EP UK Investments

South Humber Bank Energy Centre Development Consent Order

South Marsh Road, Stallingborough, DN41 8BZ

Environmental Impact Assessment: Scoping Report

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017

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1.0 INTRODUCTION

1.1 Background

1.1.1 AECOM Infrastructure and Environment UK Ltd has been commissioned by EP Waste Management Limited ('the Applicant'), a subsidiary of EP UK Investments Limited ('EPUKI'), to prepare an Environmental Impact Assessment ('EIA') Scoping Report to inform the scope and content of an EIA for a proposed energy from waste power station of up to 95 MW gross electrical output, known as South Humber Bank Energy Centre (hereafter referred to as 'the Proposed Development').

1.1.2 The Planning Act 2008 defines a generating station exceeding 50 MW in England and which does not generate electricity from wind as a nationally significant infrastructure project ('NSIP'), so a Development Consent Order ('DCO') is required for the construction of the Proposed Development.

1.1.3 The Proposed Development is located off South Marsh Road, Stallingborough, North East Lincolnshire, wholly within the administrative area of North East Lincolnshire Council ('NELC') (see Figure 1). The Proposed Development Site ('the Site') is within the existing South Humber Bank Power Station ('SHBPS') site, which is owned by EP SHB Limited ('EP SHB'), a subsidiary of EPUKI. The area in which the main development will be located, within the Site, ('the Main Development Area') is located to the east of SHBPS (see Figure 3).

1.1.4 An EIA was undertaken in 2018 for a 49.9 MW gross electrical output energy from waste power station, on the same site as the Proposed Development. Full planning permission for the 49.9 MW development was granted by NELC to EP SHB under the Town and Country Planning Act 1990 on 12th April 2019 (referred to as 'the Consented Development'). Since the grant of planning permission for the Consented Development ('the Extant Planning Permission') the Applicant has been assessing potential opportunities to improve the efficiency of the Development and now proposes an energy from waste power station of up to 95 MW electrical output (the Proposed Development).

1.1.5 Much of the baseline data and assessment work undertaken for the Consented Development EIA is relevant to the Proposed Development EIA; where required aspects will be updated or revised to assess the impacts and effects of the Proposed Development.

1.1.6 This EIA Scoping Report considers the environmental context of the Site and the potential environmental impacts of the Proposed Development.

1.1.7 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 effects considered to be non-significant and which it is therefore proposed do not require assessment as part of the EIA for the Proposed Development.

1.1.8 Further detail on the approach to the EIA is presented in Section 6.

1.2 Consenting Regimes and Construction Phasing

1.2.1 As described above the Proposed Development will comprise a generating station with a capacity of up to 95 MW gross electrical output and it therefore falls within the definition of a NSIP under Section 14(1)(a) and 15(2) of the Planning Act 2008 as a 'generating station exceeding 50 MW'.

1.2.2 It is also a 'Schedule 1' development under The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (as amended) (the 'EIA Regulations') as it falls

within the classification "*Waste disposal installations for the incineration or chemical treatment…of non-hazardous waste with a capacity exceeding 100 tonnes per day*". As such, an EIA is required for the Proposed Development and an ES must be prepared in accordance with the EIA Regulations to accompany the DCO application.

1.2.3 The DCO application will be submitted to the Planning Inspectorate (PINS) who will examine the application and make recommendations to the Secretary of State, who will subsequently determine whether or not a DCO should be granted for the Proposed Development.

1.2.4 Whilst the DCO is being sought, EP SHB is likely to progress the Consented Development in accordance with the Extant Planning Permission. Approximately a three year construction programme is anticipated for the Consented Development, with construction expected to commence in Q1 2020. Following grant of DCO (which would be anticipated around Q3 2021, approximately half way through the three year construction programme for the Consented Development), the additional aspects of development that would be required to extend the Consented Development from 49.9 MW to the 95 MW Proposed Development would then be constructed.

1.2.5 Whilst this is the most likely construction phasing scenario for the Proposed Development, two other potential construction phasing scenarios have also been considered in order that a robust assessment of environmental effects is undertaken, as set out in Section 3, these being that the Proposed Development would be constructed and operated pursuant to only the DCO and commencing either in Q3 2021 or Q3 2026.

1.2.6 The Extant Planning Permission is therefore likely to be relied on in respect of the construction of all elements of the generating station other than the works identified at paragraph 3.1.5 below. EP SHB would therefore continue to obtain any necessary approvals for the Consented Development pursuant to conditions attached to its planning permission. The submission of information to discharge planning conditions has already begun and it is anticipated that applications to discharge conditions regarding the approval of detailed design for the Consented Development will be submitted during Quarter 1 (Q1) 2020.

1.2.7 The Site boundary for the Proposed Development is illustrated on Figure 2 and is consistent with the boundary for the Consented Development.

1.2.8 A description of the Proposed Development is provided in Section 3 of this report.

1.3 The Purpose of the Scoping Report

1.3.1 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.

1.3.2 This Scoping Report has been prepared as part of a request to PINS for a formal Scoping Opinion on the information to be provided in the ES, pursuant to Regulation 10 of the EIA Regulations. This Scoping Report also constitutes notice to the Secretary of State (pursuant to EIA Regulation 8(1)(b)) that the Applicant proposes to provide an ES with the DCO application.

1.3.3 The EIA will assess the effects of the Proposed Development, with reference to the existing and future baseline conditions, including the future conditions with and without the Consented Development. This will enable an understanding of the effects of construction and operation of the whole of the 95 MW energy from waste power station,

and also comparison between the effects of the Consented Development and the Proposed Development.

1.3.4 Given the 'worst case' approach taken for the Consented Development EIA (using the Rochdale Envelope approach to assessing environmental effects), and due to the fact that the Consented Development and the Proposed Development would have the same maximum fuel throughput and maximum building dimensions (see Section 3), many of the environmental effects of the Proposed Development will be the same as or similar to those reported in the Consented Development ES. However, the ES that accompanies the DCO application will present the assessment of effects of construction, operation and decommissioning of the Proposed Development as a whole. This is discussed in more detail in Section 6 and 7.

