

APPENDIX 1A: SOUTH HUMBER BANK ENERGY CENTRE EIA SCOPING REPORT

South Humber Bank Energy Centre

South Marsh Road, Stallingborough, DN41 8BZ

Environmental Impact Assessment: Scoping Report

Town and Country Planning (EIA) Regulations 2017

Regulation - 15(2)(a) and 17(2)

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1.0 INTRODUCTION

Background

- 1.1 AECOM Infrastructure and Environment Ltd has been commissioned by EP SHB (hereafter referred to as “the Applicant”) to prepare an Environmental Impact Assessment (EIA) Scoping Report to inform the scope and content of an EIA for the proposed South Humber Bank Energy Centre (hereafter referred to as ‘the Proposed Development’).
- 1.2 The Proposed Development Site is located off South Marsh Road, Stallingborough, North East Lincolnshire and is wholly located within the administrative area of North East Lincolnshire Council (NELC). The main development site is located to the east of EP SHB’s existing South Humber Bank Power Station (SHBPS) on vacant land within the SHBPS site boundary and which is also within the ownership of EP SHB.
- 1.3 This Scoping Report considers the environmental context of the Proposed Development Site and the potential environmental impacts of the Proposed Development. Where impacts are considered to have the potential to cause significant environmental effects, these are identified and the proposed approach to be used to characterise the impacts and understand the significance of their effects is outlined. This report also outlines issues considered to be non-significant and which it is therefore proposed do not require assessment as part of the EIA.
- 1.4 EIA is an iterative process that feeds into the engineering design process to mitigate significant environmental effects where they are predicted to occur. The final design iteration, along with the findings of the EIA will be reported in an Environmental Statement (ES), in accordance with Town and Country Planning (EIA) Regulations 2017 (herein referred to as the ‘EIA Regulations’).

Consenting Regime

- 1.5 The Proposed Development is for the generation of electricity by combustion of refuse derived fuel (RDF) and will have a gross capacity of up to 49.9 MW (electrical) and as such will be consented through the submission of a planning application under the Town and Country Planning Act 1990.
- 1.6 The Proposed Development falls within Schedule 1 Part 10 of the EIA Regulations for which EIA is mandatory as it falls within the classification;
- 1.7 “Waste disposal installations for the incineration or chemical treatment (as defined in Annex IIA to Council Directive 75/442/EEC under heading D9) of non-hazardous waste with a capacity exceeding 100 tonnes per day”.
- 1.8 As such, an EIA will be undertaken, and an Environmental Statement (ES) produced and submitted in support of the Planning Application to be submitted for the Proposed Development.
- 1.9 Although not mandatory, submission of the Scoping Report to NELC commences the EIA process and represents the first notification to NELC, as the Local Planning Authority (LPA), that the Applicant will undertake an EIA in respect of the Proposed Development and produce an ES to report the findings of the EIA.

The Purpose of Scoping in the EIA Process

- 1.10 Scoping forms a key stage of the EIA process, providing a framework for identifying likely significant environmental effects arising as a result of the Proposed Development and distinguishing the priority issues needing to be addressed within the ES. The Scoping Report also identifies those matters which do not need to be assessed in

detail. Scoping also provides key stakeholders with an early opportunity to comment on the proposed structure, methodology and content of the EIA.

1.11 The EIA will assess the likely significant effects the Proposed Development could have on the site and surrounding area through detailed baseline studies and technical assessments of issues which require detailed assessment. It will propose mitigation measures and further monitoring, as required. This information will be used to produce an ES and will inform the design of the Proposed Development.

1.12 In accordance with Regulation 15(1) of the EIA Regulations, by submission of this Scoping Report, EP SHB has requested that NELC states its opinion as to the information to be provided in the ES, by adopting an EIA scoping opinion. By this Scoping Report, EP SHB is also giving notice to NELC pursuant to Regulation 17(1) of the EIA Regulations – that requires NELC to give notice to the 'consultation bodies' that EP SHB intends to submit an environmental statement and that those bodies have a duty (pursuant to Regulation 17(4)) to make relevant information they hold available to EP SHB. EP SHB anticipates undertaking further consultation and discussion with various consultation bodies, and to seek the relevant information through that route.

1.13 This Scoping Report sets out the information which EP SHB is required to provide in accordance with Regulation 15(2)(a) of the EIA Regulations in support of this request (and which also covers that required by EIA Regulation 17(2)), namely:

- the key environmental aspects in relation to the Proposed Development;
- how these aspects have been identified;
- the proposed methodologies and guidance that will be used to assess the environmental impacts within the ES;
- the format and layout of the ES; and
- what aspects it is proposed need not be assessed ('scoped out') and why.

1.14 Table 1.1 presents a list of information that must be included within a Scoping Report, as prescribed by the EIA Regulation 15(2)(a).

Table 1.1 – Information provided within the Scoping Report (based on requirements of EIA Regulations 2017)

Description of information required	Section in the scoping report where the information is presented
A request under paragraph (1) must include (a) in relation to an application for planning permission:	
<ul style="list-style-type: none"> • a plan sufficient to identify the land; 	Figure 1 and Figure 2
<ul style="list-style-type: none"> • a brief description of the nature and purpose of the development, including its location and technical capacity; 	Section 2 and Section 3
<ul style="list-style-type: none"> • an explanation of the likely significant effects of the development on the environment; and 	Section 6
<ul style="list-style-type: none"> • such other information or representations as the person making the request may wish to provide or make. 	Sections 2 to 9

2.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

- 2.1 The location of the Proposed Development Site is shown on Figure 1 with the proposed application boundary shown on Figure 2. The Proposed Development Site includes the existing SHBPS, the cooling water pumping station located adjacent to the Humber Estuary, South Marsh Road and land between the fence and verge of Hobson Way. The existing SHBPS is wholly owned and operated by EP SHB. It consists of two combined cycle gas turbine units (CCGTs) fired by natural gas. The power plant has a combined gross electrical capacity of approximately 1,300 MW.
- 2.2 The main development area as shown on Figure 2 is located to the east of the SHBPS and associated infrastructure and to the west of the cooling water pumping station. This currently comprises a vegetated area used as the route for the underground water cooling pipes (connecting the two CCGT units and the cooling water pumping station) and associated access road. The remainder of the Proposed Development Site comprises the existing SHBPS and areas which will be used for access (including the potential relocation of the existing SHBPS access further west along South Marsh Road), construction laydown areas and the site compound during construction. Also within the Proposed Development Site are parts of South Marsh Road (the section of which along the northern boundary of the SHBPS site is an adopted highway), and the verge of Hobson Way to the west of the SHBPS.
- 2.3 The Proposed Development Site is largely flat and typically stands at around 2.0 metres above Ordnance Datum (m AOD). The main development area comprises grassland and the pumping station access road. In the north-east of the main development area there is an existing pond and some scattered scrubby vegetation and discrete sections of free-standing hedgerow. There is also a second pond within the south-west of the main development area. Drainage ditches run along the northern, eastern and southern perimeter of the Proposed Development Site. There are also a number of existing buried services associated with the SHBPS within the main development area.
- 2.4 A number of environmental receptors have been identified both within and outside the Proposed Development Site. Each of these is detailed below under each environmental discipline (note this may not be an exhaustive list at this stage and will develop as the assessments progress). All distances are given as the shortest distance between the receptor and the closest point of the Application Boundary as shown on Figure 3 Ecological Receptors and Figure 4 Residential Receptors.

Residential

- 2.5 The Proposed Development Site is located on the South Humber Bank which is an area of mixed agricultural and industrial use with no residential receptors located in close proximity to the Proposed Development Site (within 500 m).
- 2.6 The closest residential properties (individual receptors) are located approximately 1 km west and these are:
 - Poplar Farm (located on South Marsh Road); and
 - Primrose Cottage (accessed via Station Road north of the A180).
- 2.7 There are 6 other residential properties locations within 2 km as shown on Figure 4.
- 2.8 The nearest settlement is the village of Stallingborough lying over 2km away.

Traffic and Transport

- 2.9 South Marsh Road provides highway access to the main SHBPS and also to Synthomer (UK) Limited, Stallingborough and the NEWLINCS Integrated Waste Management Facility, both located north of the Proposed Development Site. It is understood that South Marsh Road is also used by the Environment Agency (EA) to access flood defences along the bank of the Humber Estuary east of the existing cooling water pumping station.
- 2.10 The Proposed Development Site is not crossed by any public rights of way. There are two public rights of way within 500 m of the Proposed Development – a public footpath located to the north of the Proposed Development Site, passing in an east-west direction from Hobson Way to the coastline, where it connects to a public bridleway which runs in a north-south direction along the Humber Estuary to the east of the Proposed Development Site.

Ecology

- 2.11 The Proposed Development Site is not subject to any statutory or non-statutory ecological designations. The Humber Estuary Ramsar site, Special Protection Area, Special Area of Conservation and Site of Special Scientific Interest (SSSI) are located approximately 25 m to the east of the Proposed Development Site. There are no other SSSIs within 2 km or European sites within 10 km of the Proposed Development.
- 2.12 There is one locally designated site identified within 2 km of the Proposed Development Site - this is 'Field to West of Power Station, Stallingborough' Site of Nature Conservation Importance (SNCI), which is approximately 30 m south-west of the Proposed Development Site.

Hydrology/ Flood Risk, Geology and Hydrogeology

- 2.13 The superficial deposits underlying the Proposed Development Site are identified as tidal flat deposits (clay and silt) possibly underlain by glacial deposits. The superficial deposits are designated as unproductive strata with low permeability; however permeable sand layers are likely to contain groundwater.
- 2.14 Bedrock at the Proposed Development Site is the Flamborough Chalk Formation and is designated as a Principal Aquifer. The nearest source protection zones from the Chalk aquifer are approximately 2 km to the south-west and north-west. Available groundwater monitoring data indicates that groundwater within the Chalk is likely to be confined beneath the overlying low-permeability superficial deposits.
- 2.15 The Site is located in Flood Zone 3a (as shown on the Flood Map for Planning (Rivers and Sea). Zone 3a is land that has a 1 in 100 or greater annual probability of river flooding; or land that has a 1 in 200 or greater annual probability of sea flooding. However, the site benefits from the presence of tidal flood defences along the south bank of the Humber Estuary which are maintained by the Environment Agency.
- 2.16 As outlined previously, there are two surface water ponds within the main development area and drainage ditches along the northern, eastern and southern perimeter of the Proposed Development Site.
- 2.17 The nearest designated watercourse is the Oldfleet Drain, located approximately 140 m to the south of the Proposed Development Site (at its closest point) which is classed by the EA as a Main River.
- 2.18 The Proposed Development Site is located 25 m from the Humber Estuary. At this location the Humber is classified under Water Framework Directive as an Estuarine and Coastal Water Body GB 530402609201.

Cultural Heritage

- 2.19 There are no Scheduled Monuments or Listed Buildings within 1 km of the Proposed Development Site. The closest Scheduled Monument is located approximately 3.3 km to the west (Stallingborough medieval settlement, post-medieval manor house and formal gardens). The nearest Listed Building is located approximately 2.5 km west (129, Station Road, Stallingborough).

Landscape

- 2.20 The Proposed Development Site is located within National Character Area (NCA) Profile: 41 Humber Estuary (NE344). This is characterised as a low-lying estuarine landscape, with extensive stretches of intertidal habitats including mudflats, salt marsh and reedbeds, coastal dunes and wetlands along the side of the estuary (Natural England, 2014).
- 2.21 In the wider landscape context, the Proposed Development Site is located within an existing belt of mixed agricultural and industrial, commercial and infrastructure development that runs along the southern side of the Humber Estuary. The South Humber Bank between Immingham and Grimsby includes significant infrastructure and industrial development, with many tall structures present, including oil refineries, power stations and dock facilities.

Site History

- 2.22 Historic Ordnance Survey (OS) maps have been studied to determine the previous land uses within the area proposed for the Proposed Development. The area is shown as agricultural land on maps for the period 1888 to 1993 followed by the development of the SHBPS between 1994 and 1999.

3.0 PROJECT DESCRIPTION

The Proposed Development

- 3.1 The Proposed Development would comprise the construction and operation of an energy from waste power station with a maximum gross electrical output of 49.9 MW. The nominal design capacity of the facility is 600,000 tonnes per annum of RDF based on a design net calorific value (NCV) of 9.5 MJ/kg.
- 3.2 The Proposed Development would generate energy through the controlled combustion of RDF. RDF comprises pre-treated, residual waste from municipal / household, commercial and industrial sources. Residual waste is that waste which remains after re-use and recycling / composting operations have taken place. RDF comprises both a biogenic and non-biogenic fraction. The biogenic content of the RDF, circa 50% of the total waste, is recognised as a renewable source of energy.
- 3.3 It is proposed that the facility will operate twenty-four hours a day, seven days a week, with occasional offline periods for maintenance.
- 3.4 RDF will be delivered by road, with deliveries assumed to be between the hours of 6am and 6pm seven days a week, including Bank Holidays but excluding Christmas Day, Boxing Day and New Year's Day. The Proposed Development Site would need storage capacity for approximately four days of fuel, so that the plant can continue to operate over a Bank Holiday weekend or there are any short-term supply issues.
- 3.5 The Proposed Development is anticipated to consist of the following main buildings and structures:
- weighbridges;
 - fuel reception hall;
 - fuel store/ bunker;
 - boiler house;
 - flue gas treatment facility;
 - turbine hall;
 - air cooled condenser;
 - substation;
 - emissions stack;
 - administration building including the control room, workshops and stores;
 - internal access roads and car parking facilities for staff and visitors; and
 - heavy goods vehicle (HGV) holding area.
- 3.6 The main components of the development are described in further detail below.

Weighbridges

- 3.7 Fuel and vehicles would be checked and their weight recorded at weighbridges on entering and leaving the Proposed Development Site. Four weighbridges are currently proposed, two for incoming vehicles and two for outgoing vehicles. Radioactive detection would be installed at the weighbridges to monitor incoming fuel to avoid radioactive waste being accepted.

Fuel Reception Hall

- 3.8 The Fuel Reception Hall would consist of a number of tipping bays to allow multiple vehicles to discharge their fuel into the Fuel Storage Area simultaneously. Within the reception hall, a one-way system would be incorporated with separate entry and exit doors. The doors would be vertical folding or roller doors, which would be closed when the delivery of waste is not taking place.

Fuel Store

- 3.9 The fuel storage area would take the form of a bunker which would provide up to four days storage. Automated cranes would be used to mix and transfer the fuel to the boilers.

Boiler House

- 3.10 The boiler house is likely to contain two grate-fired boilers.

Flue Gas Treatment Facility

- 3.11 The design of the flue gas treatment system will be fully compliant with current legislation, meeting the requirements of the Industrial Emissions Directive (IED) as well as EA guidance on risk assessments for environmental permits. It is envisaged that the flue gas treatment will include particulate, nitrogen oxide and acid gas removal systems.

Turbine Hall

- 3.12 A single steam turbine would be fed by the two boilers.

Air Cooled Condenser

- 3.13 A cooling system is required to condense the turbine exhaust steam. This is likely to consist of an air cooled condenser.

Stack

- 3.14 A stand-alone stack approximately 100 m in height would be constructed. The stack would contain stainless steel lined flues for each of the boilers. Flue gases will be emitted from the flues at approximately 120°C.

Process

- 3.15 In outline the process will be as follows:
- fuel will be delivered to the Proposed Development by road. The fuel will be unloaded in the reception hall and stored in a fuel bunker;
 - fuel will be removed from the bunker by a crane and loaded into the feed chutes for the two combustion lines ;
 - in the furnace the fuel will be fully combusted into a combustion gas and ash; bottom ash will be ejected to a water bath to cool the ash and provide a gas seal to the furnace;
 - hot gases from the waste combustion will be passed through a boiler to raise steam. The steam will then be passed to a steam turbine to generate electricity for use within the facility and for export;
 - the combustion gases will be cleaned in a flue gas treatment plant. This will include the injection of activated carbon, primarily to control dioxin emissions, the injection of lime or suitable equivalent to control acid gas emissions, a treatment

system for the removal of nitrogen oxide emissions, and the use of a fabric filter to remove dust; and

- the cleaned exhaust gases will be released to atmosphere via a stack.

Access

- 3.16 The Proposed Development Site will be accessed from the A180 via the A1173, Kiln Lane, Hobson Way and South Marsh Road.
- 3.17 The Proposed Development Site is currently accessed through the main entrance of the SHBPS off South Marsh Road and is intersected by an internal access road which links the power station to the cooling water pumping station in the east of the Proposed Development Site. Maintaining access to the pumping station will be a consideration of the design.
- 3.18 South Marsh Road is currently also used for access to Synthomer (UK) Limited, Stallingborough and the NEWLINCS Integrated Waste Management Facility, both located north of the Proposed Development Site on the northern side of South Marsh Road. South Marsh Road is also used by the Environment Agency to access the flood defences on the Humber Estuary (as noted above).
- 3.19 At this stage it is anticipated that there will be a requirement for a dedicated access point for vehicles delivering fuel to the Proposed Development from South Marsh Road.
- 3.20 The options will be reviewed as the design progresses. Consideration will be given to the requirement for appropriate turning circles suitable for HGV traffic. The design will also aim to minimise conflict between HGVs and smaller vehicles to reduce queue length and prevent delays to employees and visitors accessing the Proposed Development Site.

Grid Connection

- 3.21 There is the requirement for the Proposed Development to connect to the National Grid. Options are being reviewed and it is likely that the connection will either be via the existing SHBPS substation or an existing off-site substation. The connection between the facility and the substation will comprise either overhead or below ground cables, or a combination of both. The route of this is not yet finalised.

Outline Development Programme

Construction Programme and Management

- 3.22 Subject to being granted planning consent and following a final investment decision, it is anticipated that construction could commence in 2019, and last approximately three years.
- 3.23 The ES will provide further details of the proposed construction activities and their anticipated duration, along with an indicative programme of each phase of the works.
- 3.24 The ES will also be supported by a framework for the Construction Environmental Management Plan (CEMP), which will describe the specific mitigation measures to be followed to reduce impacts from:
- use of land for temporary laydown areas, accommodation, etc.;
 - construction traffic (including parking and access requirements);
 - earthworks;
 - noise and vibration;

- dust generation; and
- waste generation.

4.0 ALTERNATIVES

4.1 The EIA process provides an opportunity to describe the design evolution of the proposal as well as consideration of any alternative development options, including specifically considering the different potential environmental impacts of those options, before a final decision is taken on the design. In accordance with the EIA Regulations, the ES will describe alternatives which were considered by the Applicant, including:

- ‘Do Nothing Scenario’ – the consequences of no development taking place;
- ‘Alternative sites’ – examination of an alternative location for the Proposed Development and the rationale behind the selection of the preferred site (including a sequential test, as the Proposed Development Site is located on land within Flood Zone 3); and
- ‘Alternative designs’ – the ES will summarise the evolution of the design proposals, the modifications that have taken place to date and the environmental considerations which have led to those modifications. A summary of the main alternatives considered (such as alternative locations and layouts within the Proposed Development Site, fuels, boiler technology and emissions abatement) will be presented together with a review of the respective environmental effects of the alternatives and the final design. A brief overview and justification for the chosen technology will be provided in the ES, including the evaluation of what constitutes Best Available Techniques (BAT) for this Proposed Development regarding the options currently under investigation mentioned above, for example flue gas treatment technology and choice of cooling technology. The ES will also summarise comments received through consultation and where design aspects for the Proposed Development have been influenced by the consultation process

5.0 PLANNING POLICY AND NEED

- 5.1 Table 5.1 identifies the Proposed Development Site's planning history within the past 10 years. This information has been based upon the NELC online planning search function.

Table 5.1 – Site Planning History

Reference	Description	Decision
DM/1184/16/FUL	Erection of new gatehouse/induction centre with air conditioning units, installation of bio disk tank, security barriers, car parking, new fencing, and new parking bays, relocation of flag poles and other associated works.	Approved 04/04/17
DC/1088/10/IMM	Erect two storey portal framed storage building & transformer storage bund	Approved 14/02/11
DC/759/09/IMM	Erection of a parts storage building to existing power station in accordance with amended plans received on 16 th December 2009	Approved 22/12/09

- 5.2 The Proposed Development Site has experienced little change in the past 10 years with only three new applications being submitted. It is understood that these applications have all been implemented.

Planning Policy

- 5.3 This section sets out the main planning policy documents taken into account in terms of defining the scope of the EIA for the Proposed Development.

National Planning Policy

- 5.4 The National Planning Policy Framework (NPPF) was adopted in March 2012. The policies contained within the NPPF are expanded upon and supported by the 'Planning Practice Guidance', which was first published in March 2014.
- 5.5 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.
- 5.6 Potentially relevant policies to the scope of the EIA 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.
- 5.7 The Ministry of Housing, Communities and Local Government has announced that the NPPF is currently being revised in order to implement the planning reform package from the housing White Paper, the Planning for the right homes in the right places consultation and the announcements at Autumn Budget 2017. Due to the housing and plan-making focus of planning reform, it is unlikely that the draft NPPF when published will affect the scope of the EIA for the Proposed Development.
- 5.8 As the NPPF explains at paragraph 3, the government's National Policy Statements also form part of the overall framework of national planning policy, and are a material consideration in decisions on planning applications. The Overarching National Policy Statement for Energy (NPS EN-1, 2011) establishes both a needs case for new energy

infrastructure (see 5.3) and assessment criteria for applications for these. Many of these assessment criteria will be material to the consideration of the application for the Proposed Development.

Local Planning Policy

5.9 The recently adopted North East Lincolnshire Local Plan 2013 to 2032 (Adopted March 2018) will be considered during the EIA process. The following policies from the Local Plan are considered relevant to the Proposed Development:

- SO1 – Population;
- SO2 – Climate change;
- SO3 – Economy;
- SO5 – Social and health inequality;
- SO6 – Built, historic and natural environment;
- SO7 – Transport;
- SO10 – Minerals and Waste;
- Policy 6 – Infrastructure;
- Policy 9 - Habitat Mitigation - South Humber Bank
- Policy 32 – Energy and low carbon living;
- Policy 33 – Flood risk;
- Policy 34 – Water management;
- Policy 37 – Safeguarding transport infrastructure [the adjacent South Humber Link Road allocation];
- Policy 38 – Parking;
- Policy 39 – Conserving and enhancing the historic environment;
- Policy 41 – Biodiversity and Geodiversity;
- Policy 42 – Landscape;
- Policy 43 – Green space and recreation;
- Policy 47 – Future requirements for waste facilities;
- Policy 48 – Safeguarding waste facilities and related infrastructure; and
- Policy 49 – Restoration and aftercare (waste).

5.10 Surrounding the Proposed Development Site are areas allocated as Employment Land. These are identified as proposed allocations ELR025d, ELR019 and ELR020. ELR020 is also identified as being an Enterprise Zone.

5.11 There are also areas identified as proposed habitat mitigation areas. The closest site is 175 m south east of the Proposed Development Site. There is also one located approximately 500 m further north on the northern side of the works.

5.12 The Proposed Development Site is also within close proximity to the general area most suitable for wind energy, this area is however spatially fluid and has no defined boundary.

The Need for the Proposed Development

- 5.13 The newly adopted North East Lincolnshire Local Plan (2018) identifies that there is a need to ensure that there are sufficient waste management facilities within the Borough to meet the requirements of the area. Within the plan the justification for policy 49 'restoration and aftercare (waste)' identifies that waste disposal through means such as landfill is the least desirable waste management option available. By providing an energy from waste plant, this acts as a barrier to landfill and promotes the effective use of materials that have not been able to be utilised as part of earlier stages in the waste hierarchy.
- 5.14 The Proposed Development will recover energy in the form of electricity. The need that exists for new electricity generating infrastructure, such as that proposed, is confirmed in the National Policy Statements ('NPSs') for energy infrastructure that were designated by the SoS for BEIS (then the Department of Energy and Climate Change) in July 2011. These NPSs form the primary basis for decisions by the Planning Inspectorate on nationally significant energy infrastructure that are considered under the PA 2008. Whilst the Proposed Development Site is not a nationally significant infrastructure project, the identification of need and context provided within these documents is still relevant and both the NPPF (at paragraph 3) and NPS EN-1 expressly identify that the NPS are a material consideration in the determination of planning applications.
- 5.15 NPSs EN-1, EN-2, EN-4 and EN-5 are the most relevant to the Proposed Development and of the four, EN-1 sets out the 'need' for new energy infrastructure.
- 5.16 Part 2 of EN-1 outlines the policy context and paragraph 2.1.2 highlights the need for infrastructure that produces energy, when energy is considered to be '*vital to economic prosperity and social well-being*'. The energy NPSs consider the vital role that large infrastructure plays in securing energy supplies.
- 5.17 Paragraphs 2.2.16- 2.2.19 states that the Government is looking at a variety of reforms in order to promote investment so as to replace aging infrastructure. Paragraph 2.2.20 states that in order to manage the risks to achieving security of supply the UK needs:
- Sufficient electricity capacity to meet demand at all times, including a 'safety margin of spare capacity' to accommodate unforeseen fluctuations in supply or demand;
 - Reliable associated supply chains (for example, fuel for power stations) to meet demand as it rises; and
 - A diverse mix of technologies and fuels (and fuel supply routes), so that it does not rely on any one technology or fuel.
- 5.18 Part 3 of EN-1 sets out the need for nationally significant energy infrastructure. Paragraph 3.1.1 states that the UK '*needs all the types of energy infrastructure covered by this NPS in order to achieve energy security*' and that the '*Government does not consider it appropriate for planning policy to set targets for or limits on the different technologies*' (Paragraph 3.1.2).
- 5.19 Paragraph 3.1.3 further states that the IPC (now the Planning Inspectorate) should assess applications for 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 Secretary of State should '*give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Planning Act 2008*'.

5.20 Section 3.3 of Part 3 of EN-1 sets out why the Government believes that there is an urgent need for new electricity infrastructure, including:

- Meeting energy security and carbon reduction objectives – all types of energy infrastructure covered by the NPS are needed to achieve energy security in the UK at the same time as reducing greenhouse gas emissions;
- The need to replace closing electricity generating capacity – at least 22 GW of existing electricity generating capacity will need to be replaced in the coming years, as a result of aging power stations and tightening environmental regulation. Additionally, 10 GW of nuclear generating capacity is expected to close over the next 20 years;
- The need for more electricity capacity to support the increased supply from renewables – decarbonisation of electricity generation is reliant on a dramatic increase in the amount of renewable energy; however, some renewable sources (such as wind, solar and tidal) are intermittent and cannot be adjusted to meet demand. Furthermore, EN-1 recognises that there will still be a role for fossil fuel generation to provide a cost-effective means of ‘back up’ electricity generation at short notice to support renewable technologies; and
- Future increases in electricity demand – the demand for electricity is expected to increase and total electricity consumption could double by 2050. Depending upon the choice of how electricity is supplied, total capacity may need to more than double to be sufficiently robust to all weather conditions.

5.21 Paragraph 3.3.15 states the urgency at which new energy infrastructure should be brought forward as soon as possible and certainly within the next 10-15 years (from 2011).

6.0 POTENTIALLY SIGNIFICANT ENVIRONMENTAL ISSUES

Introduction

- 6.1 Schedule 4 paragraph 4 of the EIA Regulations states the ES must include;
- “A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape”.*
- 6.2 Consideration has been given to this list during the scoping process. Table 6.1 present a summary of where these will be considered within the ES for the Proposed Development.
- 6.3 Where factors have been scoped out of the ES these are discussed further in Section 7 of this report.

Table 6.1 – Consideration of topics in the EIA scoping exercise

Schedule 4 Paragraph 4 factors	Proposed location within the Environmental Statement
Population	It is not anticipated that the Proposed Development will result in any changes to population numbers. Consideration of likely effects on the existing population are considered where relevant within other chapters within the Environmental Statement e.g. -levels and effects of emissions - Air Quality -effects of local road and transport - Transport Assessment
Human Health	Air Quality, (including Human Health Risk Assessment), and Noise.
Biodiversity	Ecology and Nature Conservation, Habitats Regulation Assessment
Land	Geology , Hydrology and Land Contamination
Water	Flood Risk, Hydrology and Water Resources, Geology , Hydrology and Land Contamination
Air	Air Quality
Climate	Scoped Out- Refer to Section 7
Material Assets	Various Chapter including , Cultural Heritage and Transport
Cultural Heritage	Cultural Heritage
Landscape	Landscape and Visual

Air Quality

Baseline Conditions

- 6.4 Under Section 82 of the Environment Act (1995) (Part IV), local authorities are required to undertake an ongoing exercise to review air quality within their area of jurisdiction. NELC has declared one AQMA, the Grimsby AQMA, which is located along Cleethorpe Road in Grimsby, approximately 5.5 km to the south east of the Proposed

Development Site. The AQMA was declared as a result of exceedances of the Air Quality Strategy Objective for annual mean nitrogen dioxide. This is the only AQMA within 10 km of the Proposed Development Site.

- 6.5 At this distance and with the prevailing wind direction it is not anticipated that the AQMA is at risk of being affected by the Proposed Development, although this will be considered in the air quality impact assessment.
- 6.6 NELC currently undertakes diffusion tube monitoring at roadside locations with the closest approximately 3 km north located at Kings Road Immingham (OS Grid Reference 519093, 415306). In addition there are several monitoring locations including kerbside, background and roadside located further south in and around Grimsby.
- 6.7 The UK Automatic Urban and Rural Network (AURN) is a country-wide network of air quality monitoring stations operated on behalf of the DEFRA. This includes automatic monitoring of oxides of nitrogen, nitrogen dioxide, sulphur dioxide, ozone, carbon monoxide and fine particulate matter.
- 6.8 The only AURN site located within 10 km of the Proposed Development is at the junction of Woodlands Avenue and Oaklands Road in Immingham. This is an urban background site located approximately 4 km to the north east.
- 6.9 The above is a brief summary of the known available baseline, or existing, background air quality in the wider area. A full review of the available baseline at the Proposed Development Site will be determined from available monitoring data and Defra background air quality maps (UK-AIR) (Defra, 2016) to inform the detailed assessment for the purposes of the EIA.

Scope of the Assessment

- 6.10 The following potential impacts may be associated with the Proposed Development:
- emission of pollutants to air from energy from waste plant stacks during operation (process emissions);
 - emission of pollutants to air from vehicles associated with construction and operation of the Proposed Development (engine emissions and fugitive dust and odour); and
 - construction dust and mobile plant exhaust emissions generated during construction.
- 6.11 The Proposed Development, when operational, will emit known pollutants to air, via a stack. These will include the combustion products nitrogen oxides, particulates and carbon monoxide, for which Air Quality Objectives (AQS) have been set as part of the National Air Quality Strategy, as well as CO₂ and potentially additional trace pollutants. The plant will be designed to comply with the requirements of the Industrial Emissions Directive (IED) and in accordance with Environment Agency guidance (Environment Agency, 2016).
- 6.12 An atmospheric impact assessment will be undertaken for the main point source emissions, utilising air dispersion modelling to assess the impact to air quality potentially brought about through the generation and dispersion of emissions from the Proposed Development. The study will be desk-based and will assess the predicted concentrations of combustion pollutants specifically detailed in the IED, which are potentially hazardous to human health and designated habitats sites, at identified receptors (such as residential homes and ecological sites in the local area).

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- 6.13 The modelling will be based on Emission Limit Values set by the IED and at full operating load, thereby presenting a worst-case scenario in the ES. Should it be deemed appropriate to model lower loads, justification for this will be provided and the load clearly stated in the assessment. Modelling will be undertaken in accordance with Environment Agency guidance (Environment Agency, 2016).
- 6.14 The atmospheric dispersion modelling study of operational emissions will be undertaken using the Atmospheric Dispersion Modelling System (ADMS) model, currently version 5.1. ADMS is widely used by industry and the regulatory authorities.
- 6.15 The dispersion modelling study will be used to determine the most appropriate height for the stack and configuration relative to the surrounding structures using the maximum short term and long term ground level concentrations predicted.
- 6.16 Potential impacts on ecological receptors will be assessed, including statutorily designated European sites within 10 km of the Proposed Development and non-statutory habitat sites within 2 km of the Proposed Development, in accordance with Environment Agency guidance (Environment Agency, 2016).
- 6.17 An air quality impact assessment will also be undertaken on the effects of road traffic on the local road network associated with the construction and operation of the Proposed Development, in accordance with the methods outlined in the guidance for local authorities (LAQM.TG09) (Defra, 2009). The Highways Agency's (HA) Design Manual for Roads and Bridges (DMRB) (Highways Agency, 2007) screening model will be used, supplemented by detailed ADMS-Roads dispersion model as necessary, depending on background concentrations and predicted percentage traffic increase as a result of the Proposed Development. Both tools have been specifically designed to assess the impact of road traffic emissions in the UK. Any requirement for baseline air quality monitoring will be agreed in advance with the Environmental Health Officer at NELC.
- 6.18 Should detailed modelling be required, the assessment would utilise local traffic data attained during the proposed traffic and transport assessment (see Traffic and Transport section 6.3), including traffic numbers, fleet composition, and average vehicle speeds, to calculate emission fluxes for the above listed pollutants from each road source. A number of traffic scenarios would be modelled using designated HGV routes, including present-day, and a given future date both with and without the Proposed Development.
- 6.19 In addition, potential impacts and nuisance from site clearance, construction dust and mobile plant exhaust emissions generated during the construction phase of the Proposed Development will be considered using a screening assessment (Institute for Environmental Management and Assessment (IEMA), 2016). Where necessary, mitigation measures will be recommended for the control of dust and site plant emissions during site preparation and construction works to minimise the potential effects.
- 6.20 A Human Health Risk Assessment (HHRA) will be prepared for the Proposed Development, considering potential impacts of trace pollutants. This will be undertaken in accordance with standard guidance for the preparation of HHRAs.

Noise and Vibration

Baseline Conditions

- 6.21 The Proposed Development will be located within the existing industrial setting of South Humber Bank Power Station. The land surrounding the Power Station site is mainly in agricultural or industrial uses.

6.22 The closest residential properties to the Proposed Development (individual receptors) are located approximately 1 km west and these include:

- Poplar Farm (located on South Marsh Road); and
- Primrose Cottage (accessed via Station Road north of the A180).

6.23 Ecologically sensitive receptors are located around and to the east of the Proposed Development Site along the banks of the Humber Estuary.

6.24 No known noise baseline monitoring data is available for the Proposed Development Site at present however a full review of any existing data will be carried out. Any existing data, together with monitoring data to be collected at representative Noise Sensitive Receptor locations (to be agreed with NELC Environmental Health Officer), will be used to establish the baseline conditions around the Proposed Development Site.

Scope of the Assessment

6.25 The following potential impacts are likely to be associated with the Proposed Development:

- construction noise and vibration impacts (including construction traffic on public roads);
- operational noise impacts from the new plant; and
- operational noise impacts from road traffic on public roads.

6.26 The operation of this type of facility is not a source of significant ground borne vibration. Consequently, operational vibration is scoped out of the assessment.

6.27 It is noted that the only receptors within 500 metres are three industrial facilities (power station, chemical manufacturer, waste management facility) and that any ground borne vibration impacts resulting from the operation of the Proposed Development will be negligible compare to their own self-generated vibration.

6.28 The scope of the noise and vibration assessment will be:

- identification of nearest noise sensitive receptors;
- liaison with NELC Environmental Health Officer to agree scope and methodology of the noise and vibration assessment, including baseline noise monitoring locations and measurement protocol;
- establishment of baseline noise levels in the locality;
- calculation and assessment of construction noise and vibration impacts (including construction traffic on public roads); and
- calculation and assessment of operational noise impacts (including site traffic on public roads).

6.29 The noise and vibration assessment will be carried out in accordance with the following guidance:

- National Planning Policy Framework, 2012;
- Noise Policy Statement for England, 2010; and
- Planning Practice Guidance for Noise, 2014.

6.30 Additionally, reference will be made, but not be limited, to the following:

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- British Standard (BS) 5228-1 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites. Part 1: Noise';
 - BS 5228-2 2009+A1:2014 'Code of practice for noise and vibration control on construction and open sites. Part 2: Vibration';
 - International Organisation for Standardisation (ISO) 9613-2: 1996 'Attenuation of sound during propagation outdoors. Part 2: General method of calculation';
 - BS 4142: 2014 'Methods for rating and assessing industrial and commercial sound';
 - BS 7385: 1993 'Evaluation and measurement for vibration in buildings';
 - BS 6472: 2008 'Guide to evaluation of human exposure to vibration in buildings';
 - Control of Pollution Act 1974;
 - Calculation of Road Traffic Noise (CRTN) (DoT, 1988); and
 - Design Manual for Road and Bridges (DMRB) Volume 11 Section 3 Part 7 HD213/11 (Revision 1) 'Traffic Noise and Vibration' (Highways Agency, 2011).
- 6.31 Baseline noise monitoring requirements will be agreed in advance with the Environmental Health Officer at NELC. The monitoring procedures will conform to BS 7445: 2003 'Description and Measurement of Environmental Noise', and monitoring will be undertaken in close proximity to local sensitive receptors including weekend and weekday times, ideally (subject to adequate security) over a minimum five day unmanned monitoring period (Thursday to Monday suggested).
- 6.32 Noise levels (and, where appropriate, vibration levels) associated with enabling and construction works will be calculated and assessed (at chosen sensitive receptors) using the data and procedures given in BS 5228. Additionally, noise increases at sensitive receptors due to any construction traffic on public roads will be calculated according to the methods given in CRTN. For human receptors, vibration levels will be assessed against annoyance criteria provided in BS 5228. For any identified sensitive instrumentation / equipment housed in nearby industrial premises, vibration levels will be assessed against specific manufacturer's limits.
- 6.33 The operational noise impact of the Proposed Development will be predicted using computer noise modelling software (SoundPLAN or CadnaA), based on information on plant layout, and the operating conditions and the levels of noise generated by plant items and vehicles, as provided by the client. The modelling software enables a detailed implementation of the proposed equipment and buildings, existing surrounding buildings and ground features. The software implements the methodology in ISO 9613-2 for the calculation of noise levels from industrial sources.
- 6.34 The operation of the new facility may have a potentially significant impact on traffic flows on local roads around the Proposed Development Site. The change in road traffic noise levels will be predicted using the standard methodology outlined in CRTN. The predictions will be based on baseline and with development traffic data.
- 6.35 The significance of the impact on road traffic noise levels will be assessed based on a range of relevant guidance including the 'Design Manual for Roads and Bridges: 2011'.
- 6.36 The significance of the noise impact of the Proposed Development during operation will be assessed using the method given in BS 4142 and World Health Organisation (WHO) guidance (WHO, 2009). BS 4142 provides a method for rating the acceptability of increases in existing noise levels at noise-sensitive receptors affected by noise from industrial sources at Proposed Developments, and the WHO guidance provides
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information regarding assessment of sleep disturbance. Further details of the approach will be discussed and agreed as required with the Environmental Health Officer at NELC.

- 6.37 Noise levels predicted to be experienced at the closest ecological receptors from both construction and operation of the Proposed Development will be provided to the ecologists for further assessment and inclusion within the Ecology and Nature Conservation assessment.

Traffic and Transport

Baseline Conditions

- 6.38 South Marsh Road runs within the northern boundary of the Proposed Development Site providing the main access to SHBPS. HGV access to the Proposed Development from the strategic road network is proposed via the A180, the A1173, Kiln Lane, Hobson Way and South Marsh Road. The A180 provides access to Grimsby to the south-east and the M180 to the west. Table 6.2 summarises the local highway network for the proposed HGV access route. The proposed development of the South Humber Bank Link Road to the south of the Proposed Development Site will not change the proposed access routeing.
- 6.39 A preliminary review of the link roads surrounding the Proposed Development Site and junctions along the proposed access route to the Proposed Development Site from the A180 has identified the need for further baseline data to be collected. This is outlined further below.
- 6.40 Taking the above summary into account and given the industrial nature of the area and the wide carriageway widths, no issues have been identified on the proposed HGV route from the A180 to the Proposed Development.
- 6.41 The Proposed Development Site is not crossed by any public rights of way. There are two public rights of way within 500 m of the Proposed Development – a public footpath located to the north of the Proposed Development Site, passing in an east-west direction from Hobson Way to the coastline, where it connects to a public bridleway which runs in a north-south direction along the Humber Estuary to the east of the Proposed Development Site.
- 6.42 An initial review of the road network in the vicinity of the Proposed Development Site identified a need for manual traffic counts at the following three junctions;
- The staggered junction between Hobson Way and South Marsh Road;
 - The roundabout connecting Kiln Way, Laporte Road and Hobson Way; and
 - The roundabout connecting A1173 with Kiln Way.
- 6.43 A further five locations were identified for Automatic Traffic Count Surveys at: Kiln Lane; A1173; Hobson Way and South Marsh Road to the east and west of the Hobson Way junction. These surveys were undertaken in June 2018.
- 6.44 The data will be used to quantify baseline vehicular demand along key routes to and from the Proposed Development Site. The data will also form the basis of calculations to quantify the impact of construction and operational traffic on the surrounding road network.

Table 6.2 – Summary of local highway network for the proposed access route

Road name/no	Summary
A180	The A180 is a dual carriageway providing access to Grimsby to the south east and the M180 to the west. It forms a grade separated roundabout with the A1173. The A180 is subject to the 70 mph national speed limit for dual carriageways and is part of Highways England's core network.
A1173	The A1173 is a 7.3 metre wide single carriageway road and is subject to the 60 mph speed limit for single carriageway road providing access to Immingham and Immingham Docks. The A1173 meets Kiln Lane at a four arm roundabout. There are no footways along its length between the A1173 and the Kiln Lane roundabout.
Kiln Lane	Kiln Lane is a 7.3 metre wide single carriageway road which is street lit and is subject to a 40 mph speed limit. Kiln Lane provides access to a number of industrial units which are located along its frontage. Kiln Lane meets Hobson Way / Laporte Road at a four arm roundabout.
Hobson Way	Hobson Way is a 7.3 metre single carriageway road which is street lit and is subject to a 40 mph speed limit. A pedestrian footway is provided along the western side of the carriageway. Hobson Way meets South Marsh Road at a major priority junction.
South Marsh Road	South Marsh Road is a 6.75 metre wide single carriageway road which is street lit and is subject to a 40 mph speed limit. The road provides access to the South Humber Bank power station and a small number of other industrial units.

Scope of the Assessment

- 6.45 The following potential impacts may be associated with the Proposed Development:
- generation of traffic during construction affecting the local and strategic road network; and
 - generation of traffic during operation affecting the local and strategic road network.
- 6.46 A preliminary assessment has been undertaken to establish the level of traffic that is likely to be associated with the Proposed Development. The volume of construction vehicles associated with the delivery of plant and the labour force has not been fully defined at this stage but based on other similar sized EfW construction projects is likely to be less than 120 one-way vehicle movements per day during the peak construction period.
- 6.47 During the operational phase of the development, it is anticipated that there will be a work-force of approximately 56 people that will be required on a shift basis to be spread over a 24 hour period. Staff will travel to and from work in a variety of directions. The volume of HGVs associated with the delivery of RDF to the Proposed Development is likely to be approximately 150 one-way movements per day.
- 6.48 A detailed assessment of traffic associated with the construction and operational phase of the development will be carried out.

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- 6.49 To fully address the impacts of the construction and operation phase on the transport network, a Transport Assessment (TA) will be produced. The scope for the TA will follow the guidelines set out in the Department of Communities and Local Governments 'Planning Practice Guidance' document (March 2014) (DCLG, 2014). NELC and Highways England will be consulted so that their specific requirements can be accommodated within the TA.
- 6.50 The traffic and transport chapter in the ES will summarise the salient points from the TA. It will also relate the magnitude and significance of potential impacts to criteria contained in the 'Guidelines for the Environmental Assessment of Road Traffic' document, produced by the Institute of Environmental Management & Assessment (IEMA, 1993).
- 6.51 The scope of the TA will cover the following key areas:
- a review of national, regional and local transport policy including the National Planning Policy Framework;
 - a description of baseline and future baseline conditions, including link and junction flows (described further below), a review of highway safety issues including examination of personal injury accident data and consideration of accessibility by all main transport modes;
 - calculation of construction traffic flows over the period of construction;
 - calculation of operational traffic flows during the operational phases;
 - distribution and assignment of construction traffic flows to the road network, including the identification of routes for abnormal indivisible load deliveries;
 - distribution and assignment of operational traffic flows on the road network;
 - identification of committed developments within the study area to be included within the baseline flows;
 - local network impact analysis during construction and operation– the size of the study area is to be confirmed with the local authorities and Highways England during the TA scoping process, and key junctions may be identified by these stakeholders that require detailed capacity analysis;
 - cumulative impact assessment – including consideration of other committed developments within the study area;
 - the formulation of mitigation measures during construction , such as a Framework Construction Worker Travel Plan and Framework Traffic Management Plan to seek to control the routing and impact that HGVs will have on the local road network during construction; and
 - the formulation of mitigation measures during operation through the preparation of a Framework Operational Travel Plan.
- 6.52 Should peak hour junction modelling be required to support the planning application it is the following junctions that are likely to be assessed:
- South Marsh Road / Hobson Way Priority Junction;
 - Kiln Lane / Hobson Way / Laporte Road Roundabout; and
 - A1173 / Kiln Lane Roundabout.
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- 6.53 The junctions required to be modelled will be agreed with the local highway authority and Highways England during the scoping stage of the transport assessment to support the proposed planning application.
- 6.54 A summary of any residual and cumulative impacts will be provided should the proposed mitigation not fully address the impact of the Proposed Development on the transport network.

Ecology and Nature Conservation

Baseline Conditions

Designated Sites

- 6.55 A desk study was undertaken to identify statutory and non-statutory sites; a desk study area of 10 km for internationally designated sites, 2 km for nationally designated sites and 1 km for locally designated sites (including ancient woodlands listed on the Ancient Woodland Inventory (AWI) was adopted.
- 6.56 The Proposed Development Site itself is not subject to any statutory or non-statutory designations.
- 6.57 The Proposed Development at its closest point is located approximately 25 m to the west of the Humber Estuary. The Humber Estuary is afforded statutory protection under the following designations, many of which are largely overlapping:
- Special Area of Conservation (SAC) – internationally important for its estuary and inter-tidal mudflat and sandflat habitats, and its populations of sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*) and breeding grey seal (*Halichoerus grypus*);
 - Special Protection Area (SPA) - the estuary supports important numbers of water birds (especially geese, ducks and waders) during the migration periods and in winter. In summer, it supports important breeding populations of bittern (*Botaurus stellaris*), marsh harrier (*Circus aeruginosus*), avocet (*Recurvirostra avosetta*) and little tern (*Sterna albifrons*);
 - Ramsar Site - internationally important as a representative example of a near-natural estuary with the following component habitats: dune systems and humid dune slacks, estuarine waters, intertidal mud and sand flats, saltmarshes, and coastal brackish/saline lagoons. Also of international importance for its breeding colony of grey seal, and its assemblage of non-breeding and wintering waterfowl, and the component populations of individual bird species; and
 - Special Scientific Interest (SSSI) – of national importance for its component habitats of intertidal mudflats and sandflats and coastal saltmarsh and the associated saline lagoons, sand dunes and standing waters. The SSSI also has geological interest, and supports important aggregations of breeding, wintering and passage birds (for which the SPA/ Ramsar is also designated).
- 6.58 There were no other statutory designated sites within the desk study area.
- 6.59 One locally designated site was identified within the desk study area; this is 'Field to West of Power Station, Stallingborough' Site of Nature Conservation Importance (SNCI), which is approximately 30 m south-west of the Proposed Development Site as shown on Figure 3.

Habitats

- 6.60 An Extended Phase I Habitat survey of the Proposed Development Site was undertaken on 18th May 2018.
- 6.61 The Proposed Development Site is located in an area of land adjacent to the SHBPS that was created for the benefit of nature conservation in the late 2000s. The land was seeded with a wildflower seed mix and two small ponds were created. There are also a number of drainage ditches and hedgerows around the margins of the Proposed Development Site.
- 6.62 The grassland habitat was found to be relatively diverse, with grass species dominant throughout the sward and wildflower establishment patchily distributed throughout. This variation is thought to be as a result of the difference in underlying substrate given that the same seed mix was sown throughout. The grassland is managed through rotational sheep grazing and an annual summer hay cut.

Protected Species

- 6.63 Further protected species surveys are ongoing, and will enable a robust baseline dataset to be collected for the purposes of ecological impact assessment. A summary of the surveys that have been undertaken, and which are programmed to be completed over summer 2018, is provided in Table 6.3.
- 6.64 Based on the Phase 1 Habitat survey and desk study data collected to date, the following key ecological features are considered to be associated with the Proposed Development Site:
- Wintering birds – the plot in which the Proposed Development will be located is noted to be of likely value for high tide feeding, wintering and loafing water birds, and will therefore likely to be considered to be ‘functionally linked’ to the Humber Estuary SPA/ Ramsar. The field immediately to the south of the Proposed Development Site is also noted to be of high value to the key wintering species of the SPA/ Ramsar, namely lapwing (*Vanellus vanellus*), golden plover (*Pluvialis apricaria*) and curlew (*Numenius arquata*).
 - Water vole (*Arvicola amphibius*) – there are a number of ditches on and adjacent to the Proposed Development Site. Previous surveys of the ditches have recorded populations of water vole, and it is reasonable to assume that this species will still be present because the habitats remain suitable.
 - Reptiles – the habitats within the Proposed Development Site are suitable for grass snake (*Natrix helvetica*), slow worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*).
- 6.65 There are desk study records of otter (*Lutra lutra*) in the local area, and this species is known to be present in the Estuary. The ditches on site may provide suitable habitat for otter, although this would likely be on a transient and passage basis only. There is no suitable habitat for otter holts to be present, because the ditches are relatively open. Any otter signs will be recorded during the undertaking of the water vole survey.
- 6.66 Although unlikely to be a key constraint, aquatic invertebrate sampling of the two ponds within the Proposed Development Site will be undertaken to assist with the development of an appropriate habitat compensation strategy for the loss the ponds.
- 6.67 The two ponds within the Proposed Development Site were subject to environmental DNA (eDNA) sampling in May and June 2018. Both ponds returned a negative result for the presence of GCN. These ecological features will therefore be scoped out of the

assessment. There are no other ponds within 250 m of the Proposed Development Site (the typical terrestrial range of GCN).

Scope of the Assessment

- 6.68 The following potential impacts and their resulting effects on ecological features will be associated with the Proposed Development:
- permanent loss of habitats within the main development area during construction;
 - temporary impacts on habitats within laydown areas during construction;
 - temporary disturbance of ecological features (noise, visual and dust impacts) in the vicinity of the Proposed Development Site during construction;
 - long-term disturbance of ecological features (noise and visual impacts) during operation;
 - temporary and permanent impacts on aquatic habitats and water quality in the surrounding ditches due to construction works that may affect these;
 - temporary air quality impacts on ecological features (dust emissions) in the vicinity of the Proposed Development Site during construction; and
 - long-term air quality impacts on designated sites during operation (emissions of oxides of nitrogen, Nitrogen and acid deposition, and any other air pollutants).
- 6.69 Potential impacts on ecological features will be assessed using the Chartered Institute for Ecology and Environmental Management (CIEEM) Ecological Impact Assessment Guidelines (2016) (CIEEM, 2016). Any likely significant adverse effects will be mitigated or compensated for and any ecological enhancements will also be recommended where appropriate. Following the consideration of the implementation of mitigation and compensation, any residual effects on ecological features will be identified.
- 6.70 A summary of the ecological surveys carried out to date and further surveys proposed to be undertaken to facilitate an adequate assessment of the likely effects of the Proposed Development on designated sites and protected/ notable species, and to adequately inform the planning application, is provided in Table 6.3.
- 6.71 Surveys for the following species have been scoped out:
- **Botanical Survey-** the Phase 1 Habitat survey highlighted pockets of higher floristic diversity within the grassland, although the majority is classified as semi-improved and is less diverse. The variation is thought to be as a result of the varying levels of topsoil across the Proposed Development Site and thus the varying rates of establishment of the sown seed mix. Further investigations are being undertaken to establish the seed mix used to inform mitigation requirements. However, it is not considered that a full National Vegetation Classification (NVC) survey is necessary to establish a robust baseline for impact assessment given that a detailed species list has been obtained already.
 - **Wintering Birds**–It is not proposed to undertake additional wintering bird surveys on the Proposed Development Site. The baseline bird data collected for the proposed development site and the nearest surrounding fields (fields 37, 39, 30 and 31) has been requested from Humber EDC (via NEYEDC), and a desk study search of all other bird data in the vicinity will be undertaken from planning applications in the area that are publically available on the planning portal. It is considered that the importance of these fields to wintering/ passage birds is sufficiently high and well documented that further surveys would add little in

terms of understanding, and thus would not be required to support the impact assessment (or Habitats Regulations Assessment) for the Proposed Development. These fields are considered to be functionally linked to the Humber Estuary SPA/ Ramsar. The available data are considered to provide a sufficiently robust background against which the potential impacts of the Proposed Development can be assessed, both for EIA and for determining whether the Proposed Development would result in likely significant effects on the Humber Estuary SAC/SPA/ Ramsar. AECOM is consulting with Natural England regarding the proposed scope of assessment which is outlined in more detail in Table 6-3 below.

- **Breeding Birds**- the open grassland areas may support ground nesting species but overall there is a relatively limited suite of habitats that are suitable for nesting birds. A full breeding bird survey is therefore not considered necessary to support the EIA, and precautionary mitigation will be incorporated into site clearance works.
- **Badger** – there is no suitable habitat for badger within the Proposed Development Site, and no signs of badger were recorded during the Phase 1 Habitat survey.

Table 6.3 – Further ecological surveys being carried out to inform the EIA

Survey	Brief scope	Survey timing	Status *
Desk Study	International statutory designations within 10 km Other statutory designations within 2 km Non-statutory designations, ancient woodlands, notable habitats and protected/ notable species within 1 km Records of wintering birds from within the Proposed Development Site and on adjacent fields.	May 2018	C
Phase 1 Habitat survey	All habitats within Proposed Development footprint and immediate surrounds to place site into context.	May 2018	C
GCN	eDNA surveys of all ponds identified as potentially suitable for GCN within the Proposed Development Site and within 250 m. Samples were taken on 18 th May and 8 th June 2018.	May-June 2018	C
Reptiles	Seven visits in suitable weather conditions to determine presence/ absence. Artificial refuges at a minimum density of 10 per hectare were set out at the Proposed Development Site on 8 th June 2018.	May – Sept 2018	P
Water vole and otter	All ditches within and adjacent to the Proposed Development Site that may be directly or indirectly impacted.	May – Sept 2018	P
Aquatic invertebrates	One visit to collect samples from Ponds 1 and 2, and ditches to be lost to development.	May – Sept 2018	P

*C=Complete, P=In Progress

6.72 The majority of ecology surveys will be completed by September 2018. Where possible the Proposed Development is being designed to avoid potential impacts on protected species e.g. by maintaining appropriate buffers to ditches supporting water voles

through review of the layout and design of the Proposed Development. This will be ongoing throughout the EIA process.

- 6.73 Pre-application advice has been requested through Natural England's Discretionary Advice Service (DAS) to determine the scope of the surveys and assessment for wintering birds, and in respect of the Habitats Regulations Assessment (HRA). In the event that further wintering bird surveys are required to support the EclA, it would not be possible to incorporate the survey results into the planning application given the seasonal constraints associated with this survey. If this is the case, the results would be discussed with Natural England and subsequently provided.

Habitats Regulations Assessment

- 6.74 The Humber Estuary SAC/ SPA and Ramsar site (these sites are collectively known as 'Natura 2000' sites) is located approximately 25 m east of the Proposed Development. The Proposed Development is not connected with, or necessary to, the management of the Natura 2000 sites associated with the Humber Estuary, and therefore a Habitats Regulations Assessment (HRA) will be necessary (arising from the Conservation of Habitats and Species Regulations 2017, Regulation 63).
- 6.75 To assist the competent authority (the LPA in respect of the planning application) in completing its HRA, a report to inform an HRA will be undertaken and submitted with the planning application. Where the screening cannot exclude the possibility of likely significant effects on a Natura 2000 site, information to support an 'appropriate assessment' will be provided/ signposted to in the relevant chapters of the ES. Consultation will be undertaken with Natural England to determine the scope of the HRA.
- 6.76 Proposals which adversely affect the Humber Estuary SPA/Ramsar site due to the loss of functionally linked land would normally be required to provide their own mitigation in order to comply with the requirements of the Habitats Regulations. The South Humber Gateway (SHG) mitigation strategy provides site to deliver appropriate mitigation to address adverse impacts at a strategic level. This strategic approach to mitigation within the South Humber Bank area has been supported by nature conservation bodies and the local authority as a mechanism for securing and safeguarding the integrity of the Humber Estuary SPA/Ramsar site. Given that the Proposed Development will likely result in the loss of habitat that is functionally linked to the Humber Estuary SPA/Ramsar site, compensation/ offsetting will be required, and it is anticipated that this will be delivered through the NELC SHG mitigation strategy route. In line with Policy 9 of the Local Plan, a calculation will be undertaken to determine the quantum of offsetting that will be required to be drawn down from the total land area to be allocated for wintering bird mitigation at Stallingborough as part of the SHG mitigation strategy.

Landscape and Visual Amenity

Baseline Conditions

- 6.77 The Proposed Development Site is not located within a National Park or AONB.
- 6.78 The nearest area of Heritage Coast is located 14 km from the Proposed Development Site. This is located around the area of Spurn Point and its associated coastline.
- 6.79 The Proposed Development Site is located entirely within National Character Area (NCA) Profile: 41 Humber Estuary (NE344). The NCA is characterised as a low-lying estuarine landscape, with extensive stretches of intertidal habitats including mudflats, salt marsh and reedbeds, coastal dunes and wetlands along the side of the estuary (Natural England, 2014).

6.80 A Landscape Character Assessment was undertaken by NELC in 2015 (NELC, 2015). The Humber Estuary NCA is divided into two Local Landscape Types (LLTs) 'Industrial Landscape' and 'Flat Open Farmland'. The Proposed Development is located entirely within the LLT – Industrial Landscape, described as “visually intrusive, stretching from the north-western edge of Grimsby up to and around Immingham. It is dominated by on-shore oil and gas refineries and other large scale industrial units and extends inland to the A180.”

6.81 Key characteristics of the Industrial Landscape LLT are described as:

- Virtually flat landform emphasising large skies;
- Large scale industrial works (including Immingham power station) and docks;
- Medium to large scale open arable farmland;
- Open views sometimes interrupted by large scale built development;
- High and low voltage pylons criss-crossing the area have an urbanising effect;
- Network of busy roads including the main A180 transport route;
- Well established low cut native hedgerow field boundaries with hedgerow trees;
- Tall native hedgerows and mature trees along road corridors;
- Extensive network of field drainage dykes including several large named drains; and
- Immingham town, northern periphery of Grimsby, scattered farmsteads.”

6.82 The sensitivity of this LLT to visual change is considered to be high due to the flat nature of the landform and lack of tree cover, whereas its sensitivity of change in landscape character is low due to the poor condition of the landscape as “*The pattern of elements is incoherent with many detracting features across the area.*” (NELC, 2015)

6.83 The surrounding area is mainly industrial in nature interspersed with brown and greenfield land. There are no residential properties within 500 m of the Proposed Development Site. The closest residential properties are located approximately 1km west at

- Poplar Farm (located on South Marsh Road); and
- Primrose Cottage (accessed via Station Road north of the A180).

Scope of the Assessment

6.84 The following potential impacts may be associated with the Proposed Development:

- temporary changes to landscape character and views from sensitive receptors in the vicinity of the Proposed Development Site during construction; and
- permanent changes to landscape character and views from sensitive receptors in the vicinity of the Proposed Development Site during operation.

6.85 The proposed method of landscape and visual impact assessment has been devised to address the specific impacts likely to result from a development of its scale and nature. The methodology draws upon the following established best practice guidance:

- Guidelines for Landscape and Visual Impact Assessment, Third Edition. (Landscape Institute and Institute of Environmental Management and Assessment, 2013).

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- An Approach to Landscape Character Assessment (Natural England, 2014);
 - Landscape Institute Advice Note 01/11: Photography and photomontage in landscape and visual impact assessment (Landscape Institute, 2011); and
 - Visual representation of development proposals. Technical Guidance Note 02/17 (31 March 2017).
- 6.86 The impact assessment process requires that a clear distinction is drawn between landscape and visual impacts, as follows:
- landscape impacts relate to the degree of change to physical characteristics or components of the landscape, which together form the character of that landscape, e.g. landform, vegetation and buildings; and
 - visual impacts relate to the degree of change to an individual receptor's view of that landscape, e.g. local residents, users of public footpaths or motorists passing through the area.
- 6.87 A detailed study of the existing landscape components, character and views of the Proposed Development Site and an identified study area will be carried out and comprise the following:
- The agreement of the extent of the landscape and visual baseline study areas with the LPA, which we anticipate to be 5 km;
 - Production of a Zone of Theoretical Visibility model (ZTV) based on the agreed study areas using site topographical survey and OS Digital Terrain Data (using Key Terra Firma software) and based upon the tallest proposed structure within the Proposed Development Site;
 - Identification of potential landscape and visual receptors for the consideration of the LPA as potential representative views and receptors to be assessed;
 - Site visit for assessment of sensitive visual and landscape receptors;
 - Assessment of the Proposed Development impacts and effects;
 - Outline description of recommended landscape or visual mitigation measures; and
 - Production of a series of drawings illustrating relevant information relating to landscape character, landscape designations, topography, ZTV, sensitive receptor location plan, photographic panoramas and photomontages from selected viewpoints.
- 6.88 The location of representative views and photomontages will be agreed in consultation with NELC as appropriate.

Geology, Hydrogeology and Land Contamination

Baseline Conditions

- 6.89 The Proposed Development Site is not located within a Coal Mining Reporting Area or a Development High Risk Area.
- 6.90 Superficial deposits at the Proposed Development Site are identified as Tidal Flat deposits (clay and silt) possibly underlain by glacial deposits. The Tidal Flats are described by the BGS as “normally consolidated soft silty clay, with layers of sand, gravel and peat; characteristically low relief; from the tidal zone”. The superficial deposits are designated as unproductive strata with low permeability; however permeable sands are likely to contain groundwater.

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- 6.91 Soils at the Proposed Development Site are described on Cranfield Soil and Agrifood Institute's Soilscape (Soilscape, 2018) mapping as "loamy and clayey soils of coastal flats with naturally high groundwater".
- 6.92 Bedrock at the Proposed Development Site is identified as the Flamborough Chalk Formation which is described by the BGS as "white, well-bedded, flint-free Chalk with common marl seams (typically about one per metre); common stylolitic surfaces and pyrite nodules". The Flamborough Chalk Formation is designated as a Principal Aquifer. Groundwater vulnerability (1:100,000 scale) mapping notes that the Principal Aquifer of the Flamborough Chalk Formation is a highly permeable aquifer with overlying soils of high leaching potential. Groundwater within the Chalk is likely to be confined beneath the overlying superficial deposits.
- 6.93 The Proposed Development site is not located within a groundwater Source Protection Zone (SPZ). The nearest SPZs to the site are located approximately 2 km to the south-west and north-west and are associated with potable water abstractions from the Chalk aquifer. The nearest Inner Zone (Zone 1) Groundwater Source is located in Healing, approximately 3 km to the south-west. Groundwater within the chalk is likely to be confined beneath the overlying superficial deposits.
- 6.94 Based on the information available at this stage groundwater levels at the Proposed Development Site are understood to be between 1 m to 3.0 m below ground level. Further baseline data will be gathered using existing monitoring boreholes to inform the EIA.

Scope of the Assessment

- 6.95 The following potential impacts may be associated with the Proposed Development:
- disturbance of potentially contaminated soils and potential contamination of perched groundwater and creating new pathways e.g. via construction of foundation piles, to sensitive receptors, including construction workers, future site users, off-site receptors and controlled waters during construction;
 - pollution of soils, and controlled waters within or near the Proposed Development Site during construction, for example due to the spillage of polluting materials, if an appropriate Environmental Management Plan is not adhered to; and
 - pollution of soils and controlled waters within or near the Proposed Development Site during operation, for example due to the spillage of polluting materials, if materials are not appropriately stored at the Proposed Development in accordance with an appropriate Operational Environmental Management Plan and/or an appropriate drainage system is not implemented and maintained.
- 6.96 A desk based assessment (Phase 1) will be completed to identify potential contaminative uses and provide preliminary geotechnical assessment of the Proposed Development Site. This desk based assessment will identify the potential for land contamination and potential pathways to sensitive receptors. The desk based assessment will consider the potential for contaminants associated with current and historic land use in and around the Proposed Development Site.
- 6.97 The results of the desk based assessment and conceptual site model will be used to assess data gaps and uncertainties and, if required an outline scope for additional site investigation. It is anticipated that the requirements for intrusive investigation will be discussed and agreed in advance with the EA and NELC.
- 6.98 An assessment of potential impacts on existing ground conditions and sterilisation of potential mineral deposits will be undertaken as part of the EIA, including the potential

for the Proposed Development to result in land contamination, following Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance (DEFRA, 2012) and Contaminated Land Report 11: Model Procedures for the Management of Land Contamination (Environment Agency, 2004). Consideration will also be given to potential impacts associated with the construction and operation of the Proposed Development and how these will be mitigated.

- 6.99 The RDF received at the Proposed Development Site will be stored in an enclosed bunker. There are a number of options under consideration for the fuel bunker e.g. bunker sizing and depth. These options will be investigated from a technical and environmental perspective including potential for impact on groundwater resources during both the construction and operation phases and impact of high groundwater levels on the design of the structures. The final selection will be influenced by feedback during the consultation process and by a BAT assessment incorporating consideration of technical, operational and environmental aspects.
- 6.100 Based on the assessment of the baseline and the identification of any potential impacts, the ES will make recommendations for mitigation measures. These may include the recommendation for further intrusive investigation to address residual data gaps or better delineate identified contamination hotspots or plumes, quantitative risk assessment, remediation strategy, validation plan and validation report. It will also make recommendations for possible mitigation measures to be employed by contractors, should any previously unidentified contamination be encountered during the construction phase.

Cultural Heritage

Baseline Conditions

- 6.101 The Proposed Development Site is not located within or in the vicinity of (i.e. within 5 km) of a World Heritage Site, a Registered Battlefield or a Registered Park and Garden.
- 6.102 There are three Scheduled Monuments located within 5 km of the Proposed Development Site:
- Stallingborough medieval settlement, post-medieval manor house and formal gardens (1020423) – located approximately 3.3 km to the west of the proposed development site;
 - Churchyard cross 20 m south of St Peter and St Paul's Church (1020023) – located approximately 3.3 km to the west of the proposed development site; and
 - Two moated sites at Healing Hall (1010947) – located approximately 3.7 km to the south-west of the proposed development site.
- 6.103 The nearest listed building to the proposed development site is the Grade II listed 129 Station Road located approximately 2.5 km to the south-west in Stallingborough. A further four listed buildings are located to the western end of Stallingborough including a grade II* listed church. There are two listed buildings in Healing (approximately 3.7 km), and there are nine listed buildings located in Great Coates (approximately 3.1 km), on the north-western edge of Grimsby.
- 6.104 The Proposed Development Site is not located within a Conservation Area.
- 6.105 From information available from online sources, there is no evidence of archaeological remains on the Proposed Development Site. There are three records within 500 m of the Proposed Development Site;

- Second World War Bombing Decoy, SF/QL Immingham, Immingham Range-420 m south east of Middle Drain Pumping Station. This record is located 200 m north-east of the proposed development site to the north of the Synthomer Works;
- Land north of Old Fleet Drain- Roman Ditch – Evaluation in advance of proposed works at the Proposed Development Site in 2005 recorded substantial Roman ditches and pottery of late 3rd to 4th century date. This record is located approximately 500 m south-east of the proposed development site; and
- Land at Landfill No 3 Acordis works – Monitoring of development ground works recorded Roman and medieval finds but no archaeological features. This record is located approximately 500 m south of the proposed development site.

6.106 An archaeological evaluation was undertaken of the area directly south of the proposed development site in 2011 (Field and McDaid, 2011). The previous interventions section of the report states that a geophysical survey was conducted of the SHBPS site in 1992. The survey identified magnetic anomalies, interpreted as silted-up former stream channels. An analysis of the magnetic qualities of material from boreholes was undertaken to establish if the anomalies were natural deposits or of archaeological significance. The results showed deposits containing blue silty clay consistent with silted stream channels. The report on this survey was not available at the time of writing.

6.107 The excavation of the adjacent site undertaken in 2011 (Field and McDaid, 2011) revealed a multi-phased late Roman site. Two main alignments of ditched field systems of 3rd – 4th century date were recorded. An earlier field system with a series of curvilinear enclosures, superseded by a large rectilinear building which is believed to have burnt down at some stage. Further field systems and evidence of occupation were also identified. The report also states that by the 4th century the site became prone to flooding with alluvial deposits covering the area.

6.108 A historic aerial photograph held by EP SHB shows the Power Station under construction (see Appendix 1). In this photograph the Proposed Development Site is shown to have been subject to a top soil strip, construction of the cooling pipes and to have been used for laydown, soil storage and construction compounds. Due to the shallow nature of the archaeological features identified in the adjacent field, it is considered that any features extending into this area would have been disturbed by the works relating to the construction of the power station

Scope of the Assessment

6.109 Based on the evidence of previous ground disturbance in relation to the construction of SHBPS the assessment of potential effects on below ground archaeology from the Proposed Development has been scoped out of the EIA.

6.110 The potential for impacts on the setting of designated and non-designated heritage assets, including historic landscape character areas, in the vicinity of the Proposed Development Site, during construction and operation has been identified.

6.111 A heritage statement will determine, as far as is reasonably possible, from existing records (including the North East Lincolnshire HER and the National Heritage List) and visits to relevant archives and local studies libraries, the nature of the built heritage resource within a study area of 1 km for non-designated assets. A study area of 3 km, or larger if appropriate, will be used to identify designated heritage assets and the results will be used to assess any impacts that the Proposed Development may have on the receptors. An inventory of all heritage assets will be cross-referenced to

drawings (base maps) and the report narrative. This baseline collation of data will be supported by site visits to establish the setting of heritage assets that might be affected by the scheme.

6.112 Due to the scale of the Proposed Development there is the potential for the setting of heritage assets to be impacted; therefore potential setting impacts upon designated and non-designated assets will be assessed. The Zone of Theoretical Visibility (ZTV) (to be undertaken as part of the landscape and visual impact assessment as discussed in the Landscape and Visual section below) will be used as a tool of assessment to identify areas of visibility. However, as the setting of a heritage asset is not a solely visual concept, other aspects, such as aural intrusion and historical associations, must also be taken into account.

6.113 The assessment will follow current professional good practice and guidance including that produced by the Chartered Institute for Archaeologists (CIfA) and Historic England (HE).

- CIfA (2017) – Standard and Guidance for historic environment desk-based assessment;
- CIfA (2014) – Code of Conduct;
- HE (2015) – Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision-Taking in the Historic Environment; and
- HE (2017) – Historic Environment Good Practice Advice in Planning Note 3: The Setting of Heritage Assets.

6.114 The purpose of the EIA will be to assess the potential impacts of the Proposed Development upon the significance of the heritage resource and to understand the level of harm to that resource.

6.115 Once all of the potential heritage receptors have been identified, they will be assigned a 'value'. This is not solely a reflection of their designated or non-designated status but is determined through a number of factors including their heritage significance, which can be expressed as artistic, archaeological, architectural or historic. The impact from the Proposed Development upon the significance of the heritage assets will then be quantified and expressed within the EIA. This will produce an initial significance of effect of the Proposed Development upon the heritage resource, taking into account any design or embedded mitigation.

6.116 Following the impact assessment process, any potential mitigation strategies required will be considered and recommendations made. The significance of residual effects remaining after mitigation will be assessed according to accepted criteria for assessing impacts on heritage assets.

Flood Risk, Hydrology and Water Resources

Baseline Conditions

6.117 The Proposed Development Site is located in Flood Zone 3a (as shown on the Flood Map for Planning (Rivers and Sea)). Flood Zone 3a is classified as land that has a 1 in 100 or greater annual probability of river flooding; or land that has a 1 in 200 or greater annual probability of sea flooding. However, the Proposed Development Site benefits from the presence of tidal flood defences along the south bank of the Humber Estuary.

6.118 There are two ponds within the Proposed Development Site boundary, one located north of the pumping station access road and one to the south.

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- 6.119 Surface water runoff within the existing site currently drains to the ditches to the immediate north of the Proposed Development boundary (to the south of South March Road) and a drain to the immediate south of the Proposed Development boundary. These are maintained by SHBPS.
- 6.120 The Oldfleet Drain is classed as an EA Main River and is located approximately 450 m to the south of the Proposed Development Site (at its closest point).
- 6.121 The Proposed Development Site is located in an area under the jurisdiction of the North East Lindsey Internal Drainage Board who manage the wider land drainage ditch system in proximity to the Proposed Development Site.
- 6.122 The Proposed Development Site is located 25 m from the Humber estuary. At this location the Humber is classified under the Water Framework Directive as an Estuarine and Coastal Water Body (GB 530402609201- Humber Lower). In the 2016 River Basin Management Plan cycle, the Humber Lower has an overall waterbody classification of 'Moderate' potential (comprising a moderate ecological potential and failing chemical potential).
- 6.123 The Humber Estuary is designated under both the Nitrates Directive and Urban Wastewater Treatment Directive.

Scope of the Assessment

- 6.124 The following potential impacts may be associated with the Proposed Development:
- permanent loss of both surface waterbodies within the Proposed Development Site during construction;
 - potential change to the surrounding ditches (culverting/extension to culverts/installation of fencing);
 - potential temporary changes to surface water flows within Flood Zone 3 during construction;
 - change to the impermeable area within the Proposed Development Site, and associated changes to surface water flows during operation;
 - potential loss of floodplain storage as the footprint of the Proposed Development is located in Flood Zone 3 (although this is defended);
 - pollution of surface watercourses within or near the Proposed Development Site during construction due to spillages or polluted surface water runoff entering the watercourse (if an appropriate Environmental Management Plan is not adhered to); and
 - pollution of surface watercourses within or near the Proposed Development Site during operation, due to spillages or polluted surface water runoff entering the watercourse (if materials are not appropriately stored at the Proposed Development in accordance with an appropriate Operational Environmental Management Plan and/or an appropriate drainage system is not implemented and maintained).
- 6.125 Potential impacts on groundwater are considered in the Geology, Hydrology and Land Contamination Chapter.
- 6.126 The assessment of impacts on water resources will include a review and summary of relevant legislation and national, regional and local planning policy relevant to the water environment.

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- 6.127 An assessment of the impact of the Proposed Development for both construction and the operational phases of the development will be undertaken and where required recommendations will be made for mitigation measures in order to minimise the potential impact of the Proposed Development on water resources. Any residual impacts will be identified as well as the potential for cumulative impacts associated with other developments.
- 6.128A Flood Risk Assessment will be prepared for the Proposed Development Site which meets the requirements of the National Planning Policy Framework, NELC (in their role as Lead Local Flood Authority), and North East Lindsey Internal Drainage Board. The Flood Risk Assessment will also consider, with respect to management of surface water runoff, the specific needs of NELC Council and North East Lindsey Internal Drainage Board with reference to the emerging surface water drainage strategy for the wider Power Station site, and will consider risks to the Proposed Development from flooding as well as the potential for the Proposed Development to increase flood risk off site. This will inform the design of the Proposed Development (including finished ground and floor levels) as well as the EIA.

7.0 NON-SIGNIFICANT ENVIRONMENTAL ISSUES

- 7.1 The aim of the Scoping Stage is to focus the EIA on those environmental aspects that may be significantly affected by the Proposed Development. In so doing, the significance of impacts associated with each environmental aspect becomes more clearly defined, resulting in certain aspects being considered 'non-significant'. The following section provides a summary of those issues, which have been considered during the preparation of this Scoping Report, and which are not considered likely to lead to significant environmental effects. It is proposed that these will therefore not be considered in the ES.

Aviation

- 7.2 Humberside International airport is located approximately 14 km to the west of the Proposed Development. Due to the distance an assessment of the potential impacts of the Proposed Development on aviation is not required and, it is proposed that aviation is scoped out of the EIA.
- 7.3 The Civil Aviation Association (CAA) has a general interest in charting all known structures of 91.4 m (300 feet) or more above ground level. The existing Power Station stacks are 75 m in height. The stacks have lighting at the top for aviation purposes.
- 7.4 The CAA will be consulted on the Proposed Development to review any requirements for aviation lighting on the stack and enable the Proposed Development to be charted in future. Should taller stacks or cranes be required than currently expected, the need for an aviation assessment will be reviewed accordingly.

Electronic Interference

- 7.5 The introduction of new structures of significant height and bulk into an environment can cause disruption to the reception of electromagnetic waves. Although this effect relates to both radio and TV signals, TV reception is potentially more affected and as such only TV reception has been considered. The proposed maximum building heights will be no higher than the existing stacks associated with the existing SHBPS. The stack will be taller at approximately 90m. The expected maximum heights of temporary construction cranes will be similar to the height of the Stack.
- 7.6 Terrestrial television signals are transmitted in digital format. The only relevant interference mechanism affecting digital terrestrial TV signals is attenuation due to buildings physically blocking (and absorbing) them. If the wanted signals are too weak then the pictures very quickly deteriorate into random 'blocks' and then disappear altogether. Since interference caused by temporary structures during construction, such as cranes and scaffolding, is difficult to predict and signals are expected to diffract around these features (which are relatively tall and thin), it has not been considered quantitatively within this assessment.
- 7.7 Given the height and mass of the buildings and stack in the Proposed Development, and the lack of nearby residential development, it is considered that an assessment of the Proposed Development's effect on electronic interference is not required.

Accidental Events/ Health and Safety

- 7.8 The description of the Proposed Development in the ES will provide sufficient information to allow the key environmental issues identified to be adequately assessed. Accidental events such as the potential for fuel spillages and abnormal air emissions, and how the risk of these events will be minimised, will be discussed in the relevant chapters of the ES. The majority of emergency response plans and contingency measures will be dealt with in the Environmental Permit, which is regulated by the EA.

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- 7.9 Consultation with the HSE will be carried out giving due consideration to the consultation zones for nearby potentially hazardous installations using the HSE's Land Use Planning Methodology.

Major Incidents and Natural Disasters

- 7.10 The needs for the assessment of major incidents and natural disasters has been scoped out of the EIA although this will be covered where required within the topic chapters e.g. severe weather (Storms, Flood) - will be considered within the Flood Risk Assessment.

Sustainability and Climate Change

- 7.11 Sustainability matters that have been incorporated into the design of the Proposed Development will be detailed in the introductory chapters of the ES. The carbon emissions from the operation of the Proposed Development and proposed mitigation measures will be assessed in the air quality chapter. It is therefore not proposed to include a standalone sustainability and climate change chapter in the ES.

8.0 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

EIA Methodology and Reporting

- 8.1 The EIA will be carried out in accordance with the requirements defined by the EIA Regulations.
- 8.2 The ES will set out the process followed during the EIA including the methods used for the collection of data and for the identification and assessment of impacts. Any assumptions made will be clearly identified.
- 8.3 The EIA process is designed to be capable of, and sensitive to, changes that occur as a result of changes to the design, including any mitigation measures that are incorporated during the EIA. This will be particularly important for the Proposed Development as the design and layout is still being refined, and changes are likely to be made following submission of this EIA Scoping Report.
- 8.4 The EIA is based on a number of related activities, as follows:
- establishing existing baseline conditions;
 - consultation with statutory and non-statutory consultees throughout the application process;
 - consideration of relevant local, regional and national planning policies, guidelines and legislation relevant to EIA;
 - consideration of technical standards for the development of significance criteria;
 - review of secondary information, previous environmental studies and publicly-available information and databases;
 - physical surveys and monitoring;
 - desk-top studies;
 - computer modelling;
 - reference to current legislation and guidance; and
 - expert opinion.
- 8.5 Impacts will be considered on the basis of their magnitude, duration and reversibility. Cumulative and combined effects will also be considered where appropriate. Significance will be evaluated on the basis of the scale of the impact and the importance or sensitivity of the receptors, in accordance with standard assessment methodologies (major, moderate, minor and not significant).
- 8.6 Where likely significant environmental effects are identified in the assessment process, measures to mitigate these effects will be put forward in the form of recommendations to be undertaken as part of the project development.

Structure of the Environmental Statement

- 8.7 The ES will comprise the following set of documents:
- **Non-Technical Summary (NTS):** this document will provide a summary of the issues and findings of the EIA in non-technical language.
 - **Volume I:** Environmental Statement. This will contain the full main text of the individual impact assessments with the proposed chapter headings as follows:
 1. Introduction;

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2. Assessment Methodology;
 3. Description of the Proposed Development Site;
 4. The Proposed Development;
 5. Construction Programme and Management;
 6. Alternatives and Design Evolution;
 7. Air Quality;
 8. Noise and Vibration;
 9. Traffic and Transportation;
 10. Ecology and Nature Conservation;
 11. Landscape and Visual;
 12. Geology, Hydrogeology and Land Contamination;
 13. Cultural Heritage;
 14. Flood Risk, Hydrology and Water Resources;
 15. Cumulative Impact Assessment; and
 16. Summary of Significant Residual Effects.
- **Volume II:** Figures
 - **Volume III:** Technical Appendices: These will provide supplementary details of the environmental studies conducted during the EIA including relevant data tables, figures and photographs. This will include the FRA.

Structure of the Technical Chapters

- 8.8 Technical chapters 7 to 14 of the ES will be structured based on the following subheadings:

Introduction:

- 8.9 The Introduction will describe the format of the assessment presented within the chapter.

Legislation and Planning Policy Context:

- 8.10 The Legislation and Planning Policy Context section of the technical chapters will provide an overview of the relevant legislation, planning policy and technical guidance relevant to the assessment.

Assessment Methodology and Significance Criteria:

- 8.11 The methods used in undertaking the technical study will be outlined in this section with references to published standards (e.g. British Standards, Building Research Establishment), guidelines (e.g. Design Manual for Roads and Bridges and Institute of Environmental Management & Assessment guidelines) and relevant significance criteria.
- 8.12 The significance of effects before and after mitigation will be evaluated with reference to definitive standards, accepted criteria and legislation where available. Where it is not possible to quantify impacts, qualitative assessments will be carried out, based on available knowledge and professional judgment. Where uncertainty exists, this will be noted in the relevant technical assessment chapter.

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- 8.13 Specific criteria for each technical assessment will be developed, giving due regard to the following:
- extent and magnitude of the impact;
 - impact duration (whether short, medium or long term);
 - impact nature (whether direct or indirect, reversible or irreversible);
 - whether the impact occurs in isolation, is cumulative or interactive;
 - performance against environmental quality standards where relevant;
 - sensitivity of the receptor; and
 - compatibility with environmental policies and standards.
- 8.14 For issues where definitive quality standards do not exist, significance will be based on the:
- local, district, regional or national scale or value of the resource affected;
 - number of receptors affected;
 - sensitivity of these receptors; and
 - duration of the impact.
- 8.15 In order to provide a consistent approach to expressing the outcomes of the various studies undertaken as part of the EIA, and thereby enable comparison between effects upon different environmental components, the following terminology will be used throughout the ES to define effects:
- adverse – detrimental or negative effect to an environmental resource or receptor; or
 - beneficial – advantageous or positive effect to an environmental resource or receptor; and
 - negligible – imperceptible effect to an environmental resource or receptor; or
 - minor – slight, very short or highly localised effect of no significant consequence; or
 - moderate – more than a slight, very short or localised effect (by extent, duration or magnitude) which may be considered significant; or
 - major – considerable effect (by extent, duration or magnitude) of more than local significance or in breach of recognised acceptability, legislation, policy or standards.
- 8.16 As indicated above, for the purpose of this EIA moderate and major effects will be deemed ‘significant’, and where possible mitigation measures will be identified to reduce the residual effects to ‘not significant’.
- 8.17 Each of the technical chapters will provide the criteria, including sources and justifications, for quantifying the different levels of residual effect. Where possible, this has been based upon quantitative and accepted criteria (for example, the National Air Quality Strategy objectives or noise assessment guidelines), together with the use of value judgment and expert interpretation to establish to the scale of an effect.

Baseline Conditions

- 8.18 In order to assess the potential impacts and effects of the Proposed Development, it is necessary to determine the environmental conditions that currently exist on site and in the surrounding area, for comparison. These are known as the 'existing baseline conditions'. Baseline conditions are determined using the results of site surveys and investigations or desk based data searches, or a combination of these, as appropriate.

Development Design and Impact Avoidance

- 8.19 Measures that have been integrated into the Proposed Development in order to avoid or reduce adverse environmental effects will be described. Such measures may include refinement of the design and layout of the Proposed Development to avoid impacts on sensitive receptors, implementation of Construction and Operational Environmental Management Plans, and adherence of relevant legislation, guidance and best practice. The assessment of impacts and effects in the next section takes account of these measures already being in place.

Likely Impacts and Effects

- 8.20 This section will identify the likely impacts resulting from the Proposed Development. The magnitude of impacts are defined with reference to the relevant baseline conditions (existing or future, as appropriate), and effects are determined in accordance with the identified methodology.

Mitigation and Enhancement Measures

- 8.21 The Mitigation and Enhancement Measures section will describe the measures that will be implemented by the Applicant to reduce any significant adverse effects identified by the assessment and enhance beneficial effects during construction and operation of the Proposed Development.

Residual Effects and Conclusions

- 8.22 Effects of the Proposed Development remaining following the implementation of available mitigation measures are known as 'residual effects'. These will be discussed for each of the potential effects, and their significance level identified.

Cumulative and Combined Effects

- 8.23 In accordance with the EIA Regulations, consideration will be given to the potential for cumulative and in combination effects to arise as a result of the Proposed Development.
- 8.24 Cumulative effects are those that accrue over time and space from a number of development activities. The impact of the Proposed Development will be considered in conjunction with the potential impacts from other projects or activities which are both reasonably foreseeable in terms of delivery (i.e. have planning consent) and are located within a realistic geographical scope where environmental impacts could act together to create a more significant overall effect.
- 8.25 Combined effects are those resulting from a single development, 'the Proposed Development', on any one receptor that may collectively cause a greater effect (such as the combined effects of noise and air quality/ dust impacts during construction on local residents).

Consultation

- 8.26 The process of consultation is critical to the development of a comprehensive and balanced ES. The views of statutory and non-statutory consultees serve to focus the environmental studies and to identify specific issues that require further investigation.

Consultation is an ongoing process, which enables mitigation measures to be incorporated into the project design thereby limiting adverse effects and enhancing environmental benefits.

- 8.27 The following consultees have been contacted prior to the submission of this Scoping Report:
- Natural England;
 - Health and Safety Executive; and
 - Environment Agency.
- 8.28 Following the publication of this EIA Scoping Report non- statutory consultation on the Proposed Development will be undertaken in summer 2018, using a range of methods including public exhibitions and a project website. The website will be maintained throughout the project to provide up-to-date information.
- 8.29 The Applicant will prepare a Statement of Community Involvement (SoCI). The SoCI will outline how the Applicant intends to consult with the local community about the Proposed Development.
- 8.30 All responses received during consultation will be carefully considered and taken into account in the development of the project.

9.0 SUMMARY

9.1 This Scoping Report has identified the potential for significant effects to arise from the construction and operation of the Proposed Development. The following topic assessments are proposed:

- Air Quality;
- Noise and Vibration;
- Traffic and Transportation;
- Ecology and Nature Conservation;
- Landscape and Visual;
- Geology, Hydrogeology and Land Contamination;
- Cultural Heritage; and
- Flood Risk, Hydrology and Water Resources.

9.2 The detailed assessments for each of these topics will be undertaken in accordance with standard guidance and best practice and reported in the ES. Where significant effects are identified, mitigation measures will be described where possible to reduce the residual effects.

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