and damage to equipment."

It was reported by Ramboll Environ that no deterioration in the groundwater condition was recorded in 2013 monitoring data in the well downgradient of the area (BH3).

A second incident was reported as follows:

"During demolition, a leak of oil from a machine operated by the demolition contractor to unsurfaced ground. This occurred in the north-eastern corner of site between 2013 and 2014. The impacted soil was reportedly removed and disposed off-site."

Ramboll Environ reported that concentrations of total petroleum hydrocarbons (TPH) in the nearest downgradient borehole did slightly increase in 2013 from 0.52 mg/l to 3.4 mg/l; however concentrations decreased to less than limits of detection (0.01 mg/l) by 2015 indicating no ongoing deterioration of the groundwater condition.

A 'final' inspection was undertaken with the site's EA Regulatory Officer on 25th February 2015, who had been associated with the site over a number of years, during the completion of the demolition programme. Monitoring locations were identified on site with the EA officer at the meeting, together with a method for sampling and analysis and these were agreed by all parties. The report in conclusion indicates that:

"Graphical representations of the groundwater monitoring data from boreholes 1 to 7, over the period 2006 to 2015, identifies that no overall deterioration in the groundwater condition has occurred, as a result of permitted activities associated with operation of Teesside Power Station."

A site investigation was completed to support the surrender of the Environmental Permit for the former power station. This report is entitled

Site Surrender Condition Report for Teesside Power Station, dated October 2015, reference RUK22-21295 and was completed by Ramboll Environ on behalf of Engie Ltd (previously GDF Suez Teesside Ltd). A review of the site investigation data from the 2015 site surrender report indicates the following conditions at the site:

- Low concentrations of metals, TPH, SVOCs (carbazole) and PAH were detected in the soils. The risk assessment identified a low risk to human health from concentrations detected in soil on-site.
- Concentrations of metals, sulphate, TPH and PAH exceeded laboratory method detection limits in groundwater. When compared with relevant UK generic assessment criteria (Environmental Quality Standards (EQS) and Drinking Water Standards (DWS)), certain metals (hexavalent chromium and selenium), a range of PAH and aliphatic and aromatic fractions of TPH exceeded the relevant UK guidelines. Groundwater analytical results were also compared with the Ramboll Environ GAC for a volatilisation pathway. Aliphatic TPH in the range C12- C16 in one (1) sample exceeded the relevant volatilisation GAC. Ramboll Environ did not consider the results to indicate a risk via the vapour pathway since the concentration was localised (i.e. only detected at one location) and no buildings are currently present in the vicinity of MW07, The conceptual site model and risk assessment identified a low risk to controlled waters receptors.

The SCR evaluation template dated 11/07/2016 and published at <https://www.gov.uk/government/publications/ts6-8jf-gdf-suez-teesside-limited-environmental-permit-issued-eprtp3935xxs005> states that:

“Having reviewed all submissions and taking into account the information previously submitted as part of the permitting and compliance history of the site, we the Environment Agency, consider that the applicant has provided sufficient evidence to demonstrate there has not been any deterioration in the condition of the land as a result of the permitted activities.” and

“Sufficient information has been supplied to show that pollution risk has been removed and that the site is in a satisfactory state – accept the application to surrender the permit.”

6.3.5 **Potential Effects**

Construction Phase

The following key stages of activity will take place during construction of the Project:

- removal of existing ground bearing slabs and foundations where possible;
- levelling and compaction of the site and the formation of a surface water drainage system;

- installation of foundations;
- excavation and construction of sub-surface structures (basements);
- above ground construction works;
- service connection (including trenching); and
- establishment of site infrastructure (roads, car parking) and landscaping.

Based on the results of previous investigation and monitoring to support the former Environmental Permit, the potential for contamination is considered to be low. The environmental setting for the site is also considered to be at low risk should potential contamination be mobilised from the site. Therefore the potential for effects resulting during the construction that might occur from unforeseen contamination, as a result of former activities, that could be exposed during the removal of old foundations is considered to be low. Some site investigation and monitoring during construction works is recommended to confirm this and the process should follow that presented in CLR 11 Model Procedures for Land Contamination.

In the event that contamination is detected, mitigation measures (see below for more detail) will be incorporated as part of the construction programme.

Any required remediation/validation works to be conducted for the Project footprint will produce a final soil and groundwater condition that does not unduly constrain any eventual permitted land use. At this stage the requirement for remediation is considered unlikely given the results of the monitoring completed to surrender the former Environmental Permit.

Operational Phase

On the basis of the above, it is considered that permanent effects in relation to contamination will not be significant during the operational phase of the Project, as the contamination legacy of the site will have been addressed during construction. This status will be dependent on any proposed remediation works being suitably validated.

Cumulative Effects

As all issues relating to ground conditions and contamination are confined within the Project footprint, with no significant requirement for off-site disposal of soils during development, there is considered to be no significant potential for cumulative effects.

6.3.6 *Mitigation and Monitoring*

Overview

As noted above, based on site investigation work undertaken to support the surrender of the Environmental Permit for the previous operation the site is considered to be in an acceptable condition for development.

However there is a residual risk of contamination being encountered, e.g. during the removal of existing foundations and mitigation measures will be put in place during construction to address this residual risk. The construction phase investigation and remediation processes, should they be required, will be completed in line with CLR11, Model Procedures for the Management of Land Contamination prior to the main construction phase of the Project.

Permanent Mitigation

There may be a requirement to complete remediation and validation works for the site particularly during the removal of the existing foundations but also as part of the construction process and to discharge any associated consent conditions via submission of relevant reports to RCBC.

Once this has been achieved, any specific detailed design proposals will address the existing ground conditions in light of specific layout details. Supplementary ground investigations will be carried out to provide detail on specific issues if necessary.

Construction Mitigation

A Code of Construction Practice (CoCP) will be developed for the Project. The CoCP will be adhered to by the Contractor and it is anticipated that this will be enforced through the DCO. Some of the core elements of the CoCP in relation to ground conditions will be as follows.

- Full compliance with Construction Design and Management Regulations 2015 (CDM) and other Health and Safety legislation will apply throughout any works on site (including any pre-construction works).
- If contamination that has not been previously identified is encountered on site, measures will be put in place to provide suitable mitigation. This may include additional site investigation, regulatory dialogue and remediation measures.
- The water environment will be protected through the management of earthworks and materials arising, particularly in areas of potential contamination.
- In the unlikely event of contaminated material being encountered, the Safety Officer will ensure that a Workers' Safety Information Sheet is prominently displayed in rest/mess rooms and wash rooms covering hygiene, work practices, clothing requirements etc.
- A Waste Management Plan will be developed in accordance with the *Non-statutory guidance for site waste management plans* (DEFRA April 2008) and in consultation with the EA and the RCBC. The plan will identify:

- responsibilities for waste management;
 - the waste category and quantities of materials generated;
 - measures to minimise waste generation;
 - opportunities for recycling and/or re-use;
 - proposed treatment and disposal routes; and
 - licensing requirements.
- The plan will include an audit programme to be undertaken to demonstrate compliance with statutory requirements.
 - Spoil arising from the works which is classed as 'acceptable fill' will wherever practicable be used in construction works (dependent upon compliance with existing waste management legislation). To achieve this the *CL:AIRE Definition of Waste: Development Industry Code of Practice (DoW CoP)* will be employed, allowing the reuse of excavated materials.
 - The disposal of waste, including any surplus spoil, will be managed so far as is reasonably practicable to maximise the environmental and development benefits from the use of surplus material and reduce any adverse environmental effects of disposal. To achieve this the DoW CoP will be employed, allowing the movement and reuse of excavated materials between sites.
 - Provision will be made for a suitable environmental specialist to identify any 'hazardous waste' as defined in the *Hazardous Waste (England and Wales) Regulations 2005* so that it can be suitably managed and disposed of during works.
 - Appropriate precautions will be taken if materials containing asbestos are encountered. The contractor will observe the exposure limits and measurement methods for asbestos, set out in Health and Safety Executive (HSE) guidance document, *Asbestos: The analysts' guide for sampling, analysis and clearance procedures* (HSG 248) and will comply with HSE guidance document *Asbestos: The licensed contractors' guide* (HSG 247) in so far as these are applicable to the construction works.
 - The construction site will be made safe at night and measures will be implemented to prevent trapping or injury to wildlife, such as sealing off or providing means of escape from holes or trenches in excess of one metre in depth.
 - With these measures in place all identified temporary adverse impacts in relation to ground conditions will be mitigated.

6.3.7

Summary of Residual Effects

Implementation of the mitigation measures identified above will ensure that there will be no significant adverse effects nature relating to ground conditions as a result of the Project and after-use of the site.

A summary of the residual effects, monitoring and mitigation is provided in Table 6.1.

Table 6.1 *Ground Conditions and Contaminated Land Mitigation and Monitoring*

| Impact Type | Key Potential Effects (without mitigation) | Mitigation | Residual Effect | Means by which mitigation will be delivered |
|---|---|---|---|---|
| Ground Conditions and Contaminated Land | Effects from historic ground contamination | If required, supplementary investigations and risk assessments for the site | No significant residual effects predicted | Planning conditions for this application and development briefs |
| | | Appropriate design of additional remediation measures, if required | No significant residual effects predicted | Planning conditions for this application and development briefs |
| | | Validation of current site area (including remediation) | No significant residual effects predicted | Existing planning conditions for the reclamation works |
| | | Enforcement of safe, best practice working procedures during construction | No significant residual effects predicted | CoCP |

6.4 *ECOLOGY AND NATURE CONSERVATION*

6.4.1 *Introduction*

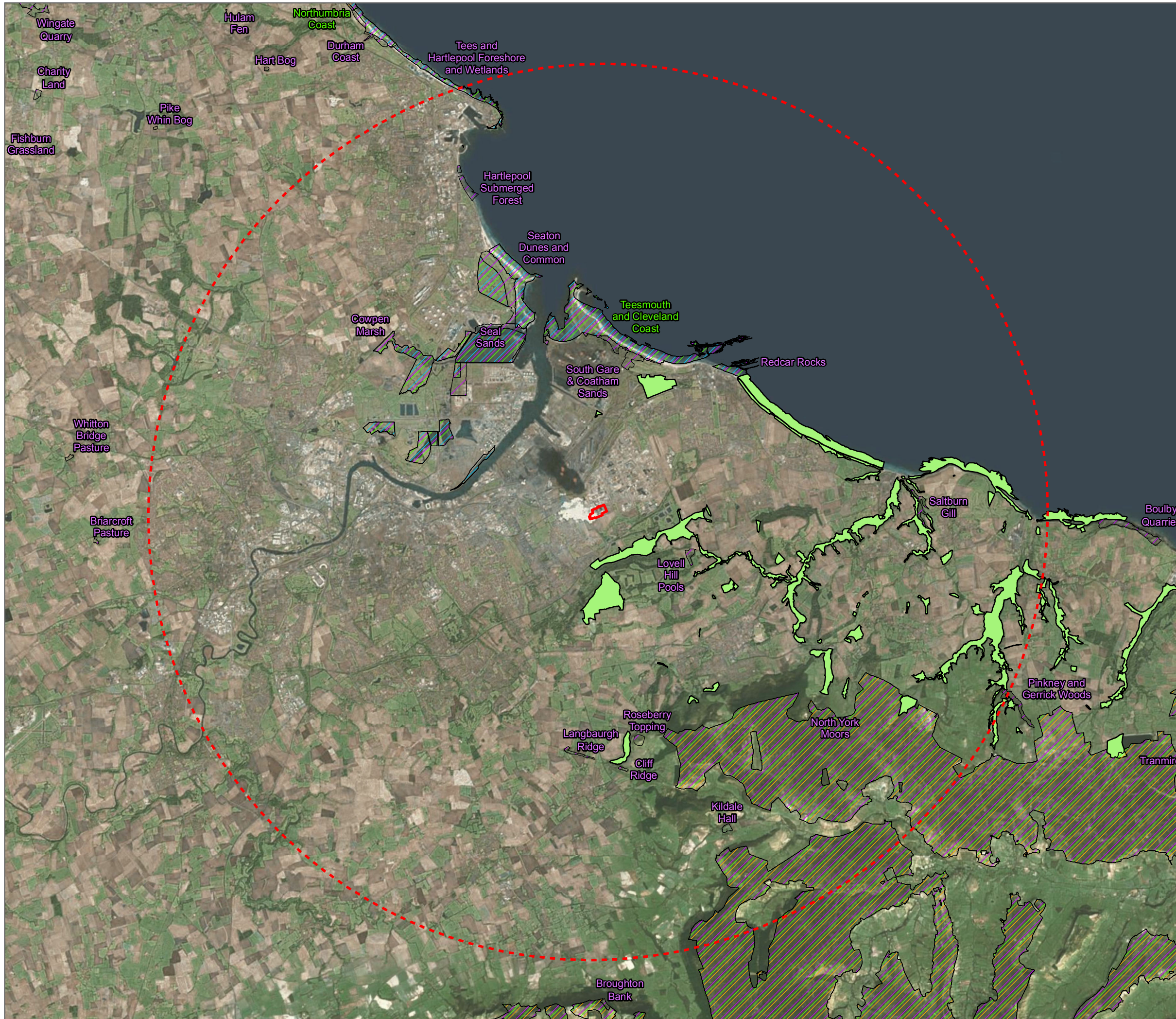
This section addresses the issues of ecology and nature conservation and details the approach to assessing the potential impacts of the Project in the EIA.

6.4.2 *Baseline conditions*

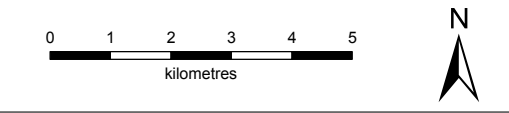
Locally Designated Sites

There is only one Local Wildlife Site (LWS) within a 2 km radius of the Project site. This is Wilton Woods, which is located 1.3 km to the south at its closest point. Wilton Woods is a woodland complex containing elements of ancient semi-natural woodland and plantation on ancient woodland sites. The location of LWS in relation to the Project site is shown in Figure 6.2 below.

There are no Local Nature Reserves within 2 km of the Project site.



- Indicative Site Boundary
- 15km Buffer of Site Boundary
- Site of Special Scientific Interest (SSSI)
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar
- Local Wildlife Site (LWS)



| | |
|------------------|--------------|
| SCALE: 1:125,000 | VERSION: A02 |
| SIZE: A3 | DRAWN: WB |
| PROJECT: 0375193 | CHECKED: RE |
| DATE: 15/02/2017 | APPROVED: RE |

Figure 6.2
Designated Sites (Ecology)



ERM



TEES CCPP
SECURING TEESIDE'S ENERGY FUTURE

PROJECTION: British National Grid

Nationally Designated Sites

There are 11 nationally designated sites within a 15 km radius of the Project site. The closest of these is North Tees Mudflats, which is a component of the Tees & Hartlepool Foreshore and Wetlands SSSI. This is an area of inter tidal mud along the north bank of the River Tees, approximately 4.3 km to the west. The full list of nationally designated sites, along with a brief description of their interest features is given in *Table 6.2* below with the location of those sites shown in *Figure 6.2*.

Table 6.2 *Nationally Designated Sites within a 15 km Radius of the Project Site*

| Designated Site | Distance from site | Description and interest features |
|---|--------------------|--|
| North York Moors SSSI | 7.7 km S | The North York Moors contain the largest continuous tract of heather moorland in England. The site is of national importance for its mire and heather moorland vegetation communities and of international importance for its breeding bird populations, particularly merlin and golden plover. |
| Roseberry Topping SSSI | 7.7 km S | A nationally important palaeobotanical site famous for its Middle Jurassic plant bed laid down about 170 million years ago. |
| Kildale Hall SSSI | 10.4 km S | Important for a sequence of minerogenic and organic deposits infilling a former kettlehole. These deposits have yielded a continuous palaeoenvironmental record from the Late Devensian to the Middle Flandrian. |
| Redcar Rocks SSSI | 6.4 km NE | Exposures of rock in the Lower Lias which display most of the stratigraphical interval missing from classic sections along the Yorkshire coast and which are composed of calcareous shales containing characteristic fossil ammonites. When exposed at low tide the rocks and sands provide an important feeding ground for several species of wading birds. |
| South Gare & Coatham Sands SSSI | 5.2 km N | Of considerable interest for its flora, invertebrate fauna and birdlife. The range of habitats present includes extensive tracts of intertidal mud and sand, sand dunes, saltmarsh and freshwater marsh. |
| Tees & Hartlepool Foreshore & Wetlands SSSI | 4.3 km W | A discontinuous site comprising several unconnected areas including freshwater pools, grazing marsh, inter tidal mud and rocky foreshore which together support large numbers of migratory and wintering waterbirds. |
| Cowpen Marsh SSSI | 7.3 km NW | Includes the largest saltmarsh between Lindisfarne and the Humber Estuary and together with adjacent coastal grazing marshes and mudflats it provides an important wintering site for migratory wildfowl and wading birds. |
| Seal Sands SSSI | 5.8 km N | An extensive area of intertidal mudflats, with tidal channels that are of great ornithological importance attracting large numbers of migratory wildfowl and wading birds especially during the winter months. |
| Seaton Dunes & Common SSSI | 6.8 km N | An area of considerable importance for its flora, invertebrate fauna, and bird life. The range of habitats present includes sandy, muddy and rocky foreshore, dunes, dune slacks and dune grassland. |
| Hartlepool Submerged Forest SSSI | 12 km N | A peat bed, in the intertidal area, the deposits from which been used to establish the pattern of relative sea level change over the last 5,000 years. |
| Teesmouth NNR | 5.8 km N | The National Nature Reserve (NNR) comprises parts of Seal Sands SSSI and Seaton Dunes & Common SSSI. |

Internationally Designated Sites

There are three internationally designated sites within a 15 km radius of the Project site. These are shown, along with their interest features, in *Table 6.3*.

Table 6.3 *Internationally Designated Sites within a 15 km Radius of the Project Site*

| Designated Site | Distance from site | Interest features |
|---|--------------------|--|
| Teesmouth & Cleveland Coast Special Protection Area | 4.3km W | <p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive.</p> <p>During the breeding season: Little tern <i>Sterna albifrons</i>, 37 pairs representing at least 1.5% of the breeding population in Great Britain (4 year mean 1993-1996).</p> <p>On passage: Sandwich tern <i>Sterna sandvicensis</i>, 2,190 individuals representing at least 5.2% of the population in Great Britain (5 year mean 1991-1995).</p> <p>This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species.</p> <p>On passage: Ringed plover <i>Charadrius hiaticula</i>, 634 individuals representing at least 1.3% of the Europe/Northern Africa - wintering population (5 yr mean spring 91-95).</p> <p>Over winter: Knot <i>Calidris canutus</i>, 4,190 individuals representing at least 1.2% of the wintering Northeastern Canada/Greenland/Iceland/Northwestern Europe population (5 year peak mean 1991/2 - 1995/6).</p> <p>Redshank <i>Tringa totanus</i>, 1,648 individuals representing at least 1.1% of the wintering Eastern Atlantic - wintering population (5 year peak mean 87-91).</p> <p>Assemblage qualification: A wetland of international importance.</p> <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.</p> <p>Over winter, the area regularly supports 21,406 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: sanderling <i>Calidris alba</i>, lapwing <i>Vanellus vanellus</i>, shelduck <i>Tadorna tadorna</i>, cormorant <i>Phalacrocorax carbo</i>, redshank <i>Tringa totanus</i>, knot</p> |

| Designated Site | Distance from site | Interest features |
|---|--------------------|--|
| | | <i>Calidris canutus</i> . |
| North York Moors Special Protection Area | 7.7km S | <p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive.</p> <p>During the breeding season: Golden plover <i>Pluvialis apricaria</i>, 526 pairs representing at least 2.3% of the breeding population in Great Britain.</p> <p>Merlin <i>Falco columbarius</i>, 40 pairs representing at least 3.1% of the breeding population in Great Britain.</p> |
| North York Moors Special Area of Conservation | 7.7km S | <p>Annex I habitats that are a primary reason for selection of this site.</p> <p>4010 Northern Atlantic wet heaths with <i>Erica tetralix</i></p> <p>This site in north-east Yorkshire within the North York Moors National Park contains the largest continuous tract of upland heather moorland in England. M16 <i>Erica tetralix</i> - <i>Sphagnum compactum</i> wet heath is the second most extensive vegetation type on the site and is predominantly found on the eastern and northern moors where the soil is less free-draining. Purple moor-grass <i>Molinia caerulea</i> and heath rush <i>Juncus squarrosus</i> are also common within this community. In the wettest stands bog-mosses, including <i>Sphagnum tenellum</i>, occur, and the nationally scarce creeping forget-me-not <i>Myosotis stolonifera</i> can be found in acid moorland streams and shallow pools.</p> <p>4030 European dry heaths</p> <p>This site in north-east Yorkshire within the North York Moors National Park contains the largest continuous tract of upland heather moorland in England. Dry heath covers over half the site and forms the main vegetation type on the western, southern and central moors where the soil is free-draining and has only a thin peat layer. The principal NVC type present is H9 <i>Calluna vulgaris</i> - <i>Deschampsia flexuosa</i>, with some H10 <i>Calluna vulgaris</i> - <i>Erica cinerea</i> heath on well-drained areas throughout the site, and large areas of H12 <i>Calluna vulgaris</i> - <i>Vaccinium myrtillus</i> heath on steeper slopes.</p> <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site.</p> <p>7130 Blanket bog.</p> |

All designated sites in the study area for the assessment are shown on *Figure 6.2*.

Existing Habitats

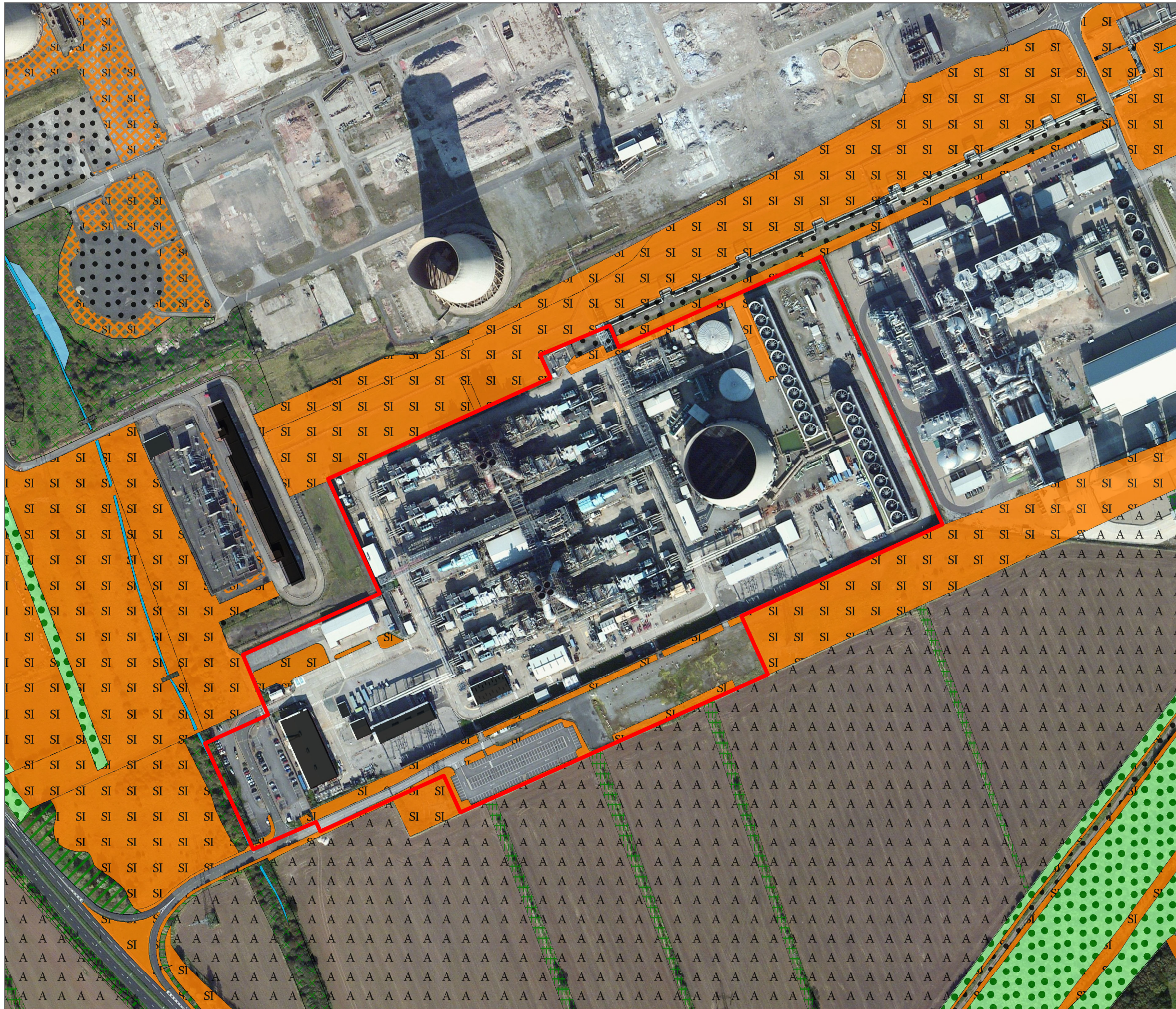
The majority of the Project site (around 9 ha) is made up of hard standing associated with the former power station. Former roads and other connecting areas are still present as intact concrete and where the structures have been removed those areas have been filled with crushed concrete. This area is effectively devoid of vegetation. Surrounding this area on three sides is a narrow strip of vegetation, 2- 10 m in width, which comprises ruderal plant species of low diversity. On the remaining side there is a small area of former amenity grassland.

Two buildings are located within the Project site. These are constructed from a combination of brick and metal sheets. They are well sealed and do not appear to provide any opportunities for roosting bats or nesting birds. They are within secured, fenced areas and sit on concrete hard standing so do not provide any opportunity for any other ecological receptors.

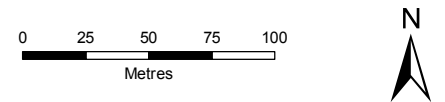
Two tarmac car park areas are located on the western and southern boundary. The car park on the western boundary has a few young whitebeam trees, *Sorbus* species. These are around 3 m in height and set in beds of bare gravel.

Along the southern boundary of the Project site and separated from the former power station site, there is a strip of grassland of around 0.75 ha in total. This is on a crushed iron slag base and varies in its vegetation composition from west to east. The vegetation is quite sparse though without sufficient structural variation to merit classification as the Priority Habitat, 'Open Mosaic Habitat'.

A provisional phase one survey of the Project site is provided in *Figure 6.3* below:



- Indicative Site Boundary
- A1.1.2 - Broadleaved woodland - plantation
- A1.3.1 - Mixed woodland - semi-natural
- A2.2 - Scrub - scattered
- B2.2 - Neutral grassland - semi-improved
- B3.2 - Calcareous grassland - semi-improved
- B6 - Poor semi-improved grassland
- F1 - Swamp
- G1 - Standing water
- G2 - Running water
- J1.1 - Cultivated/disturbed land - arable
- J2.1.2 - Intact hedge - species-poor
- J2.3.2 - Hedge with trees - species-poor
- J3.6 - Buildings
- J4 - Bare ground
- J5 - Other habitat



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| SCALE: 1:3,000 | VERSION: A02 |
| SIZE: A3 | DRAWN: GB |
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Figure 6.3
Phase 1 Ecology Survey



Existing Species

There is some potential for the presence of nesting birds near to the Project site boundary. This is principally for ground nesting birds but there is also some potential for certain finch species to nest in the young trees.

Brown hare has been recorded from the site but only as a single individual and there is not sufficient habitat to support the full habitat requirements of even a single brown hare

There is insufficient habitat, or else the habitat that is present is too isolated from other suitable habitat, to support other protected or priority species, other than small numbers of Lepidopteran species.

6.4.3 *Potential Effects*

Without mitigation the ecological effects that are assessed as being likely to be of above negligible magnitude are the potential disturbance to nesting birds near to the site boundary.

6.4.4 *Proposed Assessment Methodology*

Baseline Data Collection

INCA has carried out ecological surveys across much of the industrial land on South Tees over more than a 20 year period, including on the wider Wilton site and has been the main ecological organisation collecting ecological data in this location, accumulating a large number of species records relevant to this area. Therefore it is considered appropriate to use INCA data as the primary source for this report though the relevant Environmental Records Information Centre will be consulted to inform the PEIR and ES.

Surveys

It is proposed to carry out a walk-over survey of the entire Project site, which would identify and describe the various habitats on site. The resulting description would be more detailed than a Phase 1 survey but given the limited range and extent of semi-natural habitats on the Project site it is considered that a vegetation survey of the level of detail of a National Vegetation Classification survey would not be necessary.

No surveys are proposed for nesting birds. The numbers and species of nesting birds on any given site may vary from year to year so in circumstances such as this, where there is a low risk that some nesting birds would be present but not in significant numbers, it is considered more suitable that this matter is dealt with by way of a suitably worded planning condition to avoid harm to nesting birds.

No surveys are proposed for other protected or priority species. This is because the likelihood of such species being present, other than small numbers of Lepidopteran species, is considered to be negligible.

Ecological Impact Assessment (EcIA)

The EcIA would address the following issues.

- a list of existing records of protected or priority species within a 2 km radius of the Project site will be provided;
- the potential for protected or priority species to be present on the site and affected by the Project will be assessed;
- the potential for adverse effects on designated sites will be assessed;
- the likely effects on priority habitats would be assessed;
- mitigation measures will be recommended to address any adverse effects on ecological receptors; and
- proposals will be made for measures to enhance biodiversity in line with the requirements of the NPPF.

Habitats Regulations Assessment Information

The application will be accompanied by a Habitats Regulations Assessment (HRA), which will consider the likely significant effects on internationally designated sites, i.e. Natura 2000 sites and Ramsar sites. The HRA will consider the likely significant effects of the Project both alone and in combination with other plans and projects.

The HRA screening process will consider a range of possible effects; however, the only effect for which a likely pathway has been identified is associated with emissions to the atmosphere (and the deposition of nitrogen and acid). Emissions to the atmosphere will be modelled with respect to their dispersal in relation to internationally designated sites. The study area will encompass sites within a 15 km radius as it is considered that any effects beyond a 15 km radius would be not significant.

The internationally designated sites that have been identified within the 15 km radius are:

- Teesmouth and Cleveland Coast Special Protection Area;
- Teesmouth and Cleveland Coast Ramsar ⁽¹⁾;
- North York Moors SAC; and
- North York Moors SPA.

The likely significant effects will be assessed in terms of the conservation objectives and vulnerabilities of the sites and their constituent SSSIs. This acknowledges that different components or qualifying features of a site may

(1) Note: The SPA and Ramsar site have the same boundaries and qualifying features.

vary in the degree to which they are vulnerable to any particular effect. For example the Site Improvement Plan for Teesmouth and Cleveland Coast SPA only lists air quality as being an issue in terms of potential effects on sand dunes and by extension on the breeding little terns qualifying feature. Although at its nearest the SPA is 4.3 km away from the Project, the distance to the sand dunes which support the only current breeding colony of little terns is around 17 km from the Project site and that of the nearest sand dunes which have the potential to support breeding little tern is in excess of 6 km. Consequently the probability of a likely significant effect on internationally designated sites is considered to be low, subject to the results of thorough air quality modelling.

The HRA will be undertaken with reference to best practice guidance including the IPC, Advice note 10: Habitat Regulations Assessment.

6.5 NOISE AND VIBRATION

6.5.1 Introduction

This section addresses the issue of noise and details the proposed approach to assessing the impacts of the Project on sensitive noise receptors.

6.5.2 Baseline Conditions and Sensitivities

The site is appropriate for this type of development and sufficiently separated from noise sensitive receptors (NSR). The residential communities and other potentially NSRs around the site are shown in *Figure 6.4* and listed in *Table 6.4*. These noise sensitive communities are already potentially affected by noise from the industrial facilities on the existing Wilton site, as well as by road traffic and other sources.

Table 6.4 Noise Sensitive Receptors (NSRs)

| NSR Number | NSR Description |
|------------|--|
| 1 | Derwentwater Road, Grangetown |
| 2 | High Street, Lackenby |
| 3 | High Street, Lazenby |
| 4 | Wilton Village |
| 5 | Yearby Village |
| 6 | Troisdorf Way, Kirkleatham Business Park |
| 7 | Hobson Avenue, Dormanstown |

6.5.3 Potential Effects

Construction Phase

Construction noise, vibration and traffic noise will need to be considered based on the current design. Given the separation distances of receptors from possible construction-phase vibration sources there are not likely to be any significant effects. Also given that the site can be accessed via major roads

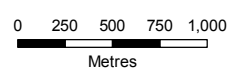
which already serve the industrial estate, noticeable changes in traffic noise are unlikely. Project information and existing levels of road traffic will be considered to undertake a high-level assessment based on the worst phase of traffic movements and construction.

Operational Phase

The site is appropriate for this type of development and sufficiently separated from noise sensitive receptors. However, the noise from on-site operation of the Project will need to be assessed in terms of BS 4142 which is the appropriate standard for the assessment of industrial noise. Since this standard was revised in 2014, it will be necessary to complete a new survey of existing baseline noise levels, run a new operational noise model and accordingly undertake a revised assessment.



- ★ Noise Monitoring Location
- ★ Noise Sensitive Receptor
- Indicative Site Boundary



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| SCALE: 1:40,000 | VERSION: A02 |
| SIZE: A3 | DRAWN: WB |
| PROJECT: 0375193 | CHECKED: MF |
| DATE: 15/02/2017 | APPROVED: RE |

Figure 6.4
Noise Sensitive Receptors



PROJECTION: British National Grid

The scope of the noise survey and overall assessment will be discussed with RCBC and a suitable and proportionate methodology will be agreed. Although limits were effectively set at the site, baseline noise levels are likely to require updating in accordance with current standards and to account for baseline changes. This is a highly variable site regarding noise as previous EIA work in the area has demonstrated.

Whilst it is our current assumption that the previous planning limits may no longer apply, and so design limits for the new plant will need to be based on the current baseline noise and the BS 4142 criteria, this will be confirmed with RCBC during the EIA process. However, the BS 4142 criteria do take into account the context of the noise impact, and the long term historical noise levels in this area may still be relevant to the assessment. This may be the case if the overall noise in the area will go down compared to historical levels when the Project is built.

The scope of the prediction and assessment will be discussed with RCBC (specifically the environmental health officer) and should allow the scope of the noise assessment to be appropriately fixed (and ideally limited), particularly since suitable remedial measures can be readily accommodated into the design of the new plant to reduce the impact of noise to acceptable levels and the nearest sensitive receptors are in excess of 500 m from the site boundary). The nearest and most critical noise receptors are in Grangetown, Lackenby and Lazenby and it is expected that the focus of baseline monitoring and noise prediction will be in these areas. Since noise is monitored continuously at Lazenby on the northern side of houses in Wilton Green (see *Figure 6.4 Noise Monitoring Location (NML) 1*) under existing arrangements, it is proposed that these data are used to establish current baseline noise levels. Noise will also be monitored at a proposed location NML 2 Grangetown (Kingsley Road /Shakespeare Avenue). It is envisaged that data will be recorded over a period of two weeks under suitable weather conditions for BS 4142 baseline. The exact location of NML 2 will be confirmed subject to discussions with RCBC and access arrangements. Predictions will include the steady state operation of the Project and start-up and shut-down conditions.

Based on experience of similar projects it is not expected that it will be necessary to make a detailed consideration of the effects on people of traffic noise during operation due to the limited level of operational traffic and the Project site's proximity to suitable road infrastructure.

6.5.4

Proposed Assessment Methodology: Construction Phase

Construction Plant Noise

Noise levels will be predicted using the methods set out in British Standard 5228 ⁽¹⁾. This standard provides guidance on construction plant noise levels and on the threshold of significant noise effects on dwellings.

Predicted noise levels will be compared with the noise criteria in *Table 6.5*.

Table 6.5 *Threshold of Significant Effects of Construction (and Decommissioning) Noise at Dwellings*

| Threshold of Significant Effect of Construction Noise at Dwellings | Threshold Value, dB | | |
|--|---------------------------|---------------------------|---------------------------|
| | Category A ^(a) | Category B ^(b) | Category C ^(c) |
| Night-time (23.00 – 07.00) | 45 | 50 | 55 |
| Evenings and weekends ^(d) | 55 | 60 | 65 |
| Daytime (07.00 – 19.00) and Saturdays | 65 | 70 | 75 |
| Note 1: All sound levels are defined at the façade of the receptor. | | | |
| Note 2: If the ambient noise level exceeds the threshold values given in the table (i.e. the ambient noise level is higher than the above values), then a significant effect is deemed to occur if the total L_{Aeq} noise level for the period increases by more than 3 dB due to construction activity. | | | |
| Note 3: (a) Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values. (b) Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values. (c) Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than the category A values. (d) 19.00 – 23.00 weekdays, 13.00 – 23.00 Saturdays and 07.00 – 23.00 Sundays. | | | |

Construction Traffic Noise Prediction

Changes in road traffic noise levels resulting from construction (and decommissioning) of the Project are calculated using the Calculation of Road Traffic Noise (CRTN) methodology. Noise changes of greater than 3 dB(A) will be identified as a significant effect. This corresponds to the smallest noise change that is audible under normal conditions.

In cases where the existing traffic noise is very low, the absolute levels of noise are also taken into account when establishing significance of road noise effect. The significance of effect will also depend on the duration over which the change will take place.

(1) BS 5228: 1997 'Noise and vibration control on construction and open sites', BSI, 1997

6.5.5 *Proposed Assessment Methodology: Operation*

Planning Policy

The Noise Policy Statement for England (NPSE), 2010 sets out the highest level of national noise policy in England, as summarised in *Box 6.1*.

Box 6.1 The Noise Policy Statement for England (2010)

| Noise Policy Aims |
|--|
| <p>Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development:</p> <ul style="list-style-type: none">• avoid significant adverse impacts on health and quality of life;• mitigate and minimise adverse impacts on health and quality of life; and• where possible, contribute to the improvement of health and quality of life. |

Government's guiding principles of sustainable development include: ensuring a strong, healthy and just society; using sound science responsibly; living within environmental limits; achieving a sustainable economy; and promoting good governance.

The first two aims of the NPSE follow established concepts from toxicology that are applied to noise impacts, for example, by the World Health Organisation as follows.

- **NOEL:** No Observed Effect Level is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to the noise.
- **LOAEL:** Lowest Observed Adverse Effect Level is the level above which adverse effects on health and quality of life can be detected.
- The NPSE extends these to the concept of a Significant Observed Adverse Effect Level: **SOAEL**, which is the level above which significant adverse effects on health and quality of life occur.

The NPSE notes:

"It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times".

The NPPF took on board the aims of the NPSE and at paragraph 109 and added that the planning system should contribute to and enhance the natural

and local environment by: preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of noise pollution.

Government's Planning Practice Guidance on noise (PPG) 2014, provides guidance on the effects of noise exposure, relating these to people's perception of noise, and linking them to the NOEL and, as exposure increases, the LOAEL and SOAEL.

The LOAEL is described in PPG as the level above which:

"noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life."

PPG identifies the SOAEL as the level above which;

"noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area."

The PPG advises that as noise exposure increases above the LOAEL, the noise begins to have an adverse effect and consideration needs to be given to mitigating and minimising those effects, taking account of the economic and social benefits being derived from the activity causing the noise. As the noise exposure increases, it will then at some point cross the SOAEL boundary. If the exposure is above SOAEL the planning process should be used to avoid this effect occurring, by use of appropriate mitigation such as by altering the design and layout. Again, such decisions must be made taking account of the economic and social benefit of the activity causing the noise, but it is undesirable for such exposure to be caused. At the highest extreme, noise exposure causes extensive and sustained changes in behaviour without an ability to mitigate the effect of noise. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this represents an unacceptable adverse effect and these situations should be prevented from occurring.

BS4142 Methods for Rating and Assessing Industrial and Commercial Sound

The guidance used for the assessment of sound of an industrial and/or commercial nature is *BS 4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound, British Standards Institute*. The current version of the standard is applicable to investigating complaints; assessing sound from

proposed, new, modified or additional sources of sound; and for assessing sound at proposed new dwellings or premises used for residential purposes.

The methods described in BS 4142 use outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling used for residential purposes.

BS 4142 is applicable for the determination of the following levels:

- 'rating levels' of an industrial and/or commercial sounds;
- 'ambient', 'background' and 'residual' sound levels, for the purposes of investigating complaints, assessing sound from proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature and assessing sound at proposed new dwellings or premises used for residential purposes.

The principal terms used in BS 4142 are broadly defined as follows.

- **Ambient Sound** is the overall sound level from all sources.
- **Specific Sound Level**, $L_s = L_{Aeq,Tr}$ is the noise source under consideration.
- **Rating Level**, $L_{Ar,Tr}$ is the residual noise corrected to allow for certain distinctive acoustic features.
- **Residual Sound Level**, $L_r = L_{Aeq,T}$ is the noise remaining when the specific noise is sufficiently suppressed so as not to contribute to the ambient noise level.
- **Background Sound Level**, $L_{A90,T}$ is the measured L90 level of the residual noise.

The method requires the measurement or prediction of equipment or plant noise (specific sound level) plus a correction for its acoustic character. A comparison is then made between the rating level and the background sound level in consideration of the following overall guiding assessment values to provide an understanding of the potential for, and significance of effect(s).

- Typically, the greater this difference, the greater the magnitude of the impact.
- A difference of around +10 dB or more is likely to be an indication of significant adverse impact, depending on the context.
- A difference of around +5 dB is likely to be an indication of an adverse effect, depending on the context.
- The lower the rating level is relative to the measured background sound level, it is less likely that the specific sound source will have an adverse effect or a significant adverse effect.
- Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a small impact, depending on the context.

The rating level of the source is the A-weighted L_{eq} taking into consideration the following characteristics of the sound source: tonality, impulsiveness; intermittency, time of occurrence, duration of event, and any other characteristics of the sound source that are likely to be distinctive in the environment. In this case planning conditions for the operating plant require it to have no tonal content, so there are no corrections to be added to the specific sound levels to arrive at the rating level.

BS4142 requires an initial estimate of the specific sound to be carried out which may later be modified by further consideration of the *context*. The standard differs from the previous (1997) version in several ways, and the consideration of context is one of the most important. A series of examples are given in which the initial numerical estimate is interpreted for a given context to arrive at the assessment of significance.

Where the initial estimate of the impact needs to be modified due to the context, the following factors need to be considered:

- the absolute level of sound where background sound levels and rating levels are low;
- where residual sound levels are very high and the residual sound might itself result in noise impacts;
- the character and level of the residual sound compared to the character and level of the specific sound;
- evidence on likely human response to sound including references given in BS 4142; and
- the sensitivity of the receptor including façade insulation, acoustic ventilation or screening which will secure good acoustic conditions and reduce receptor sensitivity.

As in the previous (1997) version, the current version of BS 4142 makes reference to BS 8233 for consideration of absolute (or benchmark) standards for noise which, as indicated in the examples, it recommends for the assessment of impacts when noise levels are low.

BS8233: 2014, Guidance on Sound Insulation and Noise Reduction for Buildings, 2014

Benchmark noise criteria for various building uses are provided in BS 8233 ⁽¹⁾. The British Standard gives guidelines for avoiding disturbance at night which includes 30 dB L_{Aeq} at night between 2300 and 0700 inside residential buildings. The external noise levels that are equivalent to this value are typically 10 to 15 dB higher with windows open so that a reasonable benchmark would vary between 40 and 45 dB L_{Aeq} (free-field 2300-0700 hours). These noise targets, which apply outside a building, are based on preserving good standards for sleep within the building. The night-time criterion does

(1) BS8233: 2014, Guidance on Sound Insulation and Noise Reduction for Buildings, BSI, 2014.

not aim primarily to preserve residential amenity outside the buildings and is less stringent than BS 4142 initial estimate criteria in areas where baseline noise levels are low. BS 8233 recommends the use of BS 4142 for the purposes of assessing noise changes, noting that noise changes should be considered in the context of the absolute levels of noise.

An external criterion of 50 to 55 dB LAeq (free-field 0700-2300 hours) has been proposed for more typical daytime activities. External areas such as gardens should also meet a desirable level of 50 dB LAeq where practicable.

The derived standards assume that buildings are not fitted with noise insulation, so higher external noise levels could be acceptable to residents if noise insulation and ventilation were provided which resulted in suitable internal noise levels.

Baseline Data Acquisition

Since there has been a long-term monitor at the Lazenby for some time this may provide useful data and will be analysed to confirm if these data can provide a baseline as required by BS 4142. This will be supplemented with updated measurements at the closest receptors to enable an accurate assessment of noise impacts. RCBC will be consulted in order to determine an appropriate approach to completing the baseline data acquisition and obtaining a representative baseline at selected NSRs.

6.6 AIR QUALITY

6.6.1 Introduction

This section details the approach to be used in assessing the potential impacts of the Project on air quality.

6.6.2 Baseline Conditions and Sensitivities

The Project would be a new source of emissions in the Wilton Works area as the Project site is currently unused. There are sensitive human receptors in the vicinity of the site, particularly Grangetown, Lackenby and Lazenby residential areas. Several National and European designated ecological receptors including Ramsar, SPAs, SACs and SSSIs are located within the study area, defined as a 15 km radius from the site's boundary ⁽¹⁾. Relevant receptors, both human and ecological, will be identified and included in the impact assessment.

(1) Defra, 2016. Environmental management – guidance. Air emissions risk assessment for your environmental permit, Last updated 2nd August 2016 (formerly referred to as H1 Annex F). Available at <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit> (Accessed 18 January 2017)

A review will be undertaken to identify relevant ambient air quality monitoring data, for example, undertaken by local authorities or as part of the UK Automatic Urban and Rural Network (AURN). The most recent Defra background maps (currently 2013) will be used to obtain background concentrations when no relevant air quality monitoring data are available. In addition, baseline data pertaining to individual habitats is set out within UK Air Pollution Information Service (APIS) for all SACs, SPAs and SSSIs. These data will be used to produce an informed baseline for the study area.

6.6.3

Potential Effects

Construction Phase

During the construction phase, significant air quality effects on people have the potential to arise from construction traffic and construction dust at nearby sensitive receptors. The impact of construction traffic emissions will be assessed, the pollutants of interest being oxides of nitrogen (NO_x), nitrogen dioxide (NO₂), and particulate matter (as PM₁₀⁽¹⁾ and PM_{2.5}⁽²⁾). Dust and PM₁₀/PM_{2.5} produced by the construction activities will be considered.

Operational Phase

During operation the Project will utilise natural gas as the fuel. On this basis, the emissions of interest will be NO_x and NO₂; all other emissions (for example SO₂, CO and PM₁₀/PM_{2.5}) will be negligible. The impacts of NO₂ will be studied for their potential effects on sensitive human receptors in the study area, focussing on the maximum off-site impacts. For ecological receptors, in addition to NO_x, nutrient nitrogen deposition and acid deposition will be assessed. Consideration will be made of Ramsar, SPAs, SACs and SSSIs within 15 km of the Project site, and national and local nature reserves and ancient woodlands within 2 km of the Project site. These sites are shown on *Figure 6.5* below.

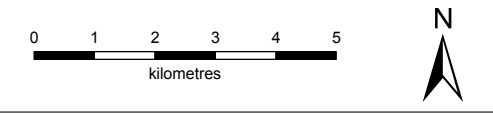
Emissions from traffic during the operational phase are not considered to have any likely significant effects on people or ecological receptors and are therefore scoped out of this assessment.

(1) PM₁₀: Particulate matter which passes through a size selective inlet with a 50% efficiency cut-off at 10 µm aerodynamic diameter (European Directive 2008/50/EC)

(2) PM_{2.5}: Particulate matter which passes through a size selective inlet with a 50% efficiency cut-off at 2.5 µm aerodynamic diameter (European Directive 2008/50/EC)



- Indicative Site Boundary
- 15km Buffer of Site Boundary
- Site of Special Scientific Interest (SSSI)
- Special Protection Area (SPA)
- Special Area of Conservation (SAC)
- Ramsar
- Local Wildlife Site (LWS)
- Ancient Woodland



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| SCALE: 1:125,000 | VERSION: A02 |
| SIZE: A3 | DRAWN: WB |
| PROJECT: 0375193 | CHECKED: CHM |
| DATE: 15/02/2017 | APPROVED: RE |

Figure 6.5
Air Quality Sensitive Receptors



PROJECTION: British National Grid

Baseline Data Acquisition

Baseline information such as background concentrations and current monitoring data will be obtained from:

- Defra background mapping for NO₂, NO_x and if required PM₁₀ and PM_{2.5};
- Defra Automatic Urban and Rural Network AURN ⁽¹⁾ ;
- Local Authorities latest monitoring reports, particularly from Redcar & Cleveland Borough, Middlesbrough Borough, Stockton-on-Tees Borough Hambleton District and Scarborough District; and
- air quality annual report for Tees Valley produced by the Tees Valley Environmental Protection Group.

Construction Effects

For the construction phase, consideration will be required of traffic generated by the Project, and dust as a result of construction activities. Changes in air quality from traffic emissions are not expected to have significant effects on people (or ecological receptors), and will be considered using basic screening techniques based upon guidance from the Institute of Air Quality Management (IAQM).

Dust impacts could have potentially significant effects. Guidance from the IAQM ⁽²⁾ will be used to identify the risk of nuisance and health impacts, given the proximity of receptors to the construction site, the nature of construction activities and the size and nature of construction activities. Following the IAQM Guidance the assessment will identify the risk of significant effects arising, and provide mitigation to control emissions to an acceptable level.

Operational Effects

For the operational phase, the impacts associated with the Project will be identified using detailed dispersion modelling. The AERMOD dispersion model will be used. This model is accepted for use in this type of study by the EA. The dispersion model will be populated on the basis of the understanding of emissions, stack parameters and plant design obtained from vendor information and a review of design information (using a reasonable worst case scenario when final design information is not available). Other parameters required for the model, for example, terrain characteristics, meteorological data and land use will be considered on the basis of a review of the Project and its environs. Five years of meteorological data will be used

(1) Automatic Urban and Rural Network (AURN). Data available at <https://uk-air.defra.gov.uk/networks/network-info?view=aurun> (Accessed 18 January 2017)

(2) IAQM, 2016. Guidance on the assessment of dust from demolition and construction. Version 1.1.

in the modelling; an initial review of available sites identified that Durham Tees Valley Airport is considered to be representative of the Project site.

The model output will be assessed by comparison to the relevant air quality standards and guidelines for the protection of human health, and critical loads and critical level for the protection of sensitive habitats to assess the significance of effects.

6.6.5 *Relevant Legislation and Guidance*

The principle legislation and data sources considered in the study are:

- the Air Quality Standards Regulations 2010, which sets out the air quality standards for human health;
- the Defra guidance on air emissions risk assessment for your environmental permit ⁽¹⁾ (formerly H1 annex F);
- the Institute of Air Quality Management guidance documents ^{(1), (2)}; and
- information pertaining to sensitive ecological receptors set out on the APIS website ⁽³⁾.

Requirements for ecological receptors such as Ramsar, SPAs, SACs and SSSIs to be considered in the assessment are set out in the Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 as amended. The relevant standards and guidelines that provide a framework for assessing air quality effects on sensitive ecological receptors within these regulations are derived from a number of sources and are set out on the APIS website.

6.7 *ARCHAEOLOGY AND CULTURAL HERITAGE*

6.7.1 *Introduction*

A site visit was undertaken in December 2016 to assess potential effects on cultural heritage and landscape of the Project. This note summarises potential effects on cultural heritage. The observations made here are presented in the light of government planning policy set out in the NPS and the NPPF as well as professional standards produced by the Chartered Institute for Archaeologists (CIfA).

(1) Defra, 2016. Environmental management – guidance. Air emissions risk assessment for your environmental permit, Last updated 2nd August 2016 (formerly referred to as H1 Annex F). Available at <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit> (Accessed 18 January 2017)

(2) IAQM, 2015. Land-Use Planning & Development Control: Planning for Air Quality. Version 1.1.

(3) Centre for Ecology and Hydrology (2010) UK Air Pollution Information Service <http://www.apis.ac.uk/>

The Project site lies within Wilton International, a major process manufacturing complex originally set up by ICI on the alluvial plain south of the Tees Estuary in the period after World War II (WWII). The Project site occupies the southwestern corner of the complex, and covers approximately 19 ha. Historically the site fell within Wilton Parish, providing pasture for farms lying at the foot of the high ground of the North Yorkshire moors that overlooks the Tees Estuary from the south.

6.7.2

Baseline

Overview

The Project site itself is a former power station site that has been subject to extensive construction and demolition works.

In general terms the landscape of the area of Teesside to the west of Redcar has been transformed with the construction of the ICI facility after WWII. The setting of the various heritage assets in the vicinity of Wilton International is therefore already very substantially affected by its presence. The character of the surrounding landscape has meant that historic settlement has tended to be focussed along the higher ground at the southern fringe of the alluvial plain (e.g. Wilton, Lazenby, Lackenby and Eston). The main exception to this is Kirkleatham, the core of a major seventeenth century estate created by the Turner family.

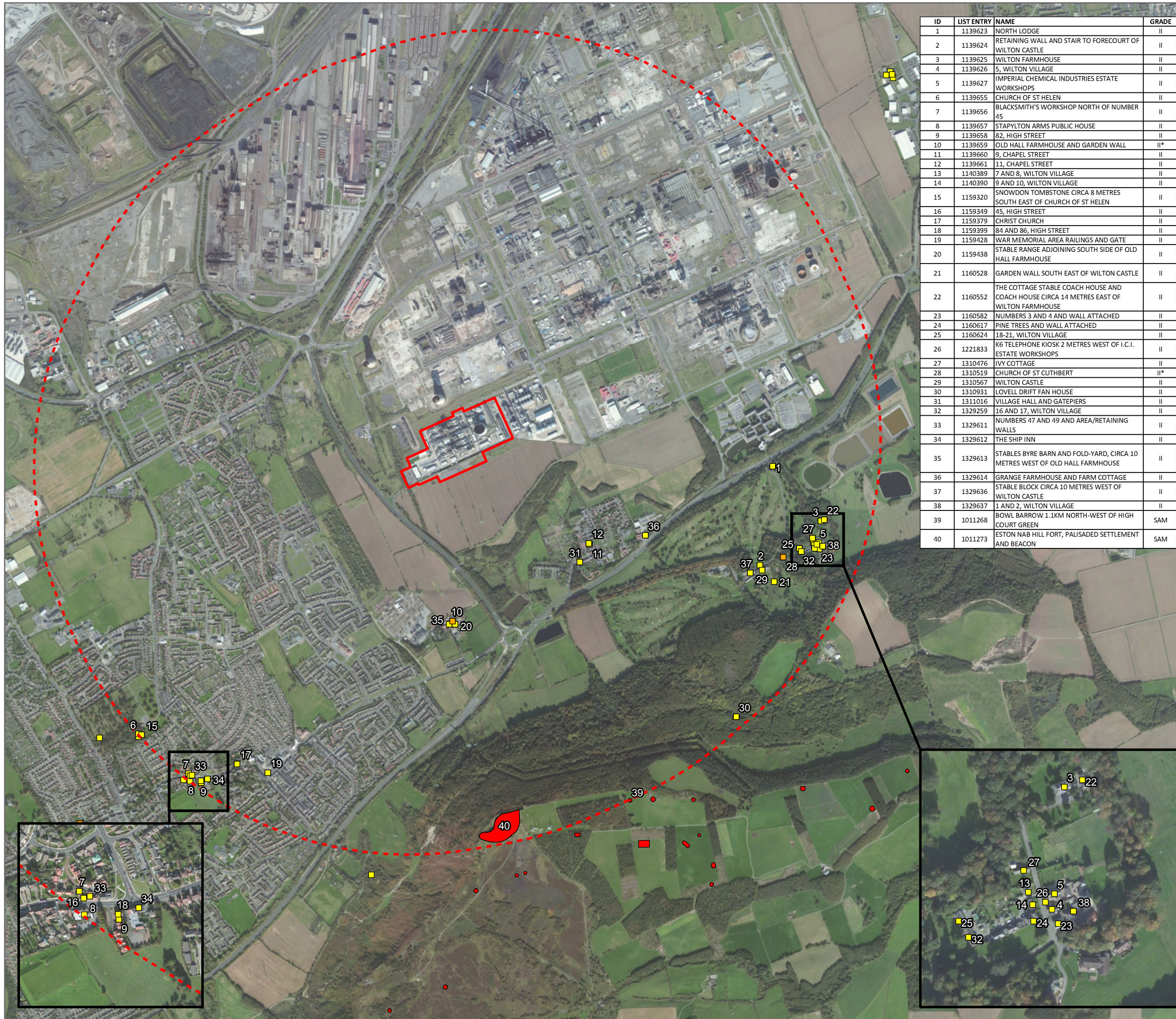
List building and scheduled monument for the study area are shown on *Figure 6.6* below.

Buried Archaeology

An ES approved for the refurbishment of the now demolished former plant in 2008 concluded that there were unlikely to be any buried archaeological remains surviving on the Project site and that no mitigation measures would be required during development. It is therefore recommended that buried archaeology be scoped out of the present application.

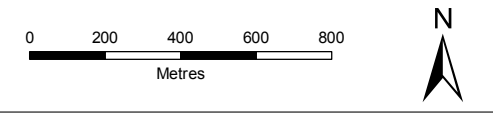
Kirkleatham

There are a series of Grade I Listed Buildings at Kirkleatham built by the Turners. These are located more than 2.5 km to the east of the Project site and any views towards it are likely to be masked by intervening trees, hedges and other elements of industrial infrastructure.



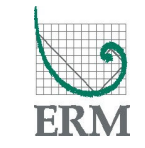
| ID | LIST ENTRY | NAME | GRADE |
|----|------------|---|-------|
| 1 | 1139623 | NORTH LODGE | II |
| 2 | 1139624 | RETAINING WALL AND STAIR TO FORECOURT OF WILTON CASTLE | II |
| 3 | 1139625 | WILTON FARMHOUSE | II |
| 4 | 1139626 | 5, WILTON VILLAGE | II |
| 5 | 1139627 | IMPERIAL CHEMICAL INDUSTRIES ESTATE WORKSHOPS | II |
| 6 | 1139655 | CHURCH OF ST HELEN | II |
| 7 | 1139656 | BLACKSMITH'S WORKSHOP NORTH OF NUMBER 45 | II |
| 8 | 1139657 | STAPYLTON ARMS PUBLIC HOUSE | II |
| 9 | 1139658 | 82, HIGH STREET | II |
| 10 | 1139659 | OLD HALL FARMHOUSE AND GARDEN WALL | II* |
| 11 | 1139660 | 9, CHAPEL STREET | II |
| 12 | 1139661 | 11, CHAPEL STREET | II |
| 13 | 1140389 | 7 AND 8, WILTON VILLAGE | II |
| 14 | 1140390 | 9 AND 10, WILTON VILLAGE | II |
| 15 | 1159320 | SNOWDON TOMBSTONE CIRCA 8 METRES SOUTH EAST OF CHURCH OF ST HELEN | II |
| 16 | 1159349 | 45, HIGH STREET | II |
| 17 | 1159379 | CHRIST CHURCH | II |
| 18 | 1159399 | 84 AND 86, HIGH STREET | II |
| 19 | 1159428 | WAR MEMORIAL AREA RAILINGS AND GATE | II |
| 20 | 1159438 | STABLE RANGE ADJOINING SOUTH SIDE OF OLD HALL FARMHOUSE | II |
| 21 | 1160528 | GARDEN WALL SOUTH EAST OF WILTON CASTLE | II |
| 22 | 1160552 | THE COTTAGE STABLE COACH HOUSE AND COACH HOUSE CIRCA 14 METRES EAST OF WILTON FARMHOUSE | II |
| 23 | 1160582 | NUMBERS 3 AND 4 AND WALL ATTACHED | II |
| 24 | 1160617 | PINE TREES AND WALL ATTACHED | II |
| 25 | 1160624 | 18-21, WILTON VILLAGE | II |
| 26 | 1221833 | K6 TELEPHONE KIOSK 2 METRES WEST OF I.C.I. ESTATE WORKSHOPS | II |
| 27 | 1310476 | IVY COTTAGE | II |
| 28 | 1310519 | CHURCH OF ST CUTHBERT | II* |
| 29 | 1310567 | WILTON CASTLE | II |
| 30 | 1310931 | LOVELL DRIFT FAN HOUSE | II |
| 31 | 1311016 | VILLAGE HALL AND GATEPIERS | II |
| 32 | 1329259 | 16 AND 17, WILTON VILLAGE | II |
| 33 | 1329611 | NUMBERS 47 AND 49 AND AREA/RETAINING WALLS | II |
| 34 | 1329612 | THE SHIP INN | II |
| 35 | 1329613 | STABLES BYRE BARN AND FOLD-YARD, CIRCA 10 METRES WEST OF OLD HALL FARMHOUSE | II |
| 36 | 1329614 | GRANGE FARMHOUSE AND FARM COTTAGE | II |
| 37 | 1329636 | STABLE BLOCK CIRCA 10 METRES WEST OF WILTON CASTLE | II |
| 38 | 1329637 | 1 AND 2, WILTON VILLAGE | II |
| 39 | 1011268 | BOWL BARROW 1.1KM NORTH-WEST OF HIGH COURT GREEN | SAM |
| 40 | 1011273 | ESTON NAB HILL FORT, PALISADED SETTLEMENT AND BEACON | SAM |

- Indicative Site Boundary
- 2km Buffer of Site Boundary
- Listed Building:**
- Grade I
- Grade II*
- GRADE II
- Scheduled Monument



| | |
|------------------|--------------|
| SCALE: 1:20,000 | VERSION: A02 |
| SIZE: A3 | DRAWN: WB |
| PROJECT: 0375193 | CHECKED: CLQ |
| DATE: 15/02/2017 | APPROVED: RE |

Figure 6.6
Listed Buildings and Scheduled Ancient Monuments Within 2km



PROJECTION: British National Grid

Wilton

Wilton is a settlement recorded in the Domesday Book. The manor house there was fortified in the early thirteenth century. The current 'castle' is a late Victorian reconstruction built by the Lowther family, who owned the land that was sold to ICI to create the Wilton industrial complex in 1945. There is a designed view from the terrace in front of the main southern façade of the Castle (both are Grade II Listed Buildings) looking across Wilton International (see LVIA draft viewpoint 13). Effects of the Project on this view are likely to be marginal at the most as the Project site lies on the left side of this view, partly obscured by vegetation. The remaining listed buildings at Wilton, including the Grade II* Church of St Cuthbert, do not have long-distance views because of surrounding woodland.

Lazenby

There is a small group of Grade II listed buildings at Lazenby, the core of which is historic (shown on the earliest maps of the area). The only one whose significance may be very slightly affected by the Project is Grange Farm, on the eastern edge of the village but any effects will not be significant.

Lackenby

No significant effects are anticipated on the group of listed buildings at Lackenby including the Grade II* Old Hall farmhouse owing to intervening structures and vegetation.

Eston Nab

Of all the heritage assets in the area, the scheduled Iron Age defences on the summit of Eston Nab, the highest point of the ridge to the south of Wilton International, are most likely to be affected by the Project. However its distance from the Project and the existing heavily industrialised nature of the Teesside landscape would mean that any effects are unlikely to be significant.

6.7.3

Potential Effects

It is unlikely that the Project will have a significant effect on the significance of designated heritage assets in the area. However the requirements of the NPPF suggest that this should be documented in the EIA with appropriate illustrations once the full Project details are available. Further detail on how this will be undertaken in association with the landscape and visual assessment is provided in *Section 6.15*.

Buried archaeology can be scoped out of the assessment as no intrusive works or ground disturbance are proposed outside of the former power station footprint, particularly to the west or south on land which remains undeveloped.

6.8 *TRAFFIC AND TRANSPORT*

6.8.1 *Introduction*

This section addresses the issue of traffic and details the proposed approach to assessing the impacts of the Project arising from changes in traffic.

6.8.2 *Baseline Conditions and Sensitivities*

The surrounding area is highly industrialised with port facilities, oil refineries and chemical works. Access to the site is gained via a left in left out junction onto the A1053 dual carriageway road to the west of the site. Vehicles turning right into the site are therefore required to undertake a U-turn at the A1053/A66/A1053 Westgate Roundabout junction to the north, while those wishing to turn right out of the site undertake a U-turn at the A174/A1053/B1300 Greystone Roundabout to the south.

It is anticipated that the vehicles generated by both the construction and operational phases of the Project would access the site via the existing access onto the A1053.

6.8.3 *Potential Effects*

Construction Phase

The construction phase will last for approximately three years, it is therefore reasonable to assume that any transport impact associated with the construction phase will be for a temporary period only.

Numbers of HGV movements and abnormal indivisible loads during the construction phase are not yet available although it is probable that heavy good vehicle (HGV) movements will peak at 30-40 per day. The previous application (the approved 2008 ES for the refurbishment of the former power station) included a construction programme which showed peak flows during construction of 5 HGVs and 2 Special Loads per day.)

Numbers of construction workers will vary throughout the Project based upon the current construction phase/activity, and are not yet fully defined but are thought to be approximately 945 staff at the peak of construction. The previous application predicted a peak of 650 employees during construction.

Construction worker travel is largely expected to be by car/van with a majority of workers likely to be vehicle sharing due to workers generally operating in 'teams' reducing the number of associated trips.

Operational Phase

Once operational the Project will operate in much the same way as the recently demolished power station and therefore the levels of trip generation

associated with the Project are likely to be similar to those recently generated by the site.

6.8.4 *Proposed Assessment Methodology*

Overview of Transport Assessment Scope

The Transport Assessment (TA) will focus upon the salient transport planning matters during the construction and operational phases of the Project.

The TA will include the following.

- The key characteristics of the existing site and its surrounds will be described in terms of:
 - site location, including site access and internal arrangements;
 - adjacent highway network characteristics, including traffic surveys at the A1085/A66/A1053 Westgate Roundabout and the A174/A1053/B1300 Greystone Roundabout;
 - consideration of highway safety in the local area including a review of personal injury accident data for the last five-year period; and
 - accessibility via walking, cycling and public transport. A travel to work mode share will be obtained from the 2011 National Census for the Dormanstown ward.
- The Project description will be reviewed and a basis of assessment will be developed for the TA in regards to:
 - staff and delivery numbers, including breakdown of vehicles in terms of cars and light commercial, heavy goods vehicles and abnormal indivisible loads;
 - site access arrangements;
 - internal highway arrangement including swept path analysis; and
 - car/cycle parking provision (in relation to standards and anticipated demand).
- To ensure potential cumulative effects are fully considered, committed development will be established in terms of details of traffic associated with relevant committed development (as agreed with the local authority and highway officers).
- Construction phase impacts will be assessed in terms of:
 - construction vehicles - standard vehicles (estimated numbers, swept paths, routing);
 - construction vehicles - abnormal loads (estimated numbers, swept paths, routing);
 - construction worker trip generation; and
 - highway impact assessment, allowing for the cumulative impact of committed development including assessments of impact at the A1085/A66/A1053 Westgate Roundabout and the A174/A1053/B130 Greystone Roundabout.

- Operational phase impacts will be assessed on the basis of operational staff trip generation and a highway impact assessment, allowing for the cumulative impact of committed development, and including assessments of impact at the A1085/A66/A1053 Westgate Roundabout and the A174/A1053/B130 Greystone Roundabout. Base flows will be factored to the year of opening using TEMPRO growth rates.
- A Transport Management Strategy will be developed aimed at both staff and construction vehicles to minimise the transport impact during construction.

Environmental Statement

Information outlined within the TA will also be used as the basis for the transport section of the ES.

Travel Plan

Given the low number of operational staff it is currently envisaged that a Travel Plan would not be required as part of the DCO submission. However, sustainable travel measures, including car sharing and appropriate cycle parking will be provided/promoted in line with general good practice to facilitate travel by sustainable modes of transport.

6.9 SOCIO-ECONOMIC CHARACTERISTICS

6.9.1 Introduction

This section examines the socio-economic effects that the construction and operation of the Project will have on the town of Redcar (the 'immediate study area'), and the area administered by Redcar and Cleveland Borough Council (the 'broad study area'). In particular, this section considers the social and economic implications associated with the Project in terms of:

- employment;
- demographic changes;
- local economy;
- housing and local services;
- conflict with other economic activities;
- nearby recreational activities; and
- secondary impacts.

Population and Demographics

There has been a gradual decline in population within the Redcar and Cleveland Borough over the past decade, combined with a trend towards an aging population structure that is reflective of national demographic trends ⁽¹⁾.

Population decline in the borough was particularly pronounced during the 1990s, when the population fell by approximately 5 percent in a 10-year period, as presented in *Figure 6.7*. The change in population in the Cleveland and Redcar Borough is attributed to an ageing population and a decline in births over more recent years, reflecting changes to tertiary education and economic growth with more women entering the labour market and delaying starting a family⁽²⁾. RCBC now predict that population numbers will stabilise and plateau until 2032.

Between 2002 and 2012 the population of Redcar and Cleveland declined by a further 3%. This population reduction was concentrated in the 30-44 age groups with the result being that the overall working age population became smaller and older. Today, people in the age group 30-44 make up approximately 16 percent of the population of Redcar and Cleveland ⁽¹⁾.

As shown in *Table 6.6*, predictions are for the population of Redcar and Cleveland to stabilise around current levels.

Table 6.6 *Projected Trends in Population and Migration Mid-2017 to Mid-2032*

| Redcar & Cleveland | 2017 | 2022 | 2027 | 2032 |
|--|--------------|--------------|--------------|--------------|
| Population estimate (mid-year) | 134.8 | 135.0 | 135.0 | 134.7 |
| Annual births (to mid-year) | 1.6 | 1.5 | 1.4 | 1.4 |
| Annual deaths (to mid-year) | 1.4 | 1.4 | 1.4 | 1.4 |
| Annual natural change | 0.2 | 0.2 | 0.0 | -0.1 |
| Annual net migration within UK | -0.2 | -0.1 | -0.1 | 0.0 |
| Annual net international migration (to mid-year) | 0.0 | 0.0 | 0.0 | 0.0 |
| Annual total net migration | -0.2 | -0.1 | -0.1 | 0.0 |
| Annual total net change | 0.0 | 0.0 | 0.0 | -0.1 |

Note: figures all in 000's. Totals may not add exactly due to rounding.

Source: Tees and Valley Unlimited (2014). ⁽³⁾

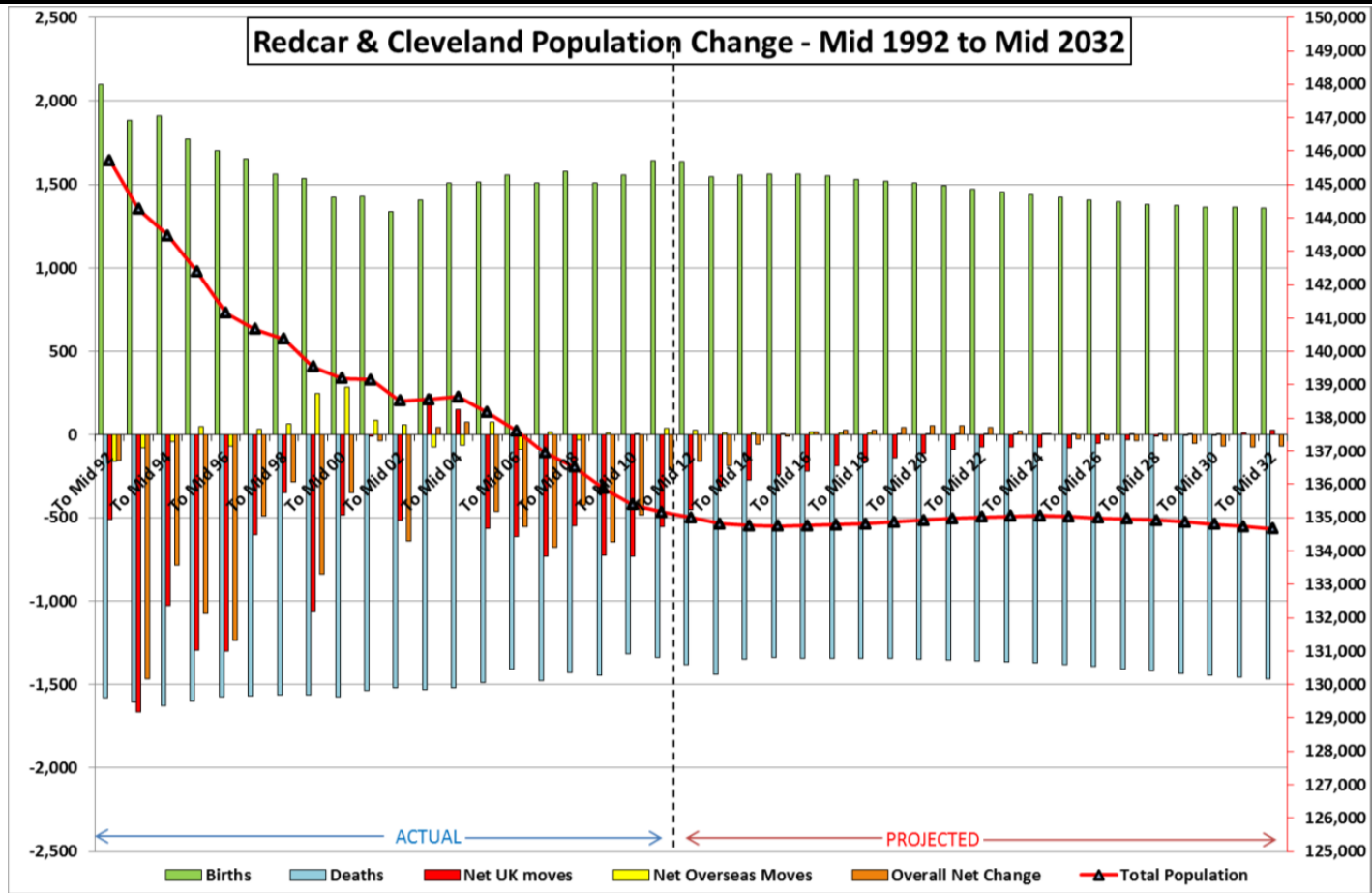
2011 census records indicate a total of 135,000 residents in the Redcar and Cleveland Borough, where the Project will be located.

(1) Office for National Statistics (2011). 2011 Census - Population and Household Estimates for England and Wales, March 2011.

(2) Tees and Valley Unlimited (2014). Economic Strategy & Intelligence. Population Change and the future shape of Redcar & Cleveland. Piers Elias. 1st December 2014.

(3) Tees and Valley Unlimited (2014). Economic Strategy & Intelligence. Population Change and the future shape of Redcar & Cleveland. Piers Elias. 1st December 2014.

Figure 6.7 Redcar and Cleveland Components of Change



Source: Tees and Valley Unlimited (2014).⁽¹⁾

(1) Tees and Valley Unlimited (2014). Economic Strategy & Intelligence. Population Change and the future shape of Redcar & Cleveland. Piers Elias. 1st December 2014.

Health

It is predicted that national improvements will be seen locally but that the relative difference in standardised death rates will remain. The assumption of a convergence towards national rates is not happening in Redcar and Cleveland and it still has higher rates (6%) than the England average. However, improvements to male mortality have been seen in Redcar and Cleveland in line with national trends, noted to have increased faster for men leading to a narrowing in the life expectancy differences. Over the 20 years to 2012, men have gained an extra 6.3 years and women an extra 4.6 though women continue to outlive men by 3.3 years (82.0 vs 78.7).

The numbers of deaths within the first year of life are low; currently at around 0.3% of births (5 deaths in 2012). This is expected to remain at this level, in line with national figures.

There are estimated to be approximately 6,800 people aged 18-64 with a moderate physical disability and over 2,000 people aged 18-64 with a serious physical disability living in Redcar and Cleveland. This includes an estimated 4,100 people aged 18-64 who require personal care in connection with a moderate or serious disability ⁽¹⁾. Approximately 8.3 million in England have a physical disability.

The rising trend in obesity is one of the biggest threats to the health of the population of Redcar and Cleveland. The prevalence of obesity is significantly higher than the national average for both adults and children ⁽²⁾.

Housing

There are a number of significant housing challenges in Redcar and Cleveland, with housing areas at both ends of the demand spectrum. RCBC are proposing to meet a net minimum requirement of 234 additional dwellings per annum over the period 2015/2016 - 2031/2032. This will be met through completions already achieved since April 2015; further completions on existing development sites; housing and mixed land allocations; and other sites with residential planning permission. Major developments already under construction are located in Eston, Teesville, Redcar, Marske, Saltburn, Guisborough, Skelton and Loftus ⁽³⁾. The Draft Local Plan reports that the majority of significant development in the region will be concentrated in the Guisborough urban area, south of the Project site

(1) Redcar & Cleveland Joint strategic Needs Assessment (JSNA). Redcar and Cleveland Borough Council. Available online <http://www.teesjsna.org.uk/redcar-and-cleveland/>

(2) Redcar & Cleveland Joint strategic Needs Assessment (JSNA). Redcar and Cleveland Borough Council. Available online <http://www.teesjsna.org.uk/redcar-and-cleveland/>

(3) Redcar and Cleveland Borough Council. Draft Local Plan May (2016). Available online http://redcarand-cleveland-consult.limehouse.co.uk/portal/local_plan/dlp_1?pointId=1456913768773#section-1456913768773

RCBC's Draft Local Plan, published in 2016 and currently out for consultation, reports that there are over 63,000 properties in the borough, the majority of which (85%) fall within the lower Council tax bands A to C.

Economics: Deprivation

Baseline and index of multiple deprivation data indicate that the Redcar and Cleveland area is significantly deprived in comparison to the national averages for England and Wales. At the borough level and out of 326 districts nationally, Middlesbrough has the highest proportion of Lower Level Super Output Areas LSOAs⁽¹⁾ within the national most deprived 10% with Hartlepool 10th, Redcar & Cleveland 33rd, Stockton-on-Tees 47th and Darlington 58th. *Figure 6.8* presents the LSOAs for Redcar and Cleveland Borough, indicating the Project site to be within the least deprived 0-40% and most deprived 40-60% in the country.

Economics: Employment

Across the broader impact area, Redcar and Cleveland has a lower employment rate than the national average, with 73.3% of the population considered economically active, compared with the national Great Britain average of 77.8%⁽²⁾. Redcar and Cleveland has the highest rate of youth (16-24) unemployment in the Tees Valley region, at 7%⁽³⁾.

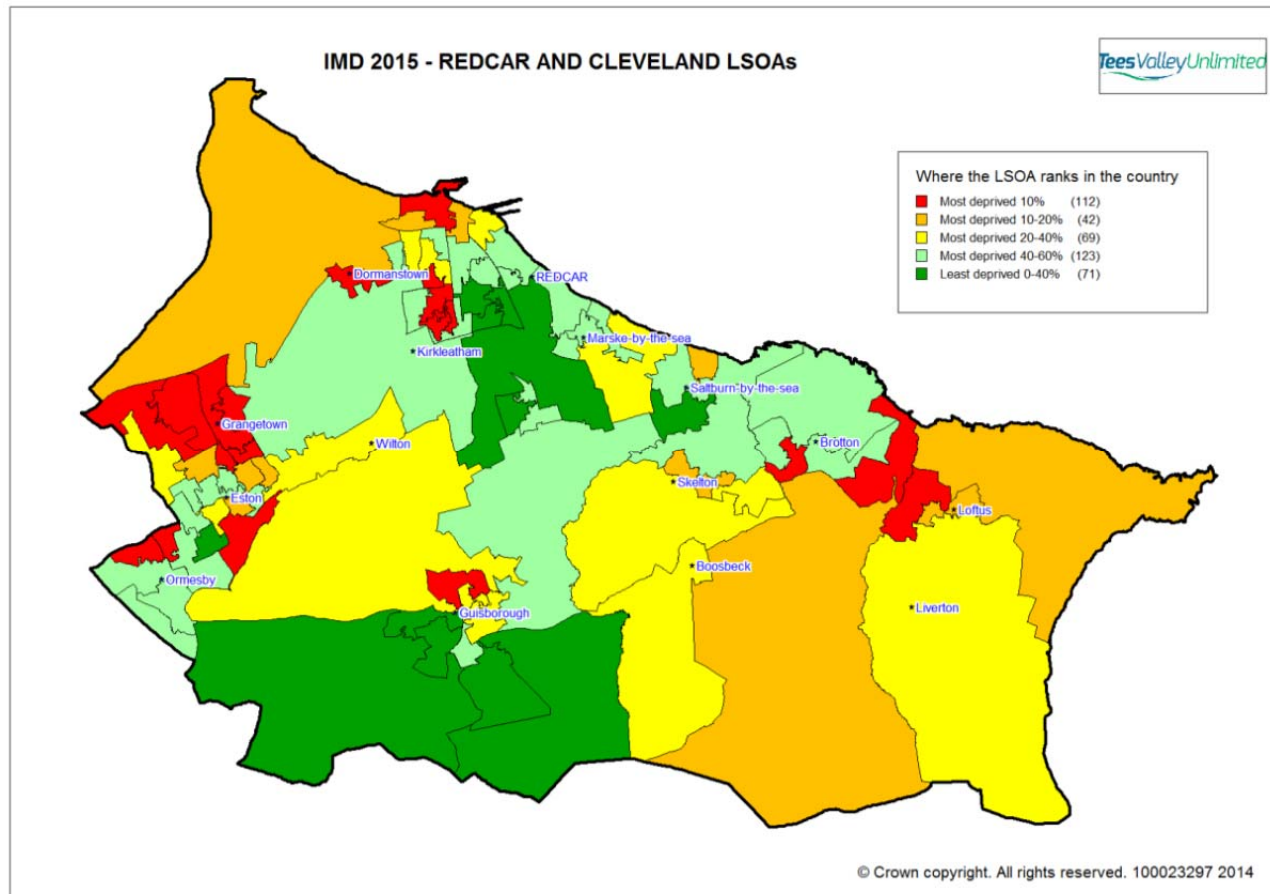
Above average economic inactivity is associated with a population which is on average less well qualified than the national average. For example, 50% of students achieved five or more A-C grades including English and maths in 2014 compared to a national average of 56.8%. Only 18.9% of students from Redcar and Cleveland went on to HNC/degree education compared with a national average of 27.2%.

(1) SOAs are a new geography for the collection and publication of small area statistics that avoid the problems caused by the inconsistent and unstable electoral ward geography.

(2) Annual Local Area Employment Force Survey 2015-2016 Data - Activity Rates. Available online <https://www.nomisweb.co.uk/reports/lmp/la/1946157062/report.aspx#tabempunemp>

(3) Tees Valley Unlimited - Latest Unemployment Claimant Count. February 2016. Available online https://teesvalley-ca.gov.uk/wp-content/uploads/2016/03/unemployment_update_february_2016.pdf

Figure 6.8 Redcar and Cleveland IMD LSOAs - 2015



Source: Tees Valley Unlimited ⁽¹⁾

(1) Tees Valley Unlimited. Index of Multiple Deprivation 2015 - Borough level results. Available online https://teesvalley-ca.gov.uk/wp-content/uploads/2016/03/4.-imd_borough_report_2015.pdf

Summary

Population and Demographics: recent population stabilisation after two decades of decline, particularly in the 30-44 age group.

Health: health levels in the area are generally lower than the national average, with higher levels of long term obesity.

Housing: supply and demand is expected to be generally balanced through future development plans.

Deprivation: the area is considered deprived in places in comparison with national averages.

Employment: there is lower economic activity than national averages, registering lower levels of employment and qualification.

6.9.3

Potential Effects

Construction Phase: Employment

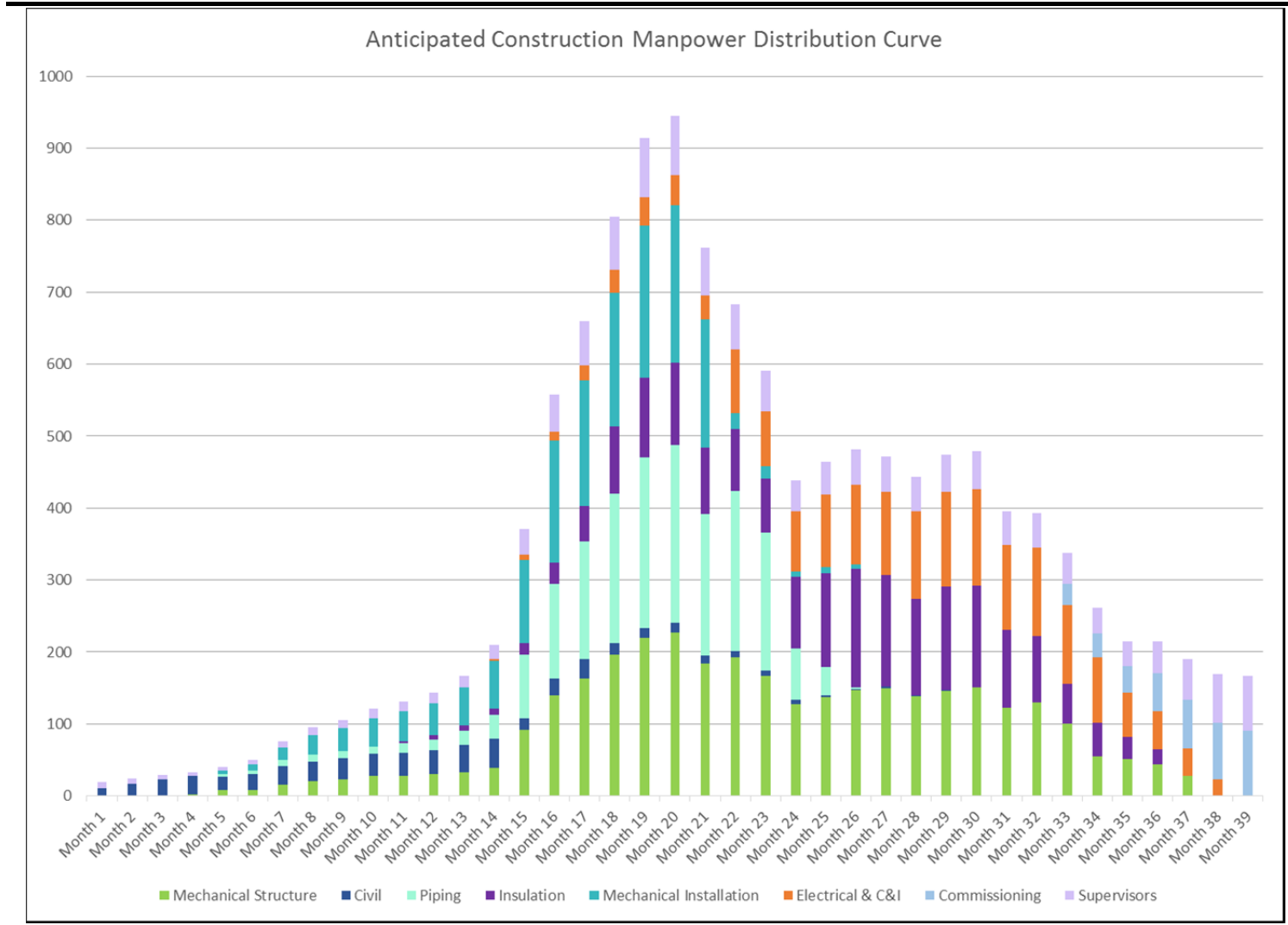
It is anticipated that construction of the Project will require 36-39 months' worth of construction manpower, spread over the 36-39 month construction period. An estimated 945 construction jobs will be generated during peak construction in eight skills groupings: civil, mechanical – structure, piping, insulation, mechanical installation, electrical and control and instrumentation, commissioning, and supervision. These are represented graphically below in *Figure 6.9*.

Sembcorp will ensure that its contractors provide training to these employees, as required, to ensure they are capable of undertaking the work safely and to high technical standard.

As noted previously, construction phase effects will be assessed on the basis of ten years of construction worker jobs being equal to one FTE job, as per HM Treasury Guidance. The anticipated 39 months' worth of construction manpower generated by the Project is therefore calculated as the equivalent of approximately 109 FTE during this 36-39 month period.

Whilst the Project does not have a specific target area over which economic benefits are targeted, Sembcorp promotes local employment and procurement where possible. In the context of the Project, this is considered to be within the 'wider area of influence' which is defined by a 45 minute drive time from the site. Prior to commencement of construction, a 'Meet the Buyer' day will be held locally, providing an opportunity for links to be made between the principal contractor and the local supply chain.

Figure 6.9 Anticipated Construction Manpower Distribution Curve



Where possible, local procurement of personnel will occur throughout the construction period. The Teesside region has a skilled construction workforce pool and it is envisaged that this will be drawn upon to source many construction posts. Contractors and sub-contractors will be encouraged to adopt local procurement policies, to maximise the employment of local/regional personnel.

It is recognised, however, that a substantial (but as yet unknown) component of the workforce personnel required for the Project will be specialists who will be brought in as and when required during the construction period. These specialists will, in all likelihood, be existing employees who will not, therefore, constitute additional or new employment opportunities arising from the Project.

In general, greater localised economic benefit derives from sourcing services within the local community, benefiting the businesses and employment base sourced within the respective areas for site location and development. There exists, therefore, a potential positive impact to the local economy arising from the procurement of materials and services from local/regional businesses, where this can feasibly occur. Local personnel being employed also increases the subsequent spend going back into the local economy, directly benefiting the local economy further.

The potential impact on employment during the construction period is considered to be positive and significant. Given the scale of potential employment opportunities during this phase, the impact is assessed to be moderate.

Construction Phase: Economic

The capital cost of the Project is estimated to be approximately £700 million. Although a significant proportion of the construction equipment, especially the more specialised equipment, will be supplied by companies outside the study area, certain raw materials and “low-tech” materials will likely be demanded locally. In addition, less technical services associated with construction activities will be sourced locally. The cumulative effect to the local economy will be positive, with both direct and indirect spend occurring.

In addition, given the requirement for specialist personnel to be brought in, as required, the local economy should also benefit from the housing of such personnel within the local area, presumably through rented accommodation or the use of local hotels/B&Bs. Services catering to these temporary personnel will also benefit. Ensuring additional spend will also accrue to the local economy, and the associated benefit this brings.

Based on the proposed capital cost of the Project, and plans to source demand for raw/ low-tech goods and services locally, the impact of the Project on the local economy during the construction phase is expected to be positive and of

moderate significance. Although the impact during this period will be short term, the level of activity during this phase will be significantly higher.

Construction Phase: Demographic Effects and Disruption to Local Communities

While some immigration to the local and wider areas of influence for employment opportunities is expected, principally for the highly skilled and/or niche construction or supervisory roles, the scale of this is not anticipated to be sufficient to affect the demographic characteristics of the local or wider areas of influence. No perceptible difference from baseline conditions is expected in relation to demand for housing, accommodation or local services, and therefore no additional provision of local services or infrastructure is required.

The Project is located at the site of a former power station, approximately 600 m at its closest point from the nearest residential receptor. Temporary disruption to the local community and reduced amenity for directly affected properties may occur during construction, as a result of increased traffic, air quality, dust and noise effects. These effects are not anticipated to be of greater than minor significance, and will be fully investigated in the EIA process. Appropriate management will be implemented to reduce disruption to the local community; through sensitive timing of construction activities and specific construction management plans, including the Construction Environment Management Plan (CEMP) and Traffic Management Plan.

Construction Phase: Safety

Sembcorp is committed to protecting the health and safety of its employees and the communities in which it operates, achieving this through effective implementation of its safety policies and procedures. Sembcorp's operates a Safety, Health and Environment Quality management system and is seeking accreditation under ISO14001 OHSAS 18001:2007.

Construction of the Project will not require the use of hazardous substances which necessitate particular safety management processes, such as COMAH, and safety zone restrictions are not required. Fencing will be provided to discourage site access and egress and existing security protocols at Wilton International will be extended to cover the Project site.

Operational Phase: Employment

Once operational, the Project is expected to employ approximately 65 skilled staff. It is envisaged that there will be opportunities for local recruitment of suitable mechanical and electrical maintenance technicians, as well as other non-skilled workers. Approximately 90 percent of the permanent jobs will require skilled tasks, for which the workers will be recruited from both inside and outside the immediate study area. Where possible, employees will be sourced from the local area.

Provisionally on the basis of 65 people directly employed for the operation of the Project, approximately 150 further opportunities arising from indirect and induced employment will be created. The Project can be expected, therefore, to provide up to a maximum of approximately 215 jobs in total employment. Given that these personnel will be sourced both locally and externally, the impact on local employment during operation is considered to be positive and significant. The limited scale of potential opportunities is, however, determined to be of minor significance.

During the initial stages of the socio-economic impact assessment, Sembcorp has yet to assess the level of current skills and training in the local community. Sembcorp acknowledge that it will be important for recruitment campaigns to reflect the skills set of the surrounding area.

The impact on employment during operation is considered to be positive and significant but the limited scale of opportunity means the overall impact is assessed as minor. The employment impacts of operational are expected to continue over the long term.

Operational Phase: Economic

During operation, local companies will be required to supply general services such as mechanical and electrical repairs, cleaning and general supplies. In the scenario that the servicing company is not locally based, there will nonetheless exist potential opportunities to source personnel locally. Sembcorp will develop a policy to manage tendering and sub-contracting for service and supply contracts within the local area.

There will be requirements for cleaning, catering, security and general servicing of the Project. It is probable that many of these services will be provided locally, and Sembcorp will develop a policy in line with this goal. More specialised services, such as equipment maintenance, may be provided by non-local companies or by the original equipment supplier.

On the assumption that most of the employees of the Project will be locally based, it is assumed that a high proportion of annual salaries will be injected into the local economy.

Many of the annual service and maintenance contracts will be sourced locally. Without a developed policy for local contracting, the likelihood of this long-term impact is assessed as being positive but of minor significance.

Operational Phase: Demographic Effects and Disruption to Local Communities

It is not anticipated that the construction or operation of the Project will result in any significant permanent demographic changes. Whilst the overall labour requirement during construction is substantial, it is anticipated that a significant proportion of the workforce will be located locally. Where personnel are brought into the area, their stay will last only the duration of the

phase/task for which they are employed or as an absolute maximum, the duration of the construction period. It is expected, therefore, that any changes will not be significant.

Once operational, the number of people employed is too small to have any significant effect on population movements in the area.

The overall impact of the construction phase of the Project on the local demography is considered to be not significant.

During the operation phase of the Project, when the number of employees will be reduced, the impact will not be significant.

Operational Phase: Safety

As during construction, no safety zone restrictions or hazardous substances which necessitate particular safety management processes will be required. Fencing will be provided to discourage site access and egress and existing security protocols at Wilton International will be extended to cover the Project site.

6.9.4 Proposed Assessment Methodology

Study Area

The practicality of defining the spatial parameters for socio-economic effects is complex. In addition, there is a range of spatial levels over which socio-economic information is available, for instance ward profiles and Local Authority administrative boundaries.

One of the first stages in developing a methodology for a socio-economic assessment is defining a project's area of influence; namely the area in which effects (be they positive or negative) may occur through the construction, operation and decommissioning phases. The Project site is located on the outskirts of Redcar, with direct links to the A1(M) and Ports in Middlesbrough, Sunderland and Newcastle. The Redcar and Cleveland Borough is most likely to be affected by the potential socio-economic implications of the Project.

General Considerations

There are no legislative requirements which dictate the form of socio-economic assessment and the approach adopted will follow UK Government Guidelines and best practice. It will follow guidance set out in:

- HM Treasury's Green Book ⁽¹⁾;
- English Partnerships Additionality Guidance ⁽¹⁾; and

⁽¹⁾ http://www.hm-treasury.gov.uk/d/green_book_complete.pdf

- the Department for Business Innovation and Skills research on Additionality ⁽²⁾.

The 'Green Book' sets out the stages to assessing the additional impact of a project, which are:

- **leakage**, the effects that occur outside the target area; and
- **multiplier effects**, additional economic activity from spending in the supply chain and increases in local income.

Economic Assessment Criteria

The main focus of the assessment in the defined study areas will be the effect on employment as measurable and specific to the location of the Project. Effects in this regard will be reported as FTE jobs and the GVA by these jobs. The effects of these jobs on the local labour market and the economic well-being of the local population will also be considered qualitatively.

The assessment of likely effects on the local, regional and national economies during construction, operation and decommissioning of the Project will consider the scale of the following.

- **Direct economic effects:** jobs and GVA that are wholly or largely related to construction, decommissioning, and operation and maintenance of Project.
- **Indirect economic effects** (positive and negative): jobs and GVA generated in the areas of influence in the chain of suppliers of goods and services to the direct Project activities.
- **Induced economic effects:** jobs and GVA created by direct and indirect employees' spending in the study area or in the wider economy.

Construction (and decommissioning) phase effects will be assessed such that ten years of construction worker jobs is equal to one FTE position.

For secondary and induced jobs multipliers relevant to the sector will be used as per Scottish Input-output ⁽³⁾. The use of Scottish Government input-output multipliers is accepted practice for economic assessment of activities in England, as no such multipliers exist specifically for England. The Scottish Government multipliers are widely considered to provide acceptable proxies for these calculations.

(1) Additionally Guide – A Standard Approach to Assessing the Additional Impacts of Projects: English Partnerships (2008)

(2) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/191512/Research_to_improve_the_assessment_of_additionality.pdf

(3) <http://www.gov.scot/Topics/Statistics/Browse/Economy/Input-Output>

An average GVA per job as typical for the region and sector as published by the Office of National Statistics at the time of assessment will be adopted.

Social and Land use Assessment Criteria

Social criteria that can be used to assess the effects of the Project are divided into three groups:

- population characteristics (population changes, relocation of populations, influx and/or outflow of temporary workers);
- individual differences (perceptions of risk, health and safety, attitudes towards the Project); and
- economic and community structures (historical experience with changes, economic characteristics, employment opportunities, industrial diversity).

With regards to land use, the Project will return to use a currently derelict area of industrial land that has a previous history of power generation. Off-site impacts on land use will be negligible. This criterion will not therefore be considered further.

Tourism Assessment Criteria

In considering the level of sensitivity, the standing of the receptor or a resource is the defining factor. This is established against the following factors.

- Tourism business' relative attraction to customers from outside the defined impact areas and the Project's potential to influence broader perceptions of the area: where a majority of trade is non-local this is more likely to be the case.
- The relative importance of tourism as a business sector: where tourism is more important relative to other sectors, impacts may have the potential to generate broader impacts. Similarly, where it is of relatively low significance, impacts on tourism and related sectors are unlikely to generate effects across the economy.

At this stage in the EIA it would appear that tourism is not an important contributor to the local economy and is scoped out of the socio-economic assessment.

6.9.5 *Baseline Data Sources*

The primary data sources that will be used in assessing potential effects on the socio-economic receptors are listed below:

- Office for National Statistics (2011). 2011 Census - Population and Household Estimates for England and Wales, March 2011;

- Tees and Valley Unlimited (2014). Economic Strategy & Intelligence. Population Change and the future shape of Redcar & Cleveland. Piers Elias. 1st December 2014;
- Joint Strategic Needs Assessment (JSNA) RCBC;
- Draft Local Plan May (2016) RCBC;
- Tees Valley Unlimited. Index of Multiple Deprivation 2015 - Borough level results;
- Annual Local Area Employment Force Survey 2015-2016 Data - Activity Rates; and
- Tees Valley Unlimited - Latest Unemployment Claimant Count. February 2016.

6.10 *LANDSCAPE AND VISUAL*

6.10.1 *Introduction*

This section addresses the issue of landscape and visual impacts and details the proposed approach to assessing the effects of the Project on landscape and visual amenity.

6.10.2 *Baseline Conditions*

Summary of Area of Influence

The Project Site is within an existing industrial complex and on brownfield land which was the site of a former Teesside power station. *Figure 6.10* below provides a historic context for the site.

Figure 6.10 *Former Teesside Power Station at the Project Site (now demolished)*



The immediate local landscape already features a very large industrial area made up of general industries, refineries and petrochemical facilities. Taking into account the scale of the Project, the receiving landscape and the topographical conditions, a 5 km radius areas centred on the Project site is proposed as the study area for the landscape and visual impact assessment and this is elaborated on further below.

The proposed study area has been arrived based on Zone of Theoretical Visibility (ZTV) modelling, site visit, baseline photography, and taking into

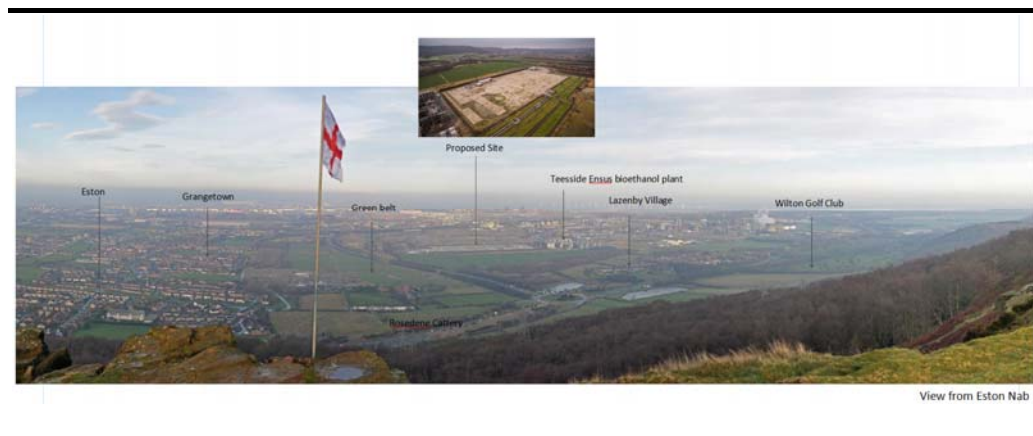
account the approximate stack height. The study area will be revised at the detailed EIA stage to enable a proportionate assessment and avoid inclusion of information which might be superfluous to a decision. Currently the ZTV analysis shows large areas of visibility (as the modelling is bare earth and does not take into account vegetation and built components in the topography). Standard photomontages and photowirelines will thus help in refining the study area and provisional photomontages / wireframes are provided in *Annex B*.

The other Project components, such as buildings and associated facilities other than the stacks, are likely to have a much more limited extent of impact due to the dominant existing infrastructure in the immediate vicinity of the Project and intervening vegetation surrounding residential areas that have views of it.

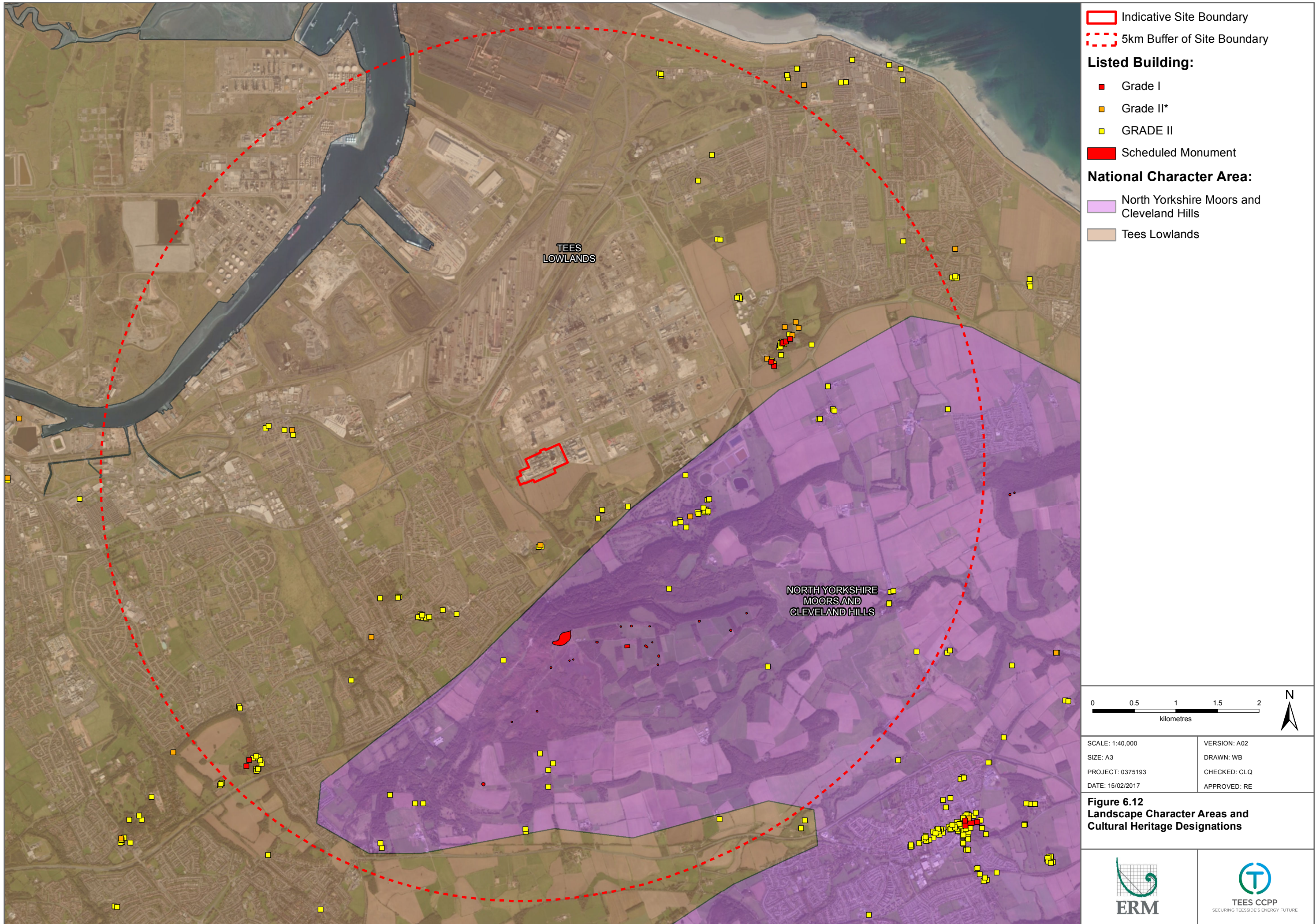
Baseline Context

The Project site lies entirely within the operational footprint of the former power plant which has been now demolished. To its east lies the Teesside Ensus bioethanol plant which is Europe's largest wheat bio refinery. Open grazing land and Lazenby village lies to the south of the Project site and to its north is brownfield industrial land. To its west are the A1053 and a green belt which acts as screening between the industrial area and the residential areas of Grangetown and Eston (see *Figure 6.11*).

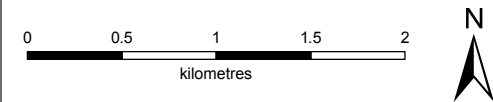
Figure 6.11 *Baseline Landscape*



The Project is located in the Tees Lowlands National Character Area (NCA 23) (see *Figure 6.12*). The Tees Lowlands National Character Area (NCA 23) forms a broad, open plain dominated by the meandering lower reaches of the River Tees and its tributaries, with wide views to distant hills.



- Indicative Site Boundary
- 5km Buffer of Site Boundary
- Listed Building:**
- Grade I
- Grade II*
- GRADE II
- Scheduled Monument
- National Character Area:**
- North Yorkshire Moors and Cleveland Hills
- Tees Lowlands



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Figure 6.12
Landscape Character Areas and Cultural Heritage Designations



PROJECTION: British National Grid

The mosaics of intertidal and wetland habitats within the Tees Estuary are internationally designated as Teesmouth and Cleveland Coast Special Protection Area and Ramsar site, due to their importance for waterfowl. These areas are in close proximity to heavy industry, which has developed due to the estuary's strategic location close to mineral reserves, a network of main roads, railways and Teesport. Industrial installations form a dramatic skyline when viewed from the surrounding hills.

With respect to the local landscape area the Project site is located in the Wilton Works. This is an established heavy industrial area adjoining the Teesport. To its south lie the Eston Hills Broad Landscape Areas and to the east lie the Redcar Flats Broad Landscape Area. The impacts on these areas will be assessed in the EIA.

The nearest point of the North York Moors National Park is approximately 5.5 km away to the south and is unlikely to be affected by the Project and this will be assessed further in the EIA.

The nearest residential properties are in the village of Lazenby located to the southeast. To its west and southwest lie Grangetown and Eston, which are separated by the green corridor and the A1053. The settlements within the Eston Hills Broad Landscape Area include Wilton Village and Upleatham, both estate villages, which along with Guisborough on the southern edge of the zone are designated as conservation areas. Kirkleatham, located to the east of the Project site approximately 3 km away is also an estate village designated as a conservation area.

Listed Buildings and Scheduled Ancient Monuments

A number of listed buildings and Scheduled Ancient Monuments (SAM) lie within the 5 km study area. Given the fact that the Project site is located within an existing industrial area and also in the place of a former power station, effects on the settings of these listed buildings and SAMs are limited. Moreover there are no known direct impacts on listed buildings/SAMs.

Below is a list of SAMs and Listed Buildings located within 2 km buffer of Project site boundary. The list is not necessarily a comprehensive list and will be verified during the EIA stages as part of the assessment process.

Listed buildings within 2 km (approximately) are as follows:

- Village hall and gatepiers, Lazenby (Grade II);
- 9 and 11 Chapel Street houses, Lazenby (Grade II);
- Grange farmhouse and farm cottage (Grade II);
- Old hall farmhouse and garden wall, Lackenby (Grade II);
- Stables barn and fold yard, Lackenby (Grade II); and
- Stable Range adjoining south side of old hall farmhouse (Grade II).

A number of listed buildings are designated within the Wilton conservation area. Key ones include:

- North Lodge (Grade II);
- Wilton Castle (Grade II); and
- Church of St Cuthbert (Grade II).

Similarly, a number of listed buildings are within the Kirkleatham village. Key ones are:

- Old hall museum (Grade II*);
- Sir William Turners Hospital (Grade I);
- Entrance screen loggias for flat and outhouses to Sir William Turners Hospital (Grade I); and
- Statue of Justice in courtyard of Sir William Turners Hospital (Grade II*).

The key SAM within 2 km of the Project site boundary is the Eston Nab hill fort, palisaded settlement and beacon.

6.10.3 *Potential Effects*

Although the Project is located within the context of a large industrial area and on a brownfield site, landscape and visual effects will need to be appropriately assessed considering the proximity of residential areas of Lazenby, Eston Nab and Grangetown and the sensitive listed buildings and SAM in the study area.

Taking into account the scale of the Project and receiving landscape setting, it is likely that the key landscape and visual impacts will be within 5 km and largely due to the stack and other taller components. The other Project components, such as buildings and associated facilities, are likely to have a much more limited extent of impact.

6.10.4 *Proposed Assessment Methodology*

General Approach to the Assessment

The LVIA will be carried out in accordance with the Landscape Institute/Institute of Environmental Management and Assessment (Guidelines for LVIA, third Edition, 2013) (see *Table 6.7*). The LVIA will:

- provide an assessment of landscape effects, including how the Project affects the elements that make up the landscape, including the aesthetic and perceptual aspects of the landscape and its distinctive character; and
- provide an assessment of visual effects, including effects due to change or loss of landscape elements and/or introduction of new elements and considering effects upon views experienced by potential viewers/viewing groups and on general visual amenity.

Table 6.7 LVIA Methodology

Receptor sensitivity

Judgement based on the extent to which the receptor can accept change of a particular type and scale without adverse effects on its character, and the value attached to it. Viewpoint sensitivity depends on a number of factors including: context of the viewpoint, viewer occupation, viewing opportunities, number of people affected, and extent to which the viewers are affected by changes in their view together with the quality of the existing view.

| Sensitivity | Landscape | Visual |
|-------------|--|---|
| Low | A moderately valued landscape, perhaps a locally important landscape, or where its character, land use, pattern and scale may have the capacity to accommodate a degree of the type of change envisaged. | Small numbers of visitors with interest in their surroundings. Viewers with a passing interest not specifically focussed on the landscape e.g. workers, commuters. The quality of the existing view, as likely to be perceived by the viewer, is assessed as being low. |
| Medium | A landscape protected by a structure plan or national policy designation and/ or widely acknowledged for its quality and value; a landscape with distinctive character and low capacity to accommodate the type of change envisaged. | Small numbers of residents and moderate numbers of visitors with an interest in their environment. Larger numbers of recreational road users. The quality of the existing view, as likely to be perceived by the viewer, is assessed as being medium. |
| High | A landscape protected by a regional (structure plan) or national designation and/ or widely acknowledged for its quality and value; a landscape with distinctive character and low capacity to accommodate the type of change envisaged. | Larger numbers of viewers and/or those with proprietary interest and prolonged viewing opportunities such as residents and users of attractive and well-used recreational facilities. The quality of the existing view, as likely to be perceived by the viewer, is assessed as being high. |

Magnitude of change

Judgement based on the nature, scale and duration of the change that is envisaged in the landscape and the overall impact on a particular view.

| Magnitude of change | Landscape | Visual |
|---------------------|--|---|
| Negligible | An imperceptible, barely or rarely perceptible change in landscape characteristics. | A change which is barely visible, at very long distances, or visible for a very short duration, perhaps at an oblique angle, or which blends with the existing view. |
| Small | A small change in landscape characteristics over a wide area or a moderate change either over a restricted area or infrequently perceived. | Minor changes in views, at long distances, or visible for a short duration, perhaps at an oblique angle, or which blends to an extent with the existing view. |
| Medium | A moderate change in landscape characteristics, frequent or continuous, and over a wide area, or a clearly evident change either over a restricted area or infrequently perceived. | Clearly perceptible changes in views at intermediate distances, resulting in either a distinct new element in a significant part of the view, or a more wide ranging, less concentrated change across a wider area. |
| Large | A clearly evident and frequent /continuous change in landscape characteristics affecting an extensive area. | Major changes in view at close distances, affecting a substantial part of the view, continuously visible for a long duration, or obstructing a substantial part or important elements of the view. |

Overall significance of effect

Overall significance of effect is arrived at with reference to receptor sensitivity and magnitude of change, as well as using professional judgement. There is no formulaic way of determining the likely significance of effects (Landscape Institute and IEMA, 2013), however the table below is a useful guide.

| Significance of effect | | | | |
|------------------------|---------------------|-------------------|-------------------|-------------------|
| Receptor sensitivity | Magnitude of change | | | |
| | Negligible | Small | Medium | Large |
| Low | Not significant | Not significant | Minor | Minor to moderate |
| Medium | Not significant | Minor | Moderate | Moderate to major |
| High | Not significant | Minor to moderate | Moderate to major | Major |

The main assessment activities include or will include:

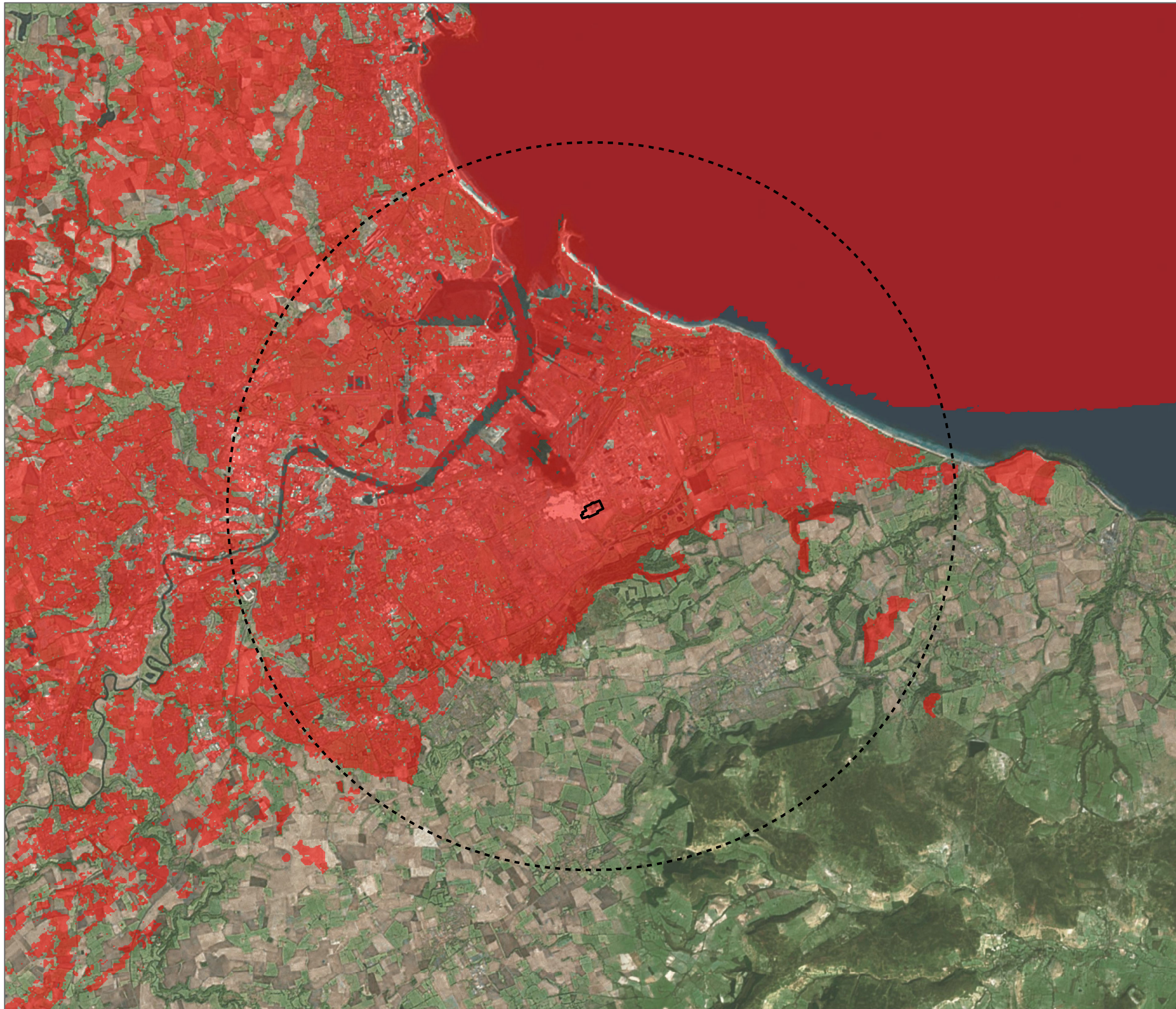
- review of desk based information and applicable planning policy in respect of landscape and visual amenity;
- based on the likely stack height a zone of visual influence (ZVI) model has been run to identify initial viewpoints (VPs) which may experience effects during construction / operation;
- consultation with RCBC to agree the suitability of viewpoints (VPs) as the basis for the subsequent tasks / assessment;




- identify sources of landscape and visual impact associated with the Project during construction and operation;
- develop measures to mitigate landscape and visual impacts; and
- assess residual effects on landscape character and visual amenity using published information (the significance criteria are provided in *Table 6.7*).

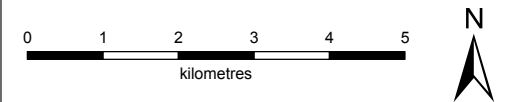
Zone of Theoretical Visibility and Viewpoints for Assessment

Based on possible stack heights, two scenarios were considered for the ZTV analysis at this scoping stage. Two options, 75 and 90 m, were considered in order to show the extent of theoretical visibility and are shown in *Figure 6.13* and *Figure 6.14*. This process is helpful as it provides the areas within which the stack will potentially be visible/not visible from. A 90 m stack height was adopted for the identification of viewpoints as a reasonable worst case scenario and additionally the ZTV is based on bare earth and does not take into account intervening built components, buildings and vegetation. The wireframes and photomontages provided in *Annex B* and are based on stack heights of 75 m and 90 m.

On the basis of desk top analysis, an initial site visit and using ZTV, the scoping stage has considered approximately eleven representative VP locations. Some of these have been used to develop photomontages/photo wirelines. The suggested viewpoint locations for the EIA are shown below in *Figure 6.15*.



-  Indicative Site Boundary
-  10km Buffer of Stack Locations
-  Zone of Theoretical Visibility for Stack Height of 75m

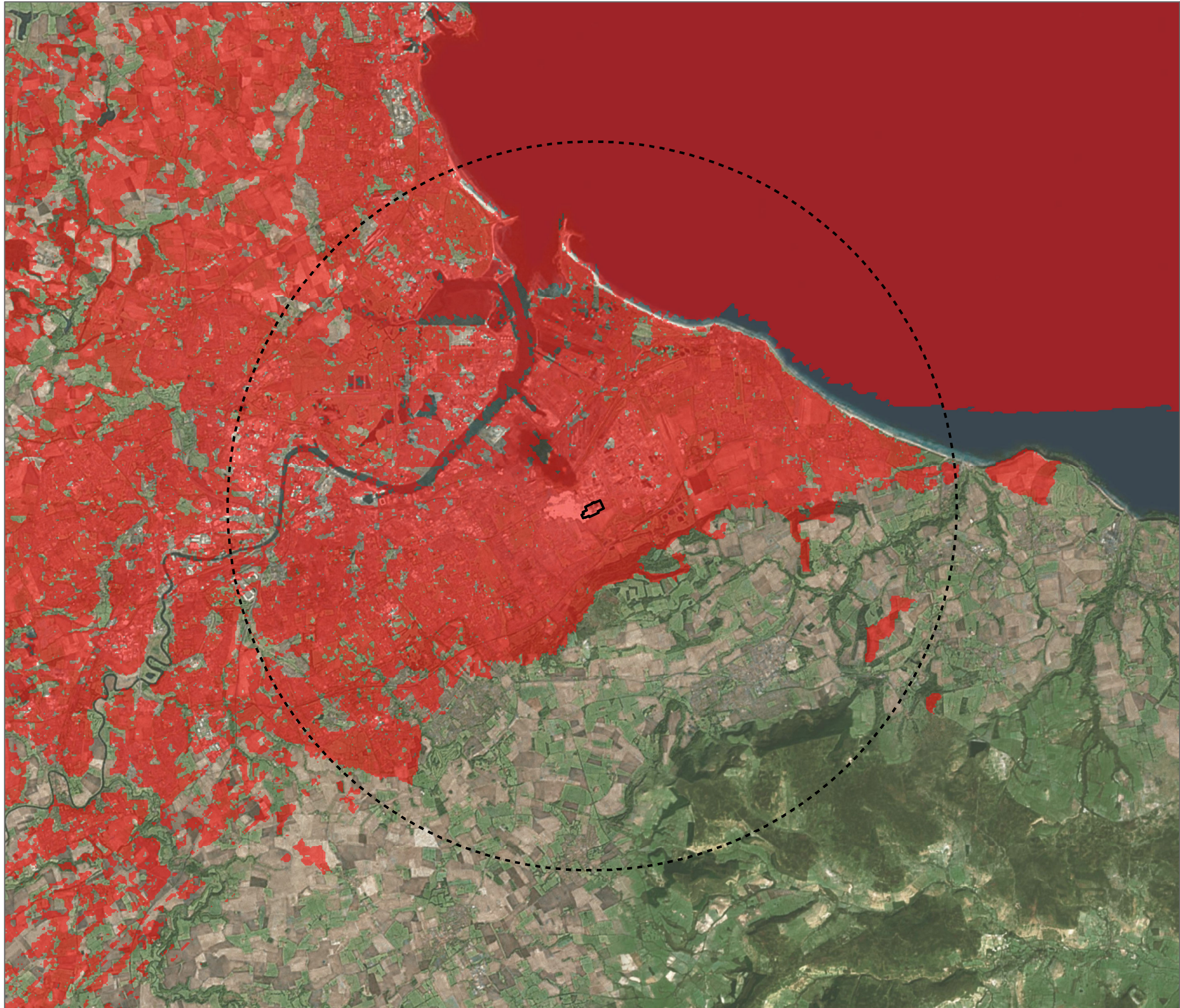





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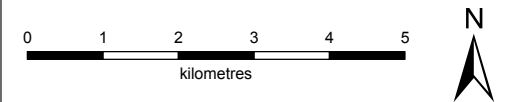
Figure 6.13
10km Zone of Theoretical Visibility (ZTV)
Based on a Stack Height of 75m



PROJECTION: British National Grid



-  Indicative Site Boundary
-  10km Buffer of Stack Locations
-  Zone of Theoretical Visibility for Stack Height of 90m



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Figure 6.14
10km Zone of Theoretical Visibility (ZTV)
Based on a Stack Height of 90m



PROJECTION: British National Grid

Figure 6.15 Suggested Viewpoint Locations



The viewpoints are listed below, together with the reason for choosing the locations.

1. View from allotments, Lazenby village (nearest residents).
2. View from Pasture Lane, Lazenby (nearest residents).
3. View from edge of village, public footpath, Lazenby village (Listed farmhouse nearby).
4. View from high street, Lazenby (high street, school building, park).
5. View from Rosedene Cattery (group of listed buildings).
6. View from Birchington Avenue (residences, main street).
7. View from park (recreational area).
8. View from entrance road (entrance road).
9. View from old Lackenby (residences with views towards the Project).
10. View from Eston Nab (SAM)
11. View from Wilton Castle (Listed buildings).
12. View from Kirkleatham village (listed buildings)
13. View from Yeaby village (residences).

The development of a Landscape and Visual Technical Report including standard photomontages/photowirelines from the key VPs to support the PEIR and ES will not need to consider photomontages from all of these viewpoints. RCBC will be consulted to select representative viewpoints for further assessment. To aid this consultation a selection of photomontages and photo wirelines that have already been prepared for scoping are provided within *Annex B*.

The requirement to consult with prescribed consultees is an important consideration within the DCO application process, as described under Section 42 of the Planning Act 2008.

In addition, Section 47 of the Planning Act 2008 requires promoters to consult with the local community. The consultation undertaken pursuant to Section 42 and Section 47 of the Planning Act will be presented in a Consultation Report which will be submitted with the DCO application.

Sembcorp Utilities UK has undertaken informal consultation with a number of important public stakeholder groups around the Wilton International site.

In particular, the company has deliberately concentrated on established residents' groups close to the site. These typically feature a mix of householders, ward councillors and interest group representatives. In each case, the groups were given a 20 minute overview presentation by a Sembcorp executive, supported by technical and environmental experts involved in the Project.

The presentation included basic facts about the nature and scale of the Project, plus graphics showing the proposed layout of the plant and pictures superimposing how the plant might look from a series of familiar vantage points around the site. Groups were left with paper feedback forms which individuals were requested to fill in with any comments or concerns. They were given the option of completing them at their leisure and handing them back to Sembcorp via the chair of each group. At the time of writing only one form has been returned.

Groups consulted to date include the Lazenby Environment Group (LEG) representing the nearest community to the proposed construction activity and the Eston Neighbourhood Action Partnership. Eston is the council ward closest to the Project and comprises the areas of Lazenby, Wilton Village, Old Lackenby, Whale Hill, Eston under Nab and Eston itself. Neighbourhood Action Partnerships or NAPs were established by Redcar and Cleveland Council to enable ward councillors and officers to deal with grass roots issues brought to them by members of the public at locations close to their homes. Sembcorp intends talking to two other NAPs as part of the informal consultation: at Grangetown and Dormantown (which will also feature members of the Kirkleatham NAP).

Informal consultations have also taken place with several of the area's members of Parliament and the Chief Executive of Redcar and Cleveland Council.

Sembcorp will continue informal consultation and seek feedback from a number of statutory and non-statutory organisations during the five-week consultation period for this Scoping Report. This will allow Sembcorp and consultees to discuss the EIA methodologies and approach set out to ensure most value is obtained from the consultation and EIA processes.

This consultation will be a precursor to the formal pre-application consultation required by the Act, which will commence following submission of this Scoping Report.

A list of organisations with which informal consultation will be sought is presented in *Table 7.1* below.

Table 7.1 *Consultation Undertaken thus Far*

| Organisation | Format | Date | Location |
|--|-------------------------|--------------------------------|---------------------------------------|
| Redcar MP/Middlesbrough South and E Cleveland MP | Teleconference briefing | 13 th January 2017 | Teesside/London |
| Lazenby Environment Group | Scheduled meeting | 16 th January 2017 | Lazenby Village Hall |
| Eston Neighbourhood Action Partnership (NAP) | As above | 18 th January 2017 | Wilton Primary School |
| Grangetown NAP | As above | 7 th February 2017 | Grangetown Youth and Community Centre |
| Dormanstown NAP (including members of Kirkleatham NAP) | As above | 22 nd February 2017 | Corus Sports and Social Club |
| Industrial Briefing Group | As above | 2 nd March 2017 | Wilton Centre |
| Hartlepool MP | Briefing | 3 rd March 2017 | Constituency Office, Hartlepool |
| Leader of Redcar and Cleveland Council | Briefing | Date to be arranged | Redcar and Cleveland House, Redcar |

8.1 SUMMARY OF EIA SCOPE

Chapter 6 of this Scoping Report identifies all the topics that it is proposed will be assessed during the EIA process.

In addition *Chapter 6* also makes provisional assessment of some topics and sub-topics based on information for the site that is already available and some early site visits (e.g. for ecology, landscape and visual, and cultural heritage). Furthermore the status of the site (i.e. a former power generation site) and the knowledge and feedback obtained from undertaking previous environmental studies leading to a local planning consent from 2008 have enormously assisted the present scoping process.

On the basis of the above considerations *Table 8.1* provides a summary of the technical scope for the EIA. The table seeks to clearly set out how a topic/sub-topic will be taken forward in the EIA process and the degree of effort and emphasis that will be applied in each instance. For example where the evidence base and consultation feedback clearly indicates there is no scope for a likely significant effect a sub-topic is scoped out. Where the impact and effects for a topic/sub-topic are clearly understood and management and mitigation measures of known effectiveness will be put in place, the EIA will consider such matters but will not necessarily examine them in great depth. Where there is uncertainty or the ability of the design to compliance with legal standards needs to be demonstrated, the EIA will take the necessary steps in terms e.g. of site surveys and numeric modelling, and other detailed assessments to address such matters.

There are a number of cross-overs between the individual topics and assessment findings which will be used during the consideration of other topics. For example the findings of the assessment of impacts on ecology and nature conservation will be strongly influenced by the findings of the noise and air quality assessments, amongst others.

The findings of the EIA, based on the application of the methodologies set out in *Chapter 6*, will be reported in the ES to be submitted as part of the DCO application.

Once responses to the Scoping Report have been received by the Secretary of State and the scoping opinion on the report returned to Sembcorp, the full EIA process will commence. A summary of the proposed scope of the ES is provided in *Table 8.1* below.

Table 8.1 Summary of the Proposed Scope of the Environmental Statement

| Topic | Surveys Proposed | Construction | Operation | Key assumption at Scoping |
|-------------------------------------|--|---|---|--|
| Water resources and flood risk | <p>None proposed.</p> <p>Data for the assessment will be collected via a desk based review of baseline conditions and information from the design team on design of surface water and drainage management systems.</p> | <p>The chief focus will be on the assessment / mitigation of the main risks to surface water quality as result of chemical / fuel spillage and the mobilisation of construction site sediments into watercourses.</p> | <p>The management of operational flood risk and drainage including flood risk assessment (FRA) and the framework for suggested sustainable urban drainage measures. The ReFH2 plot scale method will be used to establish the potential increase in surface water runoff from the site for a range of return periods, and these figures will be assessed against the present drainage system.</p> | <p>Hybrid cooling system and no new abstraction or discharges from / to natural water bodies.</p> <p>Water Framework Directive Compliance Assessment is not required.</p> <p>Decommissioning stage effects considered as similar to those related to construction.</p> <p>As the site is located within Flood Zone 1, and on the site of a former power station surrounded, it is not anticipated that the sequential or exceptions tests will need to be applied.</p> |
| Ground conditions and contamination | <p>None proposed.</p> <p>Desk study data for previous investigations of the site will be reviewed and presented</p> | <p>A conceptual site model will be developed identifying potential pollution source, potential pathways for effects and sensitive receptors.</p> <p>Mitigation will be defined in a Construction Environmental Management Plan (CEMP)</p> | <p>The assessment of operational effects will be focused on control measures to minimise the risk of ground contamination.</p> | <p>The assessment of potential sources, pathways and receptors will be based on a desk based review of historic information including the site investigation completed to support the surrender of the Environmental Permit for the former power station.</p> <p>Decommissioning stage effects considered as similar to those related to construction.</p> |
| Ecology and nature conservation | <p>Phase One Ecological surveys.</p> <p>No protected species surveys proposed.</p> | <p>An ecological impact assessment (EclA) will be produced covering construction, operation and decommissioning.</p> <p>A Habitats Regulations Screening Assessment will be prepared (see also Air Quality below).</p> | | <p>Deposition of pollutants and acid arising from the combustion process will be considered during operation for the following study areas:</p> <ul style="list-style-type: none"> • ancient woodland and local wildlife sites – 2 km radius; and • Natura 2000 (SPA and SAC) and SSSI – 15 km radius. |
| Noise and vibration | <p>Largely based on monitoring data for the Wilton International site with potential supplementary data collection at locations</p> | <p>Construction noise will be assessed in accordance with BS 5228: 1997.</p> <p>Construction noise levels at noise sensitive receptors, vibration and</p> | <p>Operational noise levels at noise sensitive receptors will be assessed using BS 4142:2014.</p> | <p>Design limits for the new plant will need to be based on the current baseline noise and the BS 4142 criteria; this will be confirmed with the RCBC during the EIA process.</p> <p>Two noise monitoring locations are currently proposed namely:</p> |

| Topic | Surveys Proposed | Construction | Operation | Key assumption at Scoping |
|-----------------|--|---|--|---|
| | (noise sensitive receptors) to be agreed with RCBC. | <p>traffic noise will be considered based on the current design. Given the separation distances of receptors from possible construction-phase vibration sources there are not likely to be any significant effects (and this may be scoped out of detailed assessment).</p> <p>Also given that the site can be accessed via major roads which already serve the industrial estate, noticeable changes in traffic noise are unlikely (and thus may be scoped out of detailed assessment once the numbers of vehicles have been quantified and compared with threshold levels).</p> | | <ul style="list-style-type: none"> NML 1 - Lazenby; and NML 2 - Grangetown (Kingsley Road /Shakespeare Avenue). <p>Decommissioning stage effects considered as similar to those related to construction.</p> <p>If required construction traffic will be assessed using the Calculation of Road Traffic Noise (CRTN) methodology.</p> |
| Air Quality | <p>None proposed.</p> <p>Baseline data sources and existing sources of monitoring will be collated for the study area.</p> | <p>The impact of construction traffic emissions will be assessed, the pollutants of interest being oxides of nitrogen (NOx), nitrogen dioxide (NO₂), and particulate matter (as PM₁₀ and PM_{2.5}).</p> <p>Dust and PM₁₀/PM_{2.5} produced by the construction activities will be considered.</p> <p>Both will be assessed using basic screening techniques based upon guidance from the Institute of Air Quality Management (IAQM).</p> | <p>The impacts of NO₂ on air quality will be studied for their potential effects on sensitive human receptors in the study area, focussing on the maximum off-site impacts.</p> <p>For ecological receptors, in addition to NOx, nutrient nitrogen deposition and acid deposition will be assessed as follows:</p> <ul style="list-style-type: none"> ancient woodland and local wildlife sites - 2 km radius; and Natura 2000 (SPA and SAC) and SSSI - 15 km radius. | <p>The AERMOD dispersion model will be used for modelling emissions from the combustion process.</p> <p>A basis of assessment will set out how reasonable worst case scenarios have been assessed.</p> <p>Five years of meteorological data (from Durham Tees Valley Airport) will be used in the modelling.</p> <p>Decommissioning stage effects are considered as similar to those related to construction.</p> |
| Archaeology and | Site visit and walkover | No assessment is required of | Setting effects considered on listed | Decommissioning effects will not require consideration. |

| Topic | Surveys Proposed | Construction | Operation | Key assumption at Scoping |
|--------------------------------|--|--|---|---|
| cultural heritage | (completed during scoping). Desk studies. | effects on buried archaeology as the site was previously disturbed during the construction of the now decommissioned power station. | buildings and scheduled monuments within a 5 km study area. | |
| Traffic and transport | To be confirmed in consultation with RCBC and others. | A Transport Assessment will be prepared considering increases in traffic flows over growthed baseline and implications in terms of congestion and safety including impacts at the A1085/A66/A1053 Westgate Roundabout and the A174/A1053/B130 Greystone Roundabout The transportation of abnormal loads will be considered including swept path analysis for the key junctions. Draft traffic management strategy developed. | Assessed on the basis of operational staff trip generation and a highway impact assessment, allowing for the cumulative impact of committed development, and including impacts at the A1085/A66/A1053 Westgate Roundabout and the A174/A1053/B130 Greystone Roundabout. | It is anticipated that the vehicles generated by both the construction and operational phases of the scheme Project would access the site via the existing access onto the A1053. A Travel Plan will not be prepared for the DCO submission. |
| Socio-economic Characteristics | None proposed. All required data will be collected by desk study. | The main focus will be the effect on employment as measurable and specific to the location of the Project. Effects in this regard will be reported as Full-Time Equivalent (FTE) jobs and the Gross Value Added (GVA) by these jobs. Sembcorp's policies in terms of employment, procurement and reducing negative amenity effects on the local community will be described and considered in the assessment. Construction Environmental Management Plan (CEMP) developed. | | Effects on tourism are scoped out of the assessment. Qualitative assessment of the Project's effect on local businesses. |
| Landscape and Visual | Site visit and photography from identified provisional | No assessment of the significance of construction stage effects will be undertaken other than a brief | The Landscape Institute/Institute of Environmental Management and Assessment (Guidelines for LVIA, | 90 m stack assumed in the identification of viewpoints as a worst case from a visibility perspective. |

| Topic | Surveys Proposed | Construction | Operation | Key assumption at Scoping |
|-------|--|--|---|---------------------------|
| | viewpoints used for scoping may be supplemented if required by the Scoping Opinion or a need identified in consultation. | description of the activities and infrastructure on-site from a visual appearance perspective. | third Edition, 2013) methodology will be adopted. Wireframes / photomontages from viewpoints (to be agreed with RCBC) will be included to support the technical assessment. | |

8.2

OUTLINE OF THE ENVIRONMENTAL STATEMENT

The outcome of the EIA process is the production of an ES to accompany the application for development consent. An ES will be prepared that:

- describes the Project;
- outlines the main alternatives considered;
- describes the baseline environment;
- describes the likely significant effects;
- describes measures envisaged to prevent, reduce and where possible offset any significant adverse effects; and
- includes a non-technical summary.

A separate Non-Technical Summary (NTS) will be prepared, which will describe, in accessible and non-technical language, the main findings of the EIA.

8.3

NEXT STEPS

Once the Scoping Opinion has been obtained from the Planning Inspectorate, preparations will be made for both the formal pre-application consultation stage under Sections 42 and 48 of the Planning Act 2008. Once the EIA process has reached a point where it is able to present sufficient of its findings to enable meaningful engagement with stakeholders the PEIR will be produced. Consultation will also be undertaken with the local community in accordance with Section 47 of the Planning Act. A Statement of Community Consultation (SoCC) has been prepared in consultation with relevant Councils which will set out the types and likely dates of consultation and engagement.

A website will be developed to provide information and updates on the Project, and matters relating to the proposed application.

The web address is <http://www.tccpp.co.uk/>

| Acronym | Definition |
|----------------|---|
| AGI | Above ground installation |
| AOD | Above Ordinance Datum |
| APFP | Applications: Prescribed Forms and Procedure |
| APIS | Air Pollution Information Service |
| ARUN | Automatic Urban and Rural Network |
| BAT | Best available technique |
| BEIS | Business, Energy and Industrial Strategy |
| BGS | British Geological Survey |
| CCGT | Combined-cycle gas turbine |
| CCPP | Combined Cycle Power Plant |
| CCR | Carbon Capture Readiness |
| CDM | Construction Design Management |
| CEMP | Construction Environmental Management Plan |
| CIfA | Chartered Institute for Archaeologists |
| CoCP | Code of Construction Practice |
| COMAH | Control of Major Accident Hazards |
| CRTN | Calculation of Road Traffic Noise |
| dB | Decibel |
| DCLG | Department for Communities and Local Government |
| DCO | Development Consent Order |
| DECC | Department for Energy and Climate Change |
| DEFRA | Department for the Environment, Fisheries and Rural Affairs |
| DoW CoP | Definition of Waste: Development Industry Code of Practice |
| EA | Environment Agency |
| EcIA | Ecological Impact Assessment |
| EEA | European Economic Area |
| EIA | Environmental Impact Assessment |
| ERM | Environmental Resources Management |
| ES | Environmental Statement |
| EU ETS | European Union Emissions Trading System |
| FTE | Full-Time Equivalent |
| GVA | Gross Value Added |
| GW | Gigawatts |
| Ha | Hectare |
| HGV | Heavy goods vehicle |
| HM | Her Majesty |
| HNC | Higher National Certificate |
| HRA | Habitat Regulations Assessment |
| HRSG | Heat recovery steam generator |

| | |
|--------|---|
| HSE | Health and Safety Executive |
| IPPC | Integrated pollution prevention and control |
| JSNA | Joint Strategic Needs Assessment |
| MW | Megawatts |
| LiDAR | Light Detection and Ranging |
| LPA | Local Planning Authority |
| LSOA | Lower Level Super Output Area |
| LTP | Local Transport Plan |
| LVIA | Landscape and Visual Impact Assessment |
| NCA | North Yorkshire Moors and Cleveland National Character Area |
| NOEL | No Observed Effect Level |
| NPPF | National Planning Policy Framework |
| NPS | National Policy Statement |
| NPSE | Noise Policy Statement for England |
| NSIP | Nationally Significant Infrastructure Project |
| NTS | Non-Technical Summary |
| PEIR | Preliminary Environmental Information Report |
| PINS | Planning Inspectorate |
| RCBC | Redcar and Cleveland Borough Council |
| SAC | Special Area of Conservation |
| SAM | Scheduled Ancient Monument |
| SOAEL | Significant Observed Adverse Effect Level |
| SoCC | Statement of Community Consultation |
| SoS | Secretary of Statement |
| SPA | Special Protection Area |
| SPZ | Source Protection Zone |
| SSSI | Site of Special Scientific Interest |
| SuDS | Sustainable Drainage System |
| TEMPRO | Trip End Model Presentation Programme |
| VP | Viewpoint |
| WFD | Water Framework Directive |
| WWII | World War II |
| ZTV | Zone of Theoretical Visibility |
| ZVI | Zone of Visual Influence |

Annex A

Cumulative Effects Assessment Methodology

A1.1 *Overview*

Cumulative effects result from the combined impacts of multiple projects / plans. Their consideration is important as the effects of a development in isolation may not be significant but when combined with the effects of other projects they may be.

Cumulative effects are understood to be changes to the environment that are caused by an action in combination with other past, present and future actions ⁽¹⁾. These may include:

- effects over a larger area;
- effects over a longer period of time;
- effects on areas of special environmental sensitivity due to interactions with other actions; and
- other existing and future actions.

As such, the Project should not be considered in isolation. In the assessment of potential environmental effects, it is important to include projects / plans that may begin construction or operation within the same period. Decommissioning is too far into the future to allow any meaningful consideration of cumulative effects.

The cumulative effects assessment will seek to:

- determine the effect of the Project in combination with the other planned changes within defined areas of influence ⁽²⁾;
- provide an assessment of the likely significance of any changes; and
- suggest mitigation if tenable / deliverable.

This annex sets out the proposed methodology that will be used in the EIA and also presents the results of applying the first stages of the methodology to identify those projects / plans that will be considered further in the EIA: 'screened development'.

(1) Hegmann, G. et al. 1999. Cumulative Effects Assessment Practitioner's Guide. Hull, Canada: Canadian Environmental Assessment Agency. Available from <http://publications.gc.ca/collections/Collection/En106-44-1999E.pdf>

(2) Specific areas of influence will be consulted upon.

Overview

There are several methods for assessing cumulative effects including models, matrices and threshold analysis. The method adopted for this EIA includes six distinct stages as follows.

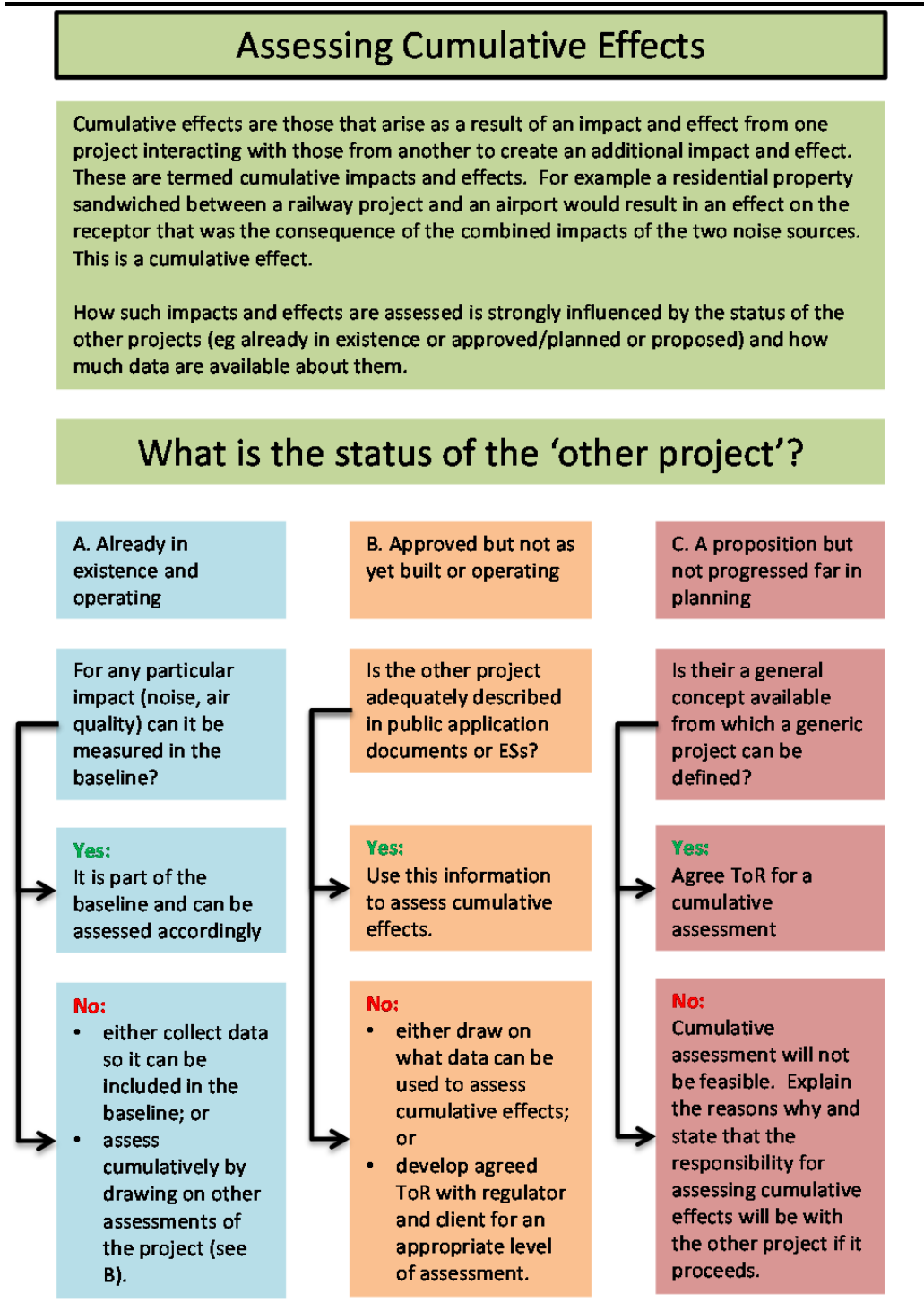
- Stage 1: identifying impacts from the Project that may contribute to cumulative effects on resources and receptors.
- Stage 2: defining the area of influence of Project impacts in terms of specific geographical and temporal boundaries.
- Stage 3: identification of third party developments ('screened development') within the above area of influence, followed by screening the Project impacts identified in Stage 1 above to establish their potential for acting cumulatively on resources and receptors with impacts from the screened development.

The above three stages identify the schemes and specific topics scoped into the EIA for further assessment. The following three stages set out how the cumulative effects will be subsequently assessed in the EIA.

- Stage 4: individual topics will define the level of detail to be adopted within the assessment through identification of such matters as potential cause and effect relationships between the Project and screened developments and the relative magnitude of impacts from the Project and screened developments that contribute to potential cumulative effects. Cumulative effects will be assessed to different levels of detail depending on the degree of risk involved in the effect and the level of detail available for the screened developments. For example the air quality assessment will model operational emissions from the Project but will consider other air quality impacts on the receptors it affects in terms of available data from the modelling of screened developments or through qualitative assessment where such data are not available.
- Stage 5: identification of potential impact pathways for cumulative effects to occur and determining and the extent to which the Project contributes to such impacts and effects.
- Stage 6: proposed mitigation for impacts that contribute to cumulative effects will take into account measures already identified in the EIA. Where appropriate, additional measures may be identified where practicable to avoid, minimise or reduce the contribution of Project impacts to significant cumulative effects. Where appropriate, monitoring may be suggested to deal with uncertainty in conclusions and would be discussed and agreed with consultees and other stakeholders.

The assessment of cumulative effects is an iterative process with consultation input on projects and plans to be screened in and the results of the assessment informing the Project design and its environmental mitigation. *Figure A1.1* graphically represents Stages 3 to 5.

Figure A1.1 - Cumulative Effects Methodology (Stages 3-5)



Stage 1: Identifying Project Impacts with Potential to Contribute to Cumulative Effects

To undertake a cumulative assessment it is necessary to identify the main impacts from the Project that have the potential to contribute to cumulative effects in combination with impacts from other projects / plans. The assessment team has identified impacts and effects on environmental / social receptors via this scoping exercise; this process will be further refined during the subsequent stages of the assessment process.

The topics and impacts detailed in *Table A1.1* below have been identified at this early stage as having the potential to contribute to cumulative effects.

Table A1.1 *Project Impacts with Potential to Contribute to Cumulative Effects*

| Topic | Potential Impacts |
|---------------------------------|--|
| Air Quality | <p>During operation the key consideration will be the potential combined effect of emissions to atmosphere (from the Project and other combustion activities, especially thermal power plants) and their combined potential effect on human and ecological receptors. Cumulative impacts of road traffic on air quality are automatically considered through the application of traffic growth factors in the Traffic Assessment.</p> <p>Dust generating activities during construction could act cumulatively on receptors with dust generating activities from screened development in very close proximity.</p> |
| Surface Water | <p>Surface water will be managed within the site and effluent discharges will be required to meet the requirements of the Environment Agency in accordance with The Water Environment (Water Framework Directive) (England and Wales) Regulations. Potential cumulative effects with other discharges are fully considered under the permitting process.</p> |
| Flood Risk | <p>Residual flood risk to the Project and from the Project is anticipated to be low and will be entirely managed within the site. There is no potential contribution to any cumulative risks of flooding.</p> |
| Ecology and Nature Conservation | <p>During construction potential cumulative disturbance effects could occur with screened development in close proximity.</p> <p>During operation the key consideration will be the potential combined effect of emissions to atmosphere (from the Project and other combustion processes) and subsequent pollutant and acid deposition on designated sites.</p> |
| Socio-economic | <p>The Project will be set against a background of a variety of economic development activity and in a regional context will have small economic and employment benefits. However, it is not considered necessary for the purposes of the EIA to assess such cumulative positive impacts.</p> <p>Potential negative effects on people and human health are considered in the context of other topics (e.g. noise, air quality and traffic).</p> |
| Noise | <p>During construction and operation nearby receptors could be affected by noise from the Project and from screened development.</p> |
| Traffic | <p>Cumulative traffic effects are assessed as a matter of course in Transport Assessments by including future growth of traffic flows due to general increase in road use by residents and businesses.</p> |
| Cultural Heritage | <p>The Project and screened development could potentially affect the setting of the same scheduled monuments.</p> |
| Geology/ Land Contamination | <p>All impacts related to geology and contamination will be managed within the site and there is no potential for cumulative effects with screened</p> |

| | |
|----------------------|---|
| | development. |
| Landscape and Visual | During operation screened development is considered in terms of potential for inter-visibility. Cumulative effects during construction are not considered as it is a temporary activity where the impacts are 'replaced' by the operational Project. |

Stage 2: Defining the Area of Influence (or Potential Zone of Project Impact)

A key requirement of the assessment process is to appropriately define study areas (for baseline survey, modelling etc.) so that the Project's area of influence can be understood. The area of influence takes into consideration the areas / receptors likely to be affected by:

- the Project activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the Project;
- effects from unplanned but predictable potential effects caused by the Project that may occur later or at a different location; and
- indirect effects (if appropriate).

As the adopted areas of influence are defined by individual topics they vary. A summary of adopted areas for the purposes of this screening exercise is provided below in *Table A1.2*.

Table A1.2 *The Project's Areas of Influence for the Purpose of Screening other Development for Inclusion in the Cumulative Effects Assessment*

| Topic | Assumed study area |
|---------------------------------|---|
| Air Quality | Assumed study area is, at a minimum, the statutory 15 km radius from the Project site for Natura 2000 sites. Project considered are those that are likely to include a significant combustion process. A nominal impact zone of 250 m is considered for construction dust. |
| Surface Water | Scoped out. |
| Flood Risk | Scoped out. |
| Ecology and Nature Conservation | Assumed study area is, at a minimum, the statutory 15 km radius from the Project site for Natura 2000 sites due to the pathway for effects from operational emissions to air. A nominal 500 m radius around the site is considered for construction disturbance to fauna. |
| Socio-economic | Scoped out |
| Noise | Construction maximum 1 km (considered conservative). Operation maximum 1 km (considered conservative). |
| Traffic | Intrinsically considered as part of the Traffic Assessment. |
| Cultural Heritage / archaeology | Limited to the effect on the setting on scheduled monuments and as per landscape and visual (see below). |
| Geology and Land Contamination | Scoped out. |
| Landscape and visual | Study area determined by zone of visual influence model and professional judgement informed by site visit up to a 5 km radius from the Project site. |

Development and Topics Screened for Further Assessment in the EIA

As part of the present scoping exercise other projects (i.e. screened development) with the potential to contribute to cumulative effects with the Project have been identified as follows:

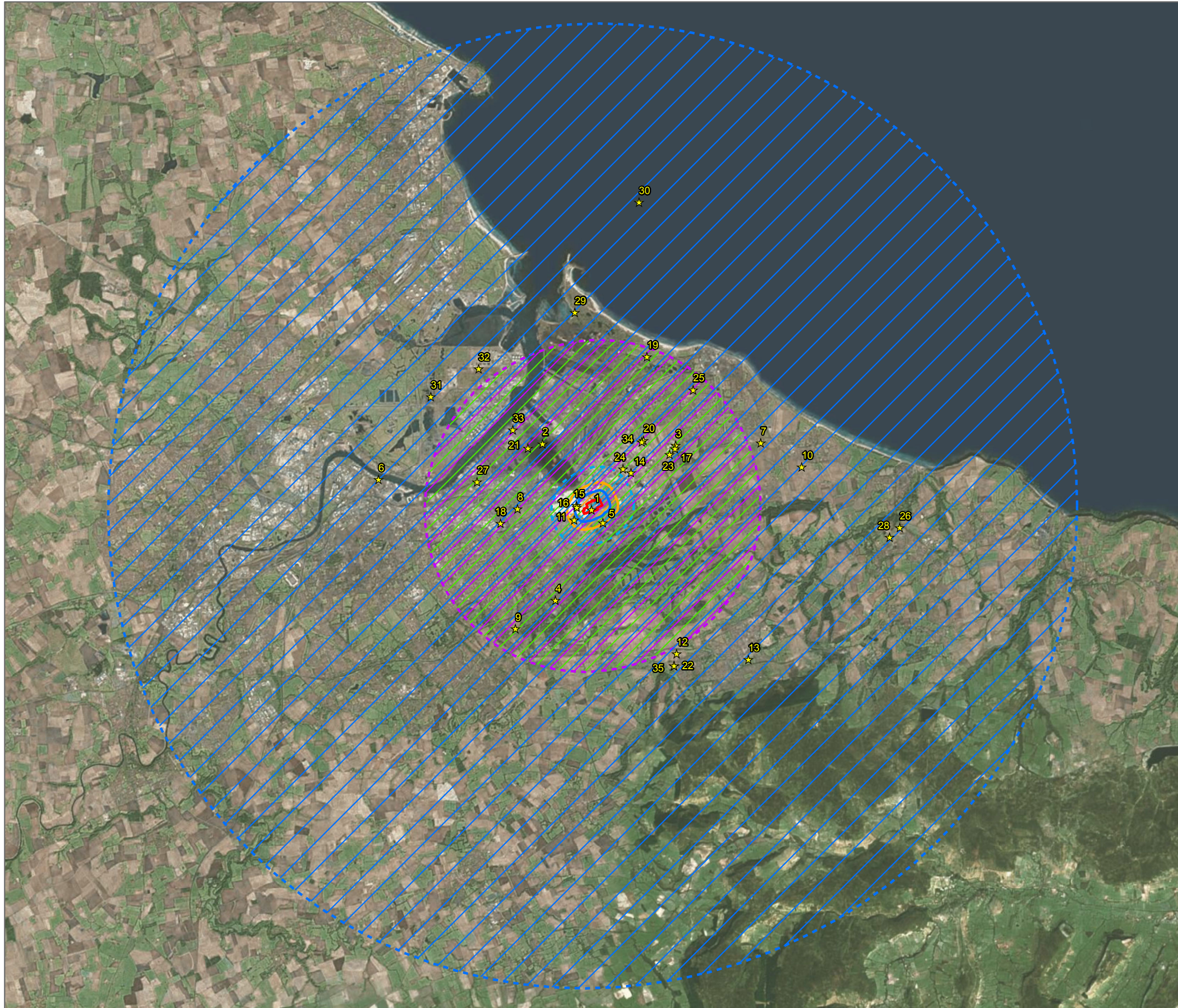
- Local Planning Authority, PINS, Section 36 and Section 37 Electricity Act and Transport and Works Act planning applications from the past five years identified.
- Developments screened in or out depending on their locality to the Project site (as described in *Table A1.2*).
- Potential contribution to cumulative effects with the Project identified and assessed as likely to occur or not (i.e. screened in or out to the assessment).

On the basis of the above exercise *Figure A1.2* presents the locations and reference numbers for the screened development.

The identified potential schemes are summarised in *Table A1.3* below which also presents the results of a screening exercise to determine for which topics/screened development that further more detailed assessment will be undertaken in the EIA. The screening exercise was undertaken as follows.

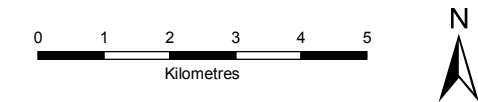
- For each screened development, a judgement was made by the EIA team of its likely main impacts based on the nature of the development. No judgement was made on magnitude and this was considered a precautionary approach.
- For each type of impact the screened development was screened into or out of the need for further assessment in the EIA based on the separation distance between the Project and the screened development with respect to the area of influence for that type of impact.

Table A1.3 presents the outcome of the process.



- ★ Planning Application Locations*
- ▭ Indicative Site Boundary
- Cumulative Assessment - Air Quality Study Area**
- ▭ Nominal Impact Zone for the Effects of Construction Dust (250m)
- ▭ Nominal Impact Zone for Effects of Operational Emissions to Air on Human Health and Ecological Receptors (15km)
- Cumulative Assessment - Cultural Heritage/Archaeology Study Area**
- ▭ Nominal Impact Zone for Effects on the Setting of Cultural Heritage Features (5km)
- Cumulative Assessment - Ecology and Nature Conservation Study Area**
- ▭ Nominal Impact Zone for Construction Disturbance Effects on Fauna (500m)
- Cumulative Assessment - Landscape and Visual Study Area**
- ▭ Nominal Impact Zone for Landscape and Visual Effects During Operation (5km)
- Cumulative Assessment - Noise Study Area**
- ▭ Nominal Impact Zone for Effects from Construction/Operation Noise (1km)

*Numbered locations refer to the provisional screened developments listed and described in more detail in Table A1.3.



| | |
|----------------------|--------------|
| SCALE: See Scale Bar | VERSION: A02 |
| SIZE: A3 | DRAWN: WB |
| PROJECT: 0375193 | CHECKED: CM |
| DATE: 13/02/2017 | APPROVED: RE |

Figure A1.2
Provisional Screened Cumulative Development



PROJECTION: British National Grid

Table A1.3 Screening of Significant Planning Applications within 15 km of the Project Site for Potential Cumulative Effects

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|---|---|-----------------------------|--|--|--------------|---------------------|---------------------------------|
| Town and Country Planning Act Applications | | | | | | | |
| R/2016/0663/OOM | Land north of Kirkleatham Business Park and west of Kirkleatham Lane Redcar | Pending | Outline planning application for up to 550 residential units with associated access, landscaping and open space on 23ha of agricultural land located. | Disturbance of fauna | N | Outside impact zone | 3.38 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2016/0326/OOM | Land north of Woodcock Wood and West of Flatts Lane Normanby | Refused (undergoing appeal) | Outline application for 400 residential houses including new vehicular and pedestrian accesses, infrastructure, open space and landscaping (all matters reserved except for access). | Disturbance of fauna | N | Outside impact zone | 3.06 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2015/0678/OOM | Land at Wilton International Redcar | Pending | Outline application (all matters reserved) for installation of two underground sections of high voltage electrical cables and fibre-optic cable associated with Dogger Bank Teesside A & B offshore wind farms. | Disturbance of fauna | N | Outside impact zone | 0.54 |
| | | | | Construction noise | Y | Within impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| R/2015/0149/OOM | Teesdock Teesdock Road Grangetown | Approved | MGT Teesside Ltd (MGT) proposes to construct a wood chip dryer in Teesport, on the banks of the Tees Estuary. The planning application is for an outline planning permission with all matters reserved. The wood chip dryer will be located within a larger site of 14 hectare which is being developed as a renewable energy plant with | Operational emissions to air | Y | Within impact zone | 6.66 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|-----------------|--|---|--|--|--------------|---------------------|---------------------------------|
| | | | combined heat and power. | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| R/2014/0428/OOM | Land south of Redcar Road Redcar | Approved | Outline application for residential development (150 units). | Disturbance of fauna | N | Outside impact zone | 5.73 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| R/2014/0372/OOM | Land at Low Grange Farm South Bank | Approved | Outline application for residential development (up to 1,250 dwellings) (all matters reserved). | Disturbance of fauna | N | Outside impact zone | 2.36 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2014/0304/OOM | Longbank Farm Farmbank Road Ormesby TS7 9EF | Refused, undergoing appeal (approved with considerations) | Outline planning application for residential development (320 units) including vehicular and pedestrian accesses off Ormesby Bank and associated landscaping. | Disturbance of fauna | N | Outside impact zone | 4.42 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2013/0669/OOM | Land to the south of Marske-by-the-Sea bounded by Longbeck | Refused, under appeal | Outline application for up to 1,000 dwellings together with ancillary uses and a neighbourhood centre, park- and-ride car park; petrol filling station; drive-thru; public house/restaurant and 60 bed hotel with details of access. | Disturbance of fauna | N | Outside impact zone | 6.8 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual | N | Outside impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|-----------------|---|--|--|--|--------------|---------------------|---------------------------------|
| | Road, A1085 and A174 Marske by the Sea | | | during operation | | | |
| R/2012/0757/OOM | Mannion Park Broadway Grangetown | Approved | Project consists of 250 dwellings and around 11,500 square metres of B1 office and light industrial uses. Vehicular access to the development will be taken from the A1085 Broadway; this will involve the provision of a new roundabout access into the site. | Disturbance of fauna | N | Outside impact zone | 0.62 |
| | | | | Construction noise | Y | Within impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2012/0617/OOM | Land west of Galley Hill Estate Stokesley Road Guisborough | Refused, under appeal (approved with conditions) | Outline application for residential development (max. 350 dwellings); public open space; play area; new vehicular and pedestrian accesses and associated landscaping. | Disturbance of fauna | N | Outside impact zone | 5.25 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| R/2016/0613/FFM | Cleveland Gate Spring Wood Road, off Rectory Lane Guisborough | Approved | Part detailed and part outline planning application for the erection of a business park (use class B1a), 1.1 ha site area, includes 79 parking spaces. | Disturbance of fauna | N | Outside impact zone | 6.86 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| R/2016/0484/FFM | Former Croda Site Wilton International Redcar | Approved | Proposed anaerobic biogas production facility and combined heat and power plant. | Operational emissions to air | Y | Within impact zone | 1.68 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|-----------------|---|----------|---|--|--------------|---------------------|---------------------------------|
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2016/0418/FFM | Wilton Waste Treatment Wilton Site Lazenby | Approved | Retention as built of the CSG Wilton facility as a hazardous waste transfer and treatment site for processing a range of hazardous and non-hazardous waste including recovery of waste oils and oil contaminated wastes as well as a biological treatment facility for hazardous liquids. | Operational emissions to air | Y | Within impact zone | 0.49 |
| | | | | Disturbance of fauna | Y | Within impact zone | |
| | | | | Construction noise | Y | Within impact zone | |
| | | | | Operational noise | Y | Within impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2015/0682/FFM | Wilton Waste Treatment Ltd Wilton Site Lazenby | Approved | Provision of oil refinery at Wilton Waste Treatment Plant to enable the recovery of lubricating base oils, fuels and other hydrocarbon products from waste oils. | Operational emissions to air | Y | Within impact zone | 0.49 |
| | | | | Disturbance of fauna | Y | Within impact zone | |
| | | | | Construction noise | Y | Within impact zone | |
| | | | | Operational noise | Y | Within impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2015/0741/FFM | Land at Kirkleatham Business Park Troisdorf Way Kirkleatham Redcar | Approved | Flood alleviation scheme; works to include a flood storage area; flood bunds; diversion of the watercourse responsible for the flooding; amendments to existing culverts; provision of maintenance access from Troisdorf Way and associated works. | Disturbance of fauna | N | Outside impact zone | 3.26 |
| | | | | Construction noise | N | Outside impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|-----------------|---|----------|--|--|--------------|----------------------------------|---------------------------------|
| R/2015/0690/FFM | South Bank Community Primary School Poplar Grove South Bank TS6 6SY | Approved | Demolition and rebuild of school with associated temporary construction access. | Disturbance of fauna | N | Outside impact zone | 2.93 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | No material change from baseline | |
| | | | | Landscape and visual during operation | N | No material change from baseline | |
| R/2014/0820/FFM | Land at Tod Point Road Redcar | Approved | Erection of 24 industrial units with associated infrastructure and perimeter fencing 2.0m in height. | Disturbance of fauna | N | Outside impact zone | 5.12 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| R/2014/0626/FFM | Wilton International Complex Redcar | Approved | Mineral (polyhalite) granulation and storage facility involving the construction on buildings, conveyor systems, substations, water treatment plant, internal access roads, car parking, attenuation ponds, landscaping, restoration and aftercare, and construction of a tunnel portal including the landforming of spoil and associated works. | Disturbance of fauna | N | Outside impact zone | 2.75 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2014/0627/FFM | The York Potash Project, Doves Nest Farm | Approved | The winning and working of polyhalite by underground methods including the construction of a minehead at Doves Nest Farm involving access, maintenance and ventilation shafts, the landforming of associated spoil, construction of buildings, access roads, car parking and helicopter landing site, attenuation ponds, landscaping, restoration and aftercare and associated works. In | Operational emissions to air | Y | Within impact zone | 2.75 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|-----------------|--|----------|--|--|--------------|---------------------|---------------------------------|
| | | | addition, the construction of an underground tunnel between Doves Nest Farm and land at Wilton that links to the mine below, comprising 1 shaft at Doves Nest Farm, 3 intermediate access shaft sites, each with associated landforming of associated spoil, construction of buildings, access roads and car parking, landscaping, restoration and aftercare, the construction of a tunnel portal at Wilton comprising buildings, landforming of spoil and associated works. | Landscape and visual during operation | Y | Within impact zone | |
| R/2013/0651/FFM | Land at Stokesley Road Guisborough | Approved | Residential development (188 dwellings) with associated vehicular and pedestrian accesses including landscaping. | Disturbance of fauna | N | Outside impact zone | 5.55 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| R/2013/0608/FFM | Teesport Waste Treatment Facility Grangetown TS6 6UG | Approved | Waste treatment facility. | Operational emissions to air | Y | Within impact zone | 2.83 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2013/0501/FFM | Elring Klinger (GB) ltd Kirkleatham | Approved | Extension to existing factory building with ancillary new access roads. | Disturbance of fauna | N | Outside impact zone | 3.03 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|-----------------|---|----------|--|--|--------------|---------------------|----------------------------------|
| | Business Park Troisdorf Way Kirkleatham Redcar TS10 5RX | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2012/0829/FFM | The Closes Estate; land North of Roseberry Road. | Approved | Redevelopment comprising the erection of 288 dwellings and ancillary works (amended scheme). | Disturbance of fauna | N | Outside impact zone | 4.98 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2012/0314/FFM | Lotte Chemical UK Ltd Queens Avenue Wilton International Site TS10 4XZ | Approved | Construction of a polyethylene terephthalate (PET) chemical plant. | Operational emissions to air | Y | Within impact zone | 1.65 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| R/2012/0110/FFM | Land north of Hamsterley Way / south of A174, sites A & B, Church Hill, Skelton | Approved | Erection of 262 residential units including garages; vehicular and pedestrian accesses with associated landscaping (amended scheme). | Disturbance of fauna | N | Outside impact zone | Site A 9.45 Site B 9.73 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| R/2015/0393/RSM | Land at | Approved | Residential development (188 dwellings) with | Disturbance of fauna | N | Outside impact zone | 5.55 |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|--|--|----------|--|--|--------------|---------------------|---------------------------------|
| | Stokesley Road Guisborough | | associated vehicular and pedestrian accesses including landscaping (resubmission). | Construction noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| R/2012/0934/RSM | Land at Imperial Park Tilbury Road South Bank | Approved | Proposed anaerobic digestion plant (steel portal framed building), including external concrete hardstanding, car parking area and new sub-station (resubmission). | Operational emissions to air | Y | Within impact zone | 3.72 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| Planning Inspectorate | | | | | | | |
| | Harbour facility at Bran Sands, Teesside, on the south bank of the River Tees. | | Harbour facilities for the bulk shipping of polyhalite. The harbour facility will be serviced by a conveyor system to transfer the finished material product to the site from a Materials Handling Facility (which is subject of a separate planning application to Redcar & Cleveland Borough Council) and includes facilities to enable the bulk loading of vessels including a new quay with ship loading facilities and berthing area. | Disturbance of fauna | N | Outside impact zone | 6.28 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| Electricity Act (1989) Section 36 and Section 37 Applications | | | | | | | |
| Offshore wind farm - S36 | Teesside, mouth of River Tees | Approved | EDF (Northern Offshore Wind) applying for offshore wind farm comprising 30 wind turbines. | Disturbance of fauna | N | Outside impact zone | 9.68 |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|----------------|----------------------|----------|--|--|--------------|---------------------|---------------------------------|
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| CHP CCGT - S36 | Seal Sands, Teesside | Approved | Thor Cogeneration has applied to construct and operate a CHP CCGT generation station. | Operational emissions to air | Y | Within impact zone | 6.21 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| CHP CCGT - S36 | Seal Sands, Teesside | Approved | Northsea Pipelines Ltd applying for CHP CCGT generating station. | Operational emissions to air | Y | Within impact zone | 5.68 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | N | Outside impact zone | |
| | | | | Landscape and visual during operation | N | Outside impact zone | |
| Biomass - S36 | Teesport, Teesside | Approved | MGT Teesside Limited applying to construct and operate a biomass fuelled renewable generating station. | Operational emissions to air | Y | Within impact zone | 3.53 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |

| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|--|--------------------|----------|---|--|--------------|---------------------|---------------------------------|
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| Biomass - S36 | Teesport, Teesside | Approved | MGT Teesside Limited applying for extension to biomass fuelled renewable generating station. | Operational emissions to air | Y | Within impact zone | 3.53 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| Biomass/S36C Electricity Act 1989 | Teesport, Teesside | | MGT Teesside Limited applying for revision to previous application to increase maximum output to 299MW. | Operational emissions to air | Y | Within impact zone | 3.53 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |
| Transport and Works Act Applications | | | | | | | |
| Teesport (Land Acquisition) Order TWA/06/APP/03 SI No. 2008/1238 | Teesport, Teesside | Approved | Expansion of container terminal facilities at Teesport. The proposed development will increase the port's capacity from around 250,000 TEU a year to around 1.5 million TEU a year. | Operational emissions to air | Y | Within impact zone | 2.58 |
| | | | | Disturbance of fauna | N | Outside impact zone | |
| | | | | Construction noise | N | Outside impact zone | |
| | | | | Operational noise | N | Outside impact zone | |
| | | | | Construction dust | N | Outside impact zone | |

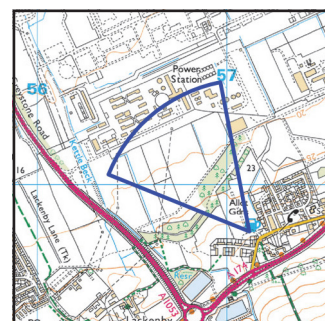
| Application | Location | Status | Description | Potential contribution to cumulative effects | Screened In? | Explanation | Distance from Project site (km) |
|-------------|----------|--------|-------------|--|--------------|--------------------|---------------------------------|
| | | | | Cultural Heritage setting | Y | Within impact zone | |
| | | | | Landscape and visual during operation | Y | Within impact zone | |

Annex B

Photomontages/Photo wirelines



Existing



Grid Reference: 457118 E 519752 N
 View point level: 33.9m
 Distance to site: 0.76Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

CLIENT:

SIZE:
A3

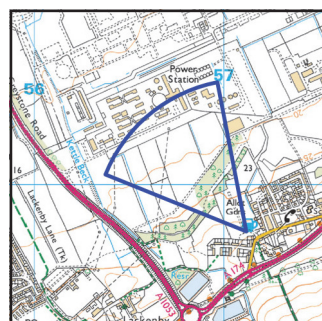
Viewpoint 1
View from Lazenby Allotments



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |



Wireline with outline of hidden plant in red



Grid Reference: 457118 E 519752 N
 View point level: 33.9m
 Distance to site: 0.76Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

Note:
 An estimated height of 80m above ground level for the existing stack at the adjacent site has been used to align the model's vertical position in the image.

CLIENT:

SIZE:
 A3

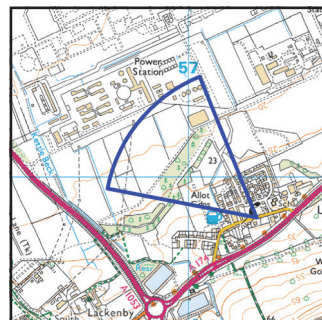
Viewpoint 1
 View from Lazenby Allotments



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |



Existing



Grid Reference: 457359 E 519786 N
 View point level: 37.1m
 Distance to site: 0.94Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

CLIENT:

SIZE:
A3

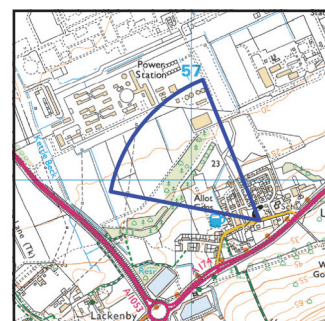
Viewpoint 4
View from Lazenby High Street



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |



Photomontage



Grid Reference: 457359 E 519786 N
 View point level: 37.1m
 Distance to site: 0.94Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

Note:
 An estimated height of 80m above ground level for the existing stack at the adjacent site has been used to align the model's vertical position in the image.

CLIENT:

SIZE:
 A3

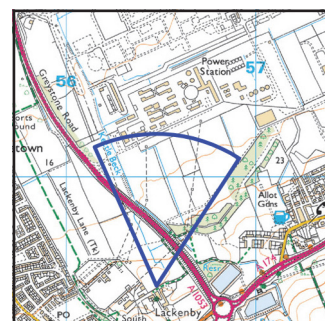
Viewpoint 4
 View from Lazenby High Street



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |



Existing



Grid Reference: 456477 E 519425 N
 View point level: 32.4m
 Distance to site: 0.82Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

CLIENT:

SIZE:
A3

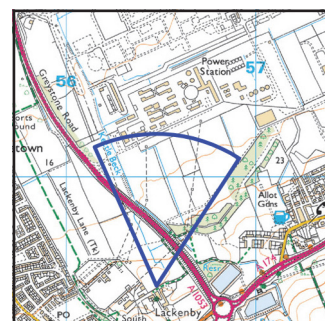
Viewpoint 5
View from Rosedene Cattery



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |



Wireline



Grid Reference: 456477 E 519425 N
 View point level: 32.4m
 Distance to site: 0.82Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

Note:
 An estimated height of 80m above ground level for the existing stack at the adjacent site has been used to align the model's vertical position in the image.

CLIENT:

SIZE:
 A3

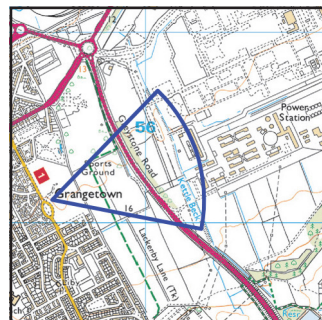
Viewpoint 5
 View from Rosedene Cattery



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |



Existing



Grid Reference: 455510 E 520119 N
 View point level: 18.2m
 Distance to site: 0.90Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

CLIENT:

SIZE:
A3

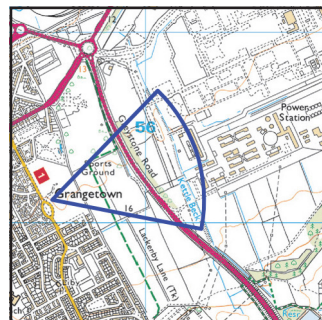
Viewpoint 6
View from Grangetown Playfield



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |



Wireline with outline of hidden plant in red



Grid Reference: 455510 E 520119 N
 View point level: 18.2m
 Distance to site: 0.90Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

Note:
 An estimated height of 80m above ground level for the existing stack at the adjacent site has been used to align the model's vertical position in the image.

CLIENT:

SIZE:
 A3

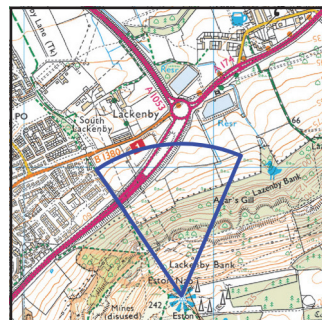
Viewpoint 6
 View from Grangetown Playfield



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |



Existing



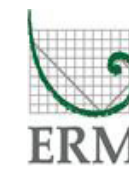
Grid Reference: 456771 E 518332 N
 View point level: 238.6m
 Distance to site: 1.92Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

CLIENT:

SIZE:
A3

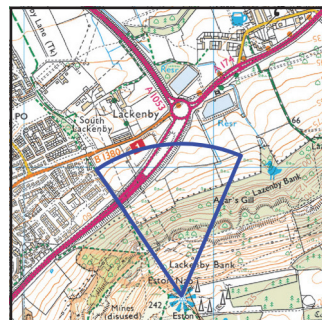
Viewpoint 10
View from Eston Nab



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |



Photomontage



Grid Reference: 456771 E 518332 N
 View point level: 238.6m
 Distance to site: 1.92Km

Photo taken: 14/12/16
 Horizontal field of view: 57°
 Viewing distance approx: 40cm for A3 print
 Perspective: Cylindrical

CLIENT:

SIZE:
A3

Viewpoint 10
View from Eston Nab



| | | |
|----------------|-------------|---------------|
| DATE: 27/11/17 | CHECKED: NT | PROJECT: |
| DRAWN: TMD | APPROVED: | Teesside CCPP |

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ERM's Bristol Office

One Castlepark
Bristol
BS2 0JA
T: +44(0)1179106700

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