1.3.5 Table 1.1 below presents a list of information that must be included in a Scoping Report, as prescribed by Regulation 10 of the EIA Regulations and as highlighted in PINS Advice Note 7 'Environmental Impact Assessment: Screening, Scoping and Preliminary Environmental Information' (PINS, 2017) and the location in this report where the information is presented.

Table 1.1 – Information provided within the Scoping Report (requirements of EIA Regulations 2017 and PINS Advice Note 7)

DESCRIPTION OF INFORMATION REQUIRED	SECTION IN SCOPING REPORT WHERE THE INFORMATION IS PRESENTED
A plan sufficient to identify the land.	Figures 1, 2 and 3.
A description of the proposed development including its location and technical capacity.	Section 3.
An explanation of the likely significant effects of the development on the environment.	Sections 7 and 8.
An explanation of the approach to addressing uncertainty where it remains in relation to elements of the Proposed Development e.g. design parameters.	Section 3.
Referenced plans presented at an appropriate scale to convey clearly the information and all known features associated with the Proposed Development.	Figures 1, 2, 3, 6 and 7.
An outline of the reasonable alternatives considered and the reasons for selecting the preferred option.	Section 4.
A summary table depicting each of the aspects and matters that are requested to be scoped out allowing for quick identification of issues.	Section 8, Table 8.1.
A detailed description of the aspects and matters proposed to be scoped out of further assessment with justification provided	Section 8.
Results of desktop and baseline studies where available and where relevant to the	Sections 7 and 8.

DESCRIPTION OF INFORMATION REQUIRED	SECTION IN SCOPING REPORT WHERE THE INFORMATION IS PRESENTED
decision to scope in or out aspects or matters;	
Aspects and matters to be scoped in, the report should include details of the methods to be used to assess impacts and to determine significance of effect e.g. criteria for determining sensitivity and magnitude	Section 7.
Any avoidance or mitigation measures proposed, how they may be secured and the anticipated residual effects.	Section 9, Table 9.1.
References to any guidance and best practice to be relied upon.	Section 7.
Evidence of agreements reached with consultation bodies (for example the statutory nature conservation bodies or local authorities).	Sections 6 and 9.
An outline of the structure of the proposed ES	Section 6.

2.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

2.1 The Site – Existing Conditions 2019

2.1.1 The Site is around 25 hectares (ha) in area. The full extent of the Site is shown on Figure 2.

2.1.2 The following terms are used for ease of reference (see Figure 3):

- **the Site** – the proposed DCO application boundary, which includes the existing SHBPS;
- **the Main Development Area** – this is the area within the Site where the Proposed Development (or the Consented Development), excepting the ecological mitigation and enhancement area, the visual screening and the construction laydown areas, will be located;
- **ecological mitigation and enhancement area** – this comprises an area within the Site, to the west of the existing SHBPS and the Main Development Area, where ecological mitigation and enhancement works are proposed;
- **visual screening** – a line of close boarded fencing of 2.5m height to the south of the Main Development Area, to provide visual screening to water birds using the field to the south; and
- **the construction laydown areas** – temporary areas within the Site outside of the Main Development Area to be used during the site preparation and construction.

2.1.3 The Site includes the existing SHBPS, which is owned and operated by EP SHB. It consists of two combined cycle gas turbine units (CCGTs) fired by natural gas. The SHBPS plant has a combined gross electrical capacity of approximately 1,400 MW.

2.1.4 The Main Development Area is shown on Figures 2 and 3, to the east of the SHBPS and associated infrastructure, and to the west of the CCGT cooling water pumping station. This currently comprises a vegetated area used as the route for the underground cooling water pipes (connecting the two CCGT units and the cooling water pumping station) and other buried services and associated access road.

2.1.5 The remainder of the Site comprises the existing SHBPS and land to the west of SHBPS, part of which is proposed to be used for ecological mitigation and enhancement.

2.1.6 The Site is largely flat and typically stands at around 2.0 metres above Ordnance Datum (m AOD).

2.1.7 Drainage ditches run along the northern, eastern and southern perimeters of the Site.

2.1.8 A number of environmental receptors have been identified both within and outside the Site, as described below. All distances are given as the shortest distance between the receptor and the closest point of the Site boundary.

<u>Residential Receptors</u>

2.1.9 There are no residential receptors within 500 m of the Site.

2.1.10 The closest residential properties (individual receptors) are located approximately 1 km west and are shown on Figure 5. These are:

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

2.1.11 There are eight other residential properties located within 2 km of the Site.

2.1.12 The nearest settlement is the village of Stallingborough over 2 km away.

Designated Nature Conservation Sites

2.1.13 The Site is not subject to any statutory or non-statutory ecological designations.

2.1.14 Identified designated nature conservation sites in the vicinity of the Site are presented on Figures 4 and 5 and summarised below.

2.1.15 The Humber Estuary is located around 175 m to the east of the Site and is designated as a Ramsar site, Special Protection Area (SPA), Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). There are no other SSSIs within 2 km or European designated sites within 10 km of the Site.

2.1.16 There are four Local Wildlife Sites (LWS) within 2 km of the Site:

- Healing Cress Beds Stallingborough LWS – approximately 0.7 km south-west;
- Sweedale Croft Drain LWS – approximately 0.8 km south-east;
- Laporte Road Brownfield Site LWS – approximately 1 km north-west; and
- Fish Ponds to the West of Power Station, Stallingborough LWS – approximately 1 km south-west.

2.1.17 There are two Sites of Nature Conservation Importance (SNCI) identified within 2 km of the Site:

- Field West of Power Station Stallingborough SNCI (approximately 30 m south-west); and
- North Moss Lane Meadow SNCI (approximately 0.9 km north-west).

Traffic and Transport Receptors

2.1.18 South Marsh Road provides highway access to SHBPS and also to a manufacturing facility and a waste management facility. It is understood that South Marsh Road is also used by the Environment Agency to access flood defences along the bank of the Humber Estuary east of the existing SHBPS cooling water pumping station.

2.1.19 The Site is not crossed by any public rights of way.

2.1.20 There are two public rights of way within 500 m of the Site – a public footpath located to the north, 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 Site.

Air Quality

2.1.21 NELC declared an Air Quality Management Area (AQMA) on Cleethorpe Road (numbers 100-176 and 103-177) Grimsby in 2010, for a breach in the nitrogen dioxide annual mean objective. The AQMA is located circa 5.1 km south-east of the Site.

Geology and Hydrogeology

2.1.22 The geology underlying the Site comprises superficial deposits of Tidal Flat deposits (clay and silt) underlain by Glacial Deposits (clay and sand). The bedrock geology is the Flamborough Chalk Formation.

2.1.23 The superficial deposits are designated as unproductive strata with low permeability; however permeable sand layers are likely to contain groundwater.

2.1.24 Bedrock at the 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.

2.1.25 The Site is located within a nitrate vulnerable zone (NVZ) (North Beck Drain NVZ).

Hydrology and Flood Risk

2.1.26 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.

2.1.27 The nearest designated watercourse is the Oldfleet Drain, located approximately 300 m to the south of the Main Development Area (at its closest point) which is classed by the Environment Agency as a Main River.

2.1.28 The Site is located around 175 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

2.1.29 There are no designated heritage assets within the Site.

2.1.30 There are three Scheduled Monuments located within 5 km of the Site:

- Stallingborough medieval settlement, post-medieval house and formal gardens (NHLE 1020423) is located approximately 3.3 km to the west of the Site;
- the churchyard cross 20 m south of St Peter and St Paul's Church (NHLE 1020023), Stallingborough is located approximately 3.3 km to the west of the Site; and
- two moated sites at Healing Hall (NHLE 1010947) are located approximately 3.7 km to the south-west of the Site.

2.1.31 There are six listed buildings within 3 km of the Site. These are all designated Grade II and located within existing settlements. A further seven Listed Buildings have been identified within a 5 km radius that have either a Grade I or Grade II* designation.

2.1.32 The Great Coates Conservation Area is located circa 2.6 km to the south of the Site.

2.1.33 There are also seven non-designated archaeological sites within 1 km of the Site.

Landscape

2.1.34 At a national scale the Site and its immediately surrounding area is located within National Character Area (NCA) 41: Humber Estuary and NCA 42: Lincolnshire Coast and Marshes.

2.1.35 At a regional scale the area in which the Site is located is characterised within the North East Lincolnshire Landscape Character Assessment, Sensitivity and Capacity Study 2015 (NELLCA). Local Character Areas (LCAs) relevant to the Site on a regional scale, are:

- Humber Estuary; and
- Lincolnshire Coast and Marshes.

2.1.36 At a local scale three relevant Local Landscape Types are identified in Section 5 (Character) of the NELLCA as follows:

- Landscape Type 1: Industrial Landscape;

- Landscape Type 2: Open Farmland; and
- Landscape Type 3: Wooded Open Farmland.

2.2 Site History

2.2.1 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.

Table 2.1 – Review of historical maps relating to the Site

HISTORICAL MAP DATES	ONSITE LAND USE	OFFSITE LAND USE
1887 – 1888	Agricultural land use.	Agricultural land use.
1907 – 1908	No significant changes.	No significant changes.
1932 – 1933	No significant changes.	Light railway shown running north-west to south-east to the east of the Site.
1938 – 1956	No significant changes.	No significant changes.
1966	No significant changes.	Works complex and associated pipelines located circa 500 m to 1 km the south-east of the Site.
1968	No significant changes.	Works complex located to the immediate north of South Marsh Road. Watercress beds shown circa 890 m to the east at Primrose Cottage. Works complex (Tronox previously Cristal and Millennium Inorganic Chemicals) located circa 1.1 km to the north of the Site.
1982	No significant changes.	Aforementioned works complexes both extended to the east.
1986 – 1989	No significant changes.	Extension to works complex (Tronox) located circa 1 km to the north of the Site.
2000	SHBPS has been constructed with associated power line to the west.	New works complex (BOC Gases) located circa 430 m to the north-west of the Site to the north of Middle Drain.

HISTORICAL MAP DATES	ONSITE LAND USE	OFFSITE LAND USE
2006	Changes to buildings associated with the SHBPS along western boundary of the Site. Additional waterbody shown to the south of South Marsh Road.	Waterbody shown circa 240 m to south of the Site. Underground pipeline circa 300 m to the north-east of the Site extending from the shoreline out into the Humber Estuary.
2018	No significant changes.	BOC Gases works complex extended to land south of Middle Drain, circa 295 m to the west of the Site.

2.3 The Site - Future Baseline Conditions

2.3.1 The future baseline conditions at the start of construction of the Proposed Development may be quite different from the current conditions, given the Applicant's proposed construction programme for the Consented Development.

2.3.2 It is currently expected that the Consented Development will be constructed in a single approximately three year period commencing in Q1 2020. If the DCO for the Proposed Development was to be granted in Q3 2021, this would be approximately halfway through the Consented Development construction phase. The Main Development Area would have been cleared, the new site access would be in use and the majority of the Consented Development buildings, structures and infrastructure would have been constructed.

2.3.3 However if for any reason construction of the Consented Development was not progressed in early 2020 (for example if construction is delayed until the DCO is granted), the Site may remain in its current state in the future baseline scenario. Construction programme scenarios are considered in Section 3.

3.0 PROJECT DESCRIPTION

3.1 The Proposed Development

3.1.1 The Proposed Development will generate electricity through the controlled combustion of refuse derived fuel (RDF).

3.1.2 The nominal design capacity of the Proposed Development is 616,500 tonnes per annum of RDF based on a design net calorific value (NCV) of 11 MJ/kg and the expected plant annual running hours. The plant is capable of maintaining the maximum electrical output while combusting fuel in a range of NCVs between 9 and 14 MJ/kg. The maximum fuel throughput of the Proposed Development is theoretically 753,500 tonnes per annum if only fuel with an NCV of 9 MJ/kg were to be used, based on the expected plant annual running hours.

3.1.3 The Proposed Development includes the following components (see Figure 6):

Main Buildings:

- fuel reception hall including storage bunker;
- boiler house (which contains the main elements of the combustion process);
- flue gas treatment (FGT) hall;
- turbine hall; and
- administration block including control room, workshops and stores.

Other Components:

- an air-cooled condenser (ACC) adjacent to the turbine hall;
- up to two emissions stacks adjacent to the FGT hall;
- by-product handling and disposal facilities;
- access from South Marsh Road;
- weighbridges, gatehouse, internal access roads and footways, barriers, enclosures and parking facilities for staff and visitors;
- substation and associated electrical connections;
- potential gas connection;
- storage tanks and silos;
- auxiliary generator(s);
- drainage and water connections and surface water attenuation;
- heavy goods vehicle (HGV) holding area and driver welfare facilities; and
- landscaping and biodiversity enhancement measures.

3.1.4 Focussed use of the Rochdale Envelope approach will be adopted to define appropriate design parameters for use in the EIA for the Proposed Development. Table 3.1 sets out the dimensions for the Proposed Development, which will be used for the basis of the various technical assessments.

Table 3.1 – Dimensions for the Proposed Development

COMPONENT	DIMENSIONS
Main building maximum height	59 m AOD (including 2 m parapet wall on boiler house)
Main building maximum footprint	210 m x 110 m
Fixed stack height	102 mAOD
Maximum stack diameter	3 m per combustion stream
Fuel Bunker base maximum depth	-8 mAOD

3.1.5 If the DCO is implemented during or following construction of the Consented Development, the following additional equipment and works will be required to allow the plant to generate up to 95MW of electricity:

- Increase in size of the ACC, with an additional row of fans and heat exchangers compared to the Consented Development – this will allow a higher mass flow of steam to be sent to the steam turbine whilst maintaining the exhaust pressure and thereby increasing the amount of power generated;
- installation of greater cooling capacity for the generator – additional heat exchangers will be installed to the closed circuit cooling water system compared to the Consented Development to allow the generator to operate at an increased load and generate more power;
- installation of larger generator transformer capacity – an additional generator transformer to operate in parallel with the Consented Development's proposed generator transformer (or a single larger generator transformer) will be installed, to allow the generator to generate up to 95MW; and
- ancillary works – the above works will require additional ancillary works and operations compared to the Consented Development, such as new cabling or pipes, and commissioning to ensure that the apparatus has been correctly installed and will operate safely and as intended.

3.2 Access

3.2.1 Access for the construction and operation of the Proposed Development will be as follows:

- construction access will be via the existing gate in the perimeter fence on South Marsh Road in the north-west of the Main Development Area, or the proposed new access point from South Marsh Road in the north-east of the Main Development Area (or if necessary via the existing SHBPS entrance); and
- operational access will be via the proposed new access point from South Marsh Road in the north-east of the Main Development Area.

3.2.2 All HGV traffic will access the Site from the A180 via the A1173, Kiln Lane, Hobson Way and South Marsh Road.

3.3 Services

3.3.1 The Proposed Development will require service connections including towns water, foul drainage, telecommunications and grid connection. Discussions with utilities companies are ongoing.

3.4 Construction Programme Scenarios

3.4.1 As described above, the most likely construction programme is currently anticipated to be the construction of the Consented Development pursuant to the Extant Planning Permission starting in Q1 2020 and taking approximately three years to complete, with the additional aspects of the Proposed Development also being constructed within the same construction period, following any granting of the DCO (potentially begin in Q3 2021, approximately half way through the construction programme for the Consented Development).

3.4.2 The other potential construction phasing scenarios to be considered in the EIA in order to present a robust assessment of potential impacts are:

- construction of the Proposed Development in a single circa three year construction phase commencing shortly after the DCO is awarded in Q3 2021 (with no construction pursuant to the Extant Planning Permission); or
- construction of the Proposed Development in a single circa three-year construction phase commencing up to five years after the DCO is awarded, in Q3 2026 (again, with no construction pursuant to the Extant Planning Permission).

3.4.3 These three scenarios are illustrated in Table 3.2 below.

Table 3.2 – Potential construction scenarios for the Proposed Development

SCENARIO	2020		2021		2022		2023		2024		2025		2026		2027		2028		2029	
Start Q1 2020																				
Start post-DCO grant																				
Start five years after DCO grant																				

3.4.4 Each assessment topic in the EIA will identify and assess the 'worst case' construction phase scenario (from the above three scenarios) for that topic. The ES and each assessment topic will also consider whether more than one of the three construction scenarios scenario should be assessed, where there is no scenario which is the 'worst case'.

3.4.5 The construction activities required for the Proposed Development will include site mobilisation and enabling works, earthworks, civil construction works, mechanical erection of buildings and structures, cold commissioning and hot commissioning. If the Proposed Development is constructed as currently anticipated (commencing shortly after the DCO is granted, approximately midway through the construction of the Consented Development), then site mobilisation, enabling works and earthworks will have already been completed and only the works associated with the additional elements of the

Proposed Development, followed by cold and hot commissioning of the whole development, are anticipated to be required.

3.4.6 Construction works will be described further in the ES together with their anticipated duration, and an indicative programme for the works.

3.4.7 Laydown areas for the storage of plant and equipment and siting of construction contractors for the Proposed Development components will be within the Site.

3.4.8 A Construction Environmental Management Plan (CEMP) will also be prepared, which will be used to manage and control environmental effects during construction.

3.5 The Consented Development

3.5.1 As referred to above, planning permission was granted for the Consented Development on 12th April 2019 (the Extant Planning Permission). This planning permission is for the construction and operation of an energy from waste power station with a maximum gross electrical output of 49.9 MW and a maximum fuel throughput of 753,500 tonnes per annum.

3.5.2 The Consented Development comprises all the elements and parameters described above for the Proposed Development (including the dimensions shown in Table 3.1), with the exception of the additional aspects listed at paragraph 3.1.5 above.

3.5.3 Figure 7 presents a comparison between the Consented Development and the Proposed Development. A full description of the Consented Development is presented in the Consented Development ES Volume I Chapter 4.

3.5.4 The detailed design process for the Consented Development is currently underway, and the required design and other details are expected to be submitted to NELC for approval pursuant to conditions attached to the Extant Planning Permission.

4.0 CONSIDERATION OF ALTERNATIVES

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

4.1.2 A summary of alternatives to the Proposed Development that have or are being considered is presented below, and further information will be provided in the ES.

4.2 Do Nothing

4.2.1 A 'do nothing' scenario in which the Proposed Development does not proceed is the baseline against which the impacts of the Proposed Development will be compared within the EIA. The 'do nothing' scenario could comprise the development of the Consented Development only, or no development on the Site.

4.2.2 The need that exists for the Proposed Development is set out in Section 5 below, and will be further detailed in the Planning Statement submitted in support of the DCO application, with reference to National Policy Statements for Energy, including EN-1.

4.3 Alternative Sites

4.3.1 The Applicant has chosen the Site at the existing SHBPS for the Proposed Development based on consideration of several sites within the landholding of the Applicant's parent company. Careful consideration has been given to the suitability of the Site for the Proposed Development and the location and layout for the Main Development Area. Central to informing this suitability assessment was the completion of an initial environmental appraisal, which identified key environmental sensitivities within and surrounding the Site. Further information will be provided in the ES.

4.4 Alternative Locations within the Site

4.4.1 The location of the Main Development Area of the Proposed Development within the SHBPS site was kept as far away from the Humber Estuary designated nature conservation site as possible, so as to minimise the risk of disturbance on that receptor. Alternative configurations of the layout within the Main Development Area were considered and will be described in the ES.

4.5 Alternative Technologies

4.5.1 The principal available technical options to manage and treat waste are listed below.

- conventional combustion - combustion of waste using grate or fluidised bed technologies followed by energy recovery using a steam turbine and electricity generator;
- advanced thermal treatment - including gasification, plasma gasification and pyrolysis followed by energy recovery by combustion of the syngas arising from the process;
- anaerobic digestion - a biological process whereby organic waste (e.g. food or green waste) is biodegraded by naturally occurring bacteria in a sealed tank in the absence of oxygen. This process produces a 'biogas' and an organic residue called 'digestate'. The biogas is captured, and the methane is cleaned and can then be used in a variety of ways, including in a gas engine, to produce electricity and/ or heat; compressed and used as a vehicle fuel; or injected into the national gas transmission system. The 'digestate' can potentially be used in a number of land applications (mainly farming but also restoration and landscaping) depending on its nutrient content and level of

stability. However, its use is restricted when mixed wastes are used as an input due to the risk of contamination;

- Mechanical Biological Treatment (MBT) - a generic term for a combination of mechanical equipment (similar to that used in a materials recycling facility to physically separate different materials fractions) and some biological treatment element (aerobic with air or anaerobic without air to biodegrade or bio-dry the organic fraction of the waste); and,
- mechanical pre-treatment - combines a number of screening/ mechanical sorting techniques to extract a small amount of additional recyclate from residual municipal waste. It should be noted that this recyclate will generally be of a lower quality than that collected during front end materials recycling and it is not intended to replace that system but to enhance recycling rates where necessary.

4.5.2 Of these options, conventional combustion using a grate was considered optimal for the Proposed Development for the reasons discussed below.

4.5.3 Thermal treatment is assessed primarily on technical performance including minimising pollutant emission to air and water and maximising energy recovery. In respect of gasification/ pyrolysis and other advanced techniques, the available technologies do not currently demonstrate environmental benefits and may in some cases recover less energy than conventional combustion techniques.

4.5.4 Non-thermal technologies such as anaerobic digestion and MBT are complimentary to rather than a replacement for thermal treatment since they can only treat the organic fraction of the waste, and the inorganic part (e.g. plastics) would require separate treatment.

4.5.5 Mechanical pre-treatment is suitable for extracting additional recyclable materials in waste prior to energy recovery using thermal treatment. The layout of the Proposed Development allows for the potential future installation of a materials recovery facility (MRF) using mechanical pre-treatment so as to recover additional recyclables. However this does not form part of the Consented or Proposed Developments and is not currently proposed; if required this would be the subject of a separate consent in the future.

4.6 Design Evolution

4.6.1 The ES will summarise the evolution of the Proposed Development design proposals, including site access, site layout, stack height, and cooling technology, and compare the environmental implications of each option.

4.6.2 The ES will also summarise any comments received during consultation on the Proposed Development and how these have influenced the design.

5.0 PLANNING POLICY AND NEED

5.1.1 This section sets out the main planning policy documents taken into account in defining the scope of the EIA and which are likely to be most relevant to the Proposed Development.

5.1.2 Table 5.1 identifies the Site's planning history within the past 10 years.

Table 5.1 – Site Planning History

REFERENCE	DESCRIPTION	DECISION
DM/1070/18/FUL	Construction of an energy from waste facility of up to 49.9 MW gross capacity including emissions stack(s), associated infrastructure including parking areas, hard and soft landscaping, the creation of a new access to South Marsh Road, weighbridge facility, and drainage infrastructure, on land at South Humber Bank Power Station.	Approved 12/04/19
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 16th December 2009	Approved 22/12/09

5.1.3 It is understood that all permissions except DM/1070/18/FUL have been implemented.

5.2 National Planning Statements (NPSs)

5.2.1 The policy framework for examining and determining applications for NSIPs is provided by NPSs. Section 104 of the Planning Act 2008 requires the Secretary of State to determine applications for NSIPs in accordance with the relevant NPSs, unless this would:

- lead to the UK being in breach of its international obligations;
- be in breach of any statutory duty that applies to the Secretary of State;
- be unlawful;

- the adverse impacts of the development outweigh its benefits; or
- be contrary to any Regulations that may be made prescribing other relevant conditions.

5.2.2 In July 2011 the Secretary of State for the Department of Energy and Climate Change ('DECC' which is now part of the Department for Business, Energy and Industrial Strategy) designated a number of NPSs relating to nationally significant energy infrastructure. The NPSs that are of relevance to the Project include:

- Overarching National Policy Statement for Energy (EN-1) ('EN-1') (DECC, 2011a); and
- National Policy Statement for Renewable Energy Infrastructure (EN-3) ('EN-3') (DECC, 2011b).

5.2.3 These documents, from a planning policy perspective, have been the main focus in terms of scoping the EIA.

5.2.4 Part 4 of EN-1 sets out a number of 'assessment principles' that must be taken into account by applicants and the Secretary of State in preparing and determining applications for nationally significant energy infrastructure. General points include (paragraph 4.1.2) the requirement for the Secretary of State, given the level and urgency of need for the infrastructure covered by the energy NPSs, to start with a presumption in favour of granting consent for applications for energy NSIPs. This presumption applies unless any more specific and relevant policies set out in the relevant NPS clearly indicate that consent should be refused or any of the considerations referred to in Section 104 of the 2008 Act (noted above) apply.

5.2.5 Paragraph 4.1.3 goes on to state that in considering any project, and in particular, when weighing its adverse impacts against its benefits, the Secretary of State should take into account

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

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

5.2.7 Other assessment principles include the matters to be covered within any ES, the Habitats and Species Regulations; the consideration of alternatives; criteria for 'good design'; consideration of CHP; consideration of CCS and CCR if appropriate; climate change adaptation; and grid connection, amongst others.

5.2.8 Part 5 of EN-1 lists a number of 'generic impacts' that relate to most types of energy infrastructure, which both applicants and the Secretary of State should take into account when preparing and considering applications. These include air quality and emissions; biodiversity; landscape and visual; and flood risk impacts, amongst others. Paragraph 5.1.2 stresses that the list of impacts is not exhaustive, and that applicants should identify the impacts of their projects in the ES in terms of both those covered by the NPSs and others that may be relevant. In relation to each of the generic impacts listed within Part 5 of EN-1, guidance is provided on how the applicant should assess these within their application and also the considerations that the SoS should take into account in decision-making.

5.2.9 Paragraph 1.8.1 of EN-3 explains that the NPS covers energy from waste (>50 megawatts (MW)). The importance of recovering energy from waste in meeting the UK's energy needs is referenced at paragraph 2.5.2.

5.2.10 In addition to a number of the assessment principles and generic impacts covered by EN-1, EN-3 sets out the factors (e.g. factors influencing site selection) and 'assessment and technology specific' considerations to be taken into account in the preparation and assessment of applications for biomass or waste energy infrastructure; including relevant environmental matters, such as, air quality and emissions, noise and vibration, landscape and visual, water quality, soil and geology, transport, and biodiversity.

5.3 Other Matters that may be 'Important and Relevant'

5.3.1 In making decisions on applications for NSIPs, Section 104 of the PA 2008 states that the Secretary of State must also have regard to any other matters that they consider to be both 'important and relevant' to their decision. Paragraph 4.1.5 of EN-1 provides some clarification on the other matters that the Secretary of State may consider both important and relevant. It confirms that these may include development plan documents or other documents in the local development framework.

5.3.2 EN-1 is clear (reflecting the terms of the Planning Act 2008), however, that in the event of a conflict between these and any other documents and a NPS, the latter prevails for the purposes of Secretary of State decision-making, given the national significance of the infrastructure concerned.

5.4 National Planning Policy Framework and Planning Practice Guidance

5.4.1 The latest version of the National Planning Policy Framework (NPPF) was adopted in February 2019. The policies contained within the NPPF are expanded upon and supported by the 'Planning Practice Guidance'.

5.4.2 The NPPF sets out the Government's planning policies for England and how these are to be applied. It is a material consideration in planning decisions. Paragraph 3 of the NPPF makes it clear that the document does not contain specific policies for NSIPs and that applications in relation to NSIPs are to be determined in accordance with the decision-making framework set out in the Planning Act 2008 and relevant NPSs, as well as any other matters that are considered both important and relevant. However, paragraph 3 goes on to confirm that matters that can be considered to be both important and relevant to NSIPs may include the NPPF and the policies within it.

5.4.3 Policies of the NPPF that are of particular relevance relevant to the scope of the EIA include:

- 2 - Achieving sustainable development;
- 6 - Building a strong, competitive economy;
- 11 - Making effective use of land;
- 12 - Achieving well designed places;
- 14 - Meeting the challenge of climate change, flooding and coastal change;
- 15 - Conserving and enhancing the natural environment; and
- 16 - Conserving and enhancing the historic environment.

5.5 Local Planning Policy

5.5.1 The Site lies entirely in the administrative area of North East Lincolnshire Council.

5.5.2 The recently adopted North East Lincolnshire Local Plan 2013 to 2032 (Adopted March 2018), which EN-1 confirms may be 'important and relevant' will be considered during the EIA process. The following policies from the Local Plan are considered relevant:

- 1 - Employment land supply;
- 5 - Development boundaries;
- 6 - Infrastructure;
- 8 - Existing employment areas;
- 9 - Habitat Mitigation - South Humber Bank;
- 22 - Good design in new developments;
- 31 - Renewable and low carbon infrastructure;
- 32 - Energy and low carbon living;
- 33 - Flood risk;
- 34 - Water management;
- 36 - Promoting sustainable transport;
- 38 - Parking;
- 39 - Conserve and enhance historic environment;
- 41 - Biodiversity and Geodiversity;
- 42 - Landscape;
- 47 - Future requirements for waste facilities; and
- 48 - Safeguarding waste facilities and related infrastructure.

5.5.3 Surrounding the 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.

5.5.4 There are also areas identified in the Local Plan as proposed habitat mitigation areas. The closest sites are 175 m south-east of the Site and approximately 500 m north of the Site.

5.6 The Need for the Proposed Development

5.6.1 The 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.

5.6.2 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.

5.6.3 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.

5.6.4 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.

5.6.5 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).

5.6.6 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'*.

5.6.7 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; 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.

5.6.8 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).

5.6.9 For these reasons, the Applicant considers that there is a clear and compelling national need for the Proposed Development and has selected the Site on which to do so for

environmental and commercial reasons. The Applicant therefore proposes to seek a DCO for the construction and operation of the Proposed Development.

6.0 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

6.1 EIA Methodology and Reporting

6.1.1 The EIA will be carried out in accordance with the requirements defined by the EIA Regulations.

6.1.2 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.

6.1.3 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.

6.1.4 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.

6.1.5 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).

6.1.6 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.

6.2 Structure of the Environmental Statement

6.2.1 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:
  - Chapter 1 - Introduction;

- Chapter 2 - Assessment Methodology;
- Chapter 3 - Description of the Site;
- Chapter 4 - The Proposed Development;
- Chapter 5 - Construction Programme and Management;
- Chapter 6 - Alternatives and Design Evolution;
- Chapter 7 - Air Quality;
- Chapter 8 - Noise and Vibration;
- Chapter 9 - Traffic and Transport;
- Chapter 10 - Ecology;
- Chapter 11 - Landscape and Visual Amenity;
- Chapter 12 - Geology, Hydrogeology and Land Contamination;
- Chapter 13 - Cultural Heritage;
- Chapter 14 - Water Resources, Flood Risk and Drainage;
- Chapter 15 - Socio-Economics;
- Chapter 16 - Waste Management;
- Chapter 17 - Cumulative Impact Assessment; and
- Chapter 18 - Summary of Significant Residual Effects.

- **Volume II Environmental Statement (Figures):** this will provide supporting figures of the environmental studies conducted during the EIA.
- **Volume III Environmental Statement (Technical Appendices):** these will provide supplementary details of the environmental studies conducted during the EIA including relevant data tables, figures and photographs.

6.3 Structure of the Technical Chapters

6.3.1 Technical chapters 7 to 16 of the ES will be structured based on the following subheadings:

Introduction

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

Legislation and Planning Policy Context

6.3.3 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

6.3.4 The assessment method will incorporate feedback from consultation that has been undertaken throughout all stages of the project. The ES will highlight key issues that have arisen from the scoping exercise that have been specifically addressed within the EIA.

6.3.5 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.

6.3.6 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.

6.3.7 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.

6.3.8 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.

6.3.9 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;
- beneficial - advantageous or positive effect to an environmental resource or receptor;
- negligible - imperceptible effect to an environmental resource or receptor;
- minor - slight, very short or highly localised effect of no significant consequence;
- 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.

6.3.10 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’.

6.3.11 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 (including Future Baseline)

6.3.12 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.

6.3.13 It is also relevant for the EIA to consider future baseline conditions taking account of any planned or likely changes to the existing baseline. For the Proposed Development, the future baseline conditions at the Site may be similar to the existing baseline conditions, or (if the Consented Development construction is progressed as currently proposed with construction commencing in Q1 2020) the future baseline conditions at the Site may be different with construction of the Consented Development being partially completed.

6.3.14 The assessment will therefore provide a comparison against both future baseline scenarios (with and without the Consented Development). This will provide an understanding of the effects of the Proposed Development, and also an understanding of the differences between the effects of the Consented Development and the Proposed Development.

Development Design and Impact Avoidance

6.3.15 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 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 of the Proposed Development

6.3.16 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. As described earlier, where relevant the effects of the Proposed Development will be described compared to future baselines with and without the Consented Development.

6.3.17 The technical assessments will identify the environmental impacts of the Proposed Development at key stages in its construction, operation (including maintenance) and eventual decommissioning.

6.3.18 There are several scenarios being considered for the construction of the Proposed Development. These scenarios are outlined in more detail in Section 3.

6.3.19 The assessment scenarios that will be considered for the purposes of the EIA (and considered in the ES) are as follows:

- Existing Baseline without the Proposed Development - the year that the baseline data has been collected;
- Future Baseline without the Proposed Development - for comparison respectively with the construction and operation scenarios described below;
- Construction of the Proposed Development;
- Opening and/ or Operation (including maintenance) of the Proposed Development - where opening represents the start of operation; and

- Decommissioning of the Proposed Development.

Summary of Likely Impacts and Effects of Consented Development

6.3.20 This section will provide a summary of the conclusions of the specific topic assessment from the Consented Development ES.

Mitigation and Enhancement Measures

6.3.21 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

6.3.22 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

6.3.23 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.

6.3.24 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.

6.3.25 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 residents).

6.4 Scoping and Consultation

6.4.1 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.

6.4.2 NELC has been contacted prior to the submission of this scoping report.

6.4.3 Following the publication of this EIA Scoping Report consultation on the Proposed Development will be undertaken in Q3 2019, using a range of methods, which includes a project website, which will be maintained throughout the project to provide up-to-date information, and consultation with key stakeholders.

6.4.4 As required by Section 47 of the Planning Act 2008 (as amended) the Applicant is preparing a Statement of Community Consultation ('SoCC') for publication in approximately October 2019. The SoCC will outline how the Applicant intends to formally consult with the local community about the Proposed Development. The Applicant is required to first consult the relevant local authorities on the draft SoCC, who have a period of at least 28 days following receipt of the draft SoCC to do so, prior to its publication for inspection by the public.

6.4.5 Preliminary Environmental Information (PEI) will be provided for statutory consultation, which will be undertaken in Q4 2019. The statutory consultation will use a range of methods including a public exhibition, newsletter drop and ongoing use of the project website.

6.4.6 All responses received during consultation will be carefully considered and taken into account in the development of the project, in accordance with Section 49 of the Planning Act 2008. Details of any responses received during consultation and the account taken of those responses will be included in a Consultation Report, as required by Section 37 of the Planning Act 2008. This Consultation Report will be submitted as part of the application for development consent and will be available for public review at that point.

6.4.7 The Consultation Report will demonstrate how the Applicant has complied with the statutory consultation requirements of the Planning Act 2008. It will be considered by PINS, both when determining whether to accept the application and in examining the application.

7.0 POTENTIALLY SIGNIFICANT ENVIRONMENTAL ISSUES

7.1 Introduction

7.1.1 The following sections identify the potential environmental impacts associated with the Proposed Development that are to be considered by the EIA. The methodology and assessment criteria that are proposed to be used to assess the potential significance of effects are also outlined alongside potential mitigation measures.

7.1.2 The EIA carried out for Proposed Development will include an assessment of environmental effects in respect of the following topics:

- air quality;
- noise and vibration;
- traffic and transportation;
- ecology and nature conservation;
- landscape and visual amenity;
- geology, hydrogeology and land contamination;
- cultural heritage;
- flood risk, hydrology and water resources;
- socio economics;
- waste management; and
- cumulative and combined effects.

7.1.3 These are the same topics that were scoped into the EIA for the Consented Development, in consultation with NELC and other key stakeholders.

7.1.4 The EIA will assess the effects of the Proposed Development for all these topics, with reference to the existing and future baseline conditions with and without the Consented Development. This will enable an understanding of the total effects of the construction, operation, maintenance and decommissioning of the 95 MW energy from waste power station, as well as a comparison of the Proposed Development and the Consented Development effects to provide context.

7.1.5 As noted in Section 1 of this report, given the 'worst case' approach taken for the Consented Development EIA (using the Rochdale Envelope), and due to the fact that the Consented Development and the Proposed Development would have the same maximum fuel throughput, many of the environmental effects of the Proposed Development will be the same or similar to those previously reported in the Consented Development ES. However, this initial conclusion will be tested through the EIA methodology proposed for the Proposed Development, to ensure a robust assessment.

7.2 Air Quality

Baseline Conditions - Sensitive Air Quality Receptors

7.2.1 The Study Area for the operational development point source emissions extended up to 10 km from the Site, in order to assess the potential impacts on sensitive human health and ecological receptors, in line with the EA risk assessment methodology (Defra and EA, 2017).

7.2.2 The Study Area for construction dust and Non-Road Mobile Machinery (NRMM) emissions was defined in line with IAQM guidance (IAQM, 2014), extending:

- up to 350 m beyond the Site boundary and 50 m from the construction traffic route (up to 500 m from the Site entrances), for human health receptors; and
- up to 50 m from the Site boundary and/or construction traffic route (up to 500 m from the Site entrances) for ecological receptors.

7.2.3 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 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 Site.

7.2.4 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.

7.2.5 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.

7.2.6 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.

7.2.7 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 of the Site.

7.2.8 During the construction phase, based on IAQM guidance (IAQM, 2014), receptors potentially affected by dust soiling and short-term concentrations of PM_{10} generated during construction activities are limited to those located within 350 m of the nearest construction activity. Ecological receptors are limited to those located within 50 m of the nearest construction activity.

7.2.9 Receptors potentially affected by operational emissions from the Proposed Development including local residential and amenity receptors have been identified through site knowledge, desk study of local mapping and consultation as part of the EIA for the Consented Development. Isopleth figures of pollutant dispersion have been examined to identify the receptors that will receive the highest point source contributions and the assessment of impact has been made at these receptors.

7.2.10 Ecological receptors potentially affected by operational emissions have been identified through desk study of Defra Magic mapping (Defra, 2017) and consultation for the Consented Development EIA. Statutory designated sites including SSSIs up to 2 km and SACs up to 10 km from the Site have been identified. The Humber Estuary Ramsar site, SSSI, SPA and SAC is within 2 km of the Site. Several non-statutory designated sites including SNCIs and LWSs have been identified.

7.2.11 A summary of receptors is provided in Table 7.1 below. This will be reviewed and updated where required to inform the air quality assessment.

Table 7.1 – Identified receptors with potential for air quality impacts

RECEPTOR NAME	RECEPTOR TYPE
Mauxhall Farm	Residential
Property on North Moss Lane	Residential
Property on South Marsh Road	Residential
Property on South Marsh Road	Residential
Property on South Marsh Road	Residential
Property on South Marsh Road	Residential
Primrose Cottage, north of A180	Residential
Cress Cottage, north of A180	Residential
The Meadows, south of A180	Residential
Meadows Farm, south of A180	Residential
Meadows Cottages, south of A180	Residential
Property on South Marsh Road in Stallingborough	Residential
Property on Woad Lane in Grimsby	Residential
Property on Kendal Road, Immingham	Residential
Property on Hadleigh Road, Immingham	Residential
Property on Arran Close, Immingham	Residential
Property on Mull Way, Immingham	Residential
Willows Court, Immingham	Residential
Property north of Habrough	Residential
Property on Station Road in Habrough	Residential
Grimsby AQMA	Residential
Public Right of Way	Transient
Atlantic Salt Meadows	Ecological feature of Humber Estuary SSSI, Ramsar site, SPA and SAC
Acid Fixed Dunes	Ecological feature of Humber Estuary SSSI, Ramsar site, SPA and SAC
Atlantic Salt Meadows	Ecological feature of Humber Estuary SSSI, Ramsar site, SPA and SAC
Neutral grassland	Ecological feature of Laporte Road LWS
Broadleaved, mixed and yew woodland	Ecological feature of Stallingborough Fish Ponds LWS
Broadleaved, mixed and yew woodland	Ecological feature of Healing Cress Beds LWS
Fen, Marsh and Swamp	Ecological feature of Sweedale Croft Drain LWS

7.2.12 A full review of the available baseline will be carried out using available monitoring data and Defra background air quality maps (UK-AIR) to inform the detailed assessment for the purposes of the EIA.

Baseline Conditions – Baseline Air Quality

7.2.13 Existing air quality conditions in the vicinity of the Site were evaluated as part of the EIA for the Consented Development. This included:

- a review of local authority air quality management reports, Defra published data and other sources; and
- a review of existing monitoring data available - NELC undertake monitoring within Immingham and Grimsby (NELC, 2017) at 32 locations for NO_2, by diffusion tube

monitoring, and with three continuous monitoring stations (three for NO_2, and one for PM10). The nearest NO_2 continuous monitor CM2 is located on Kings Road in Immingham approximately 3km north-west of the Site. Annual mean NO_2 concentrations for 2016 were reported as 28.2 µg/m^3. The diffusion tubes located in Immingham are DIF23, DIF24 and DIF25 which have annual mean concentrations for 2016 of 32.6, 32.4 and 34.9 µg/m^3 respectively.

7.2.14 As the available NELC monitoring data is not located in the vicinity of the Site, nor along any roads that are likely to be used during the construction and operational phases of the Proposed Development, it is not considered to be suitable for model verification. AECOM undertook project specific diffusion tube monitoring from the period of June 2018 - December 2018. A summary of the final results (annualised to 2017[1]) that were used in the EIA for the Consented Development are presented in Table 7.2 below.

Table 7.2 – Diffusion tube monitoring results

DIFFUSION TUBE	SIX MONTHS OF NO_2 DIFFUSION TUBES ANNUALISED TO 2017 (µG/M^3)
KOA T1	12.5
KOA T2	17.1
KOA T3	16.4
KOA T4	13.9
KOA T5	20.9
KOA T6	17.5

7.2.15 Air Quality Receptors and diffusion tube monitoring locations KOA T1 - T6 are illustrated on Figure 8.

Overview of Consented Development Air Quality Assessment Conclusions:

7.2.16 Taking into account the distances to receptors, and commitment to the use of appropriate construction management measures and mitigation throughout the construction phase, employed through the implementation of a CEMP, as well as construction vehicle travel plans, emissions to air during construction were assessed as having no significant adverse effects on human or ecological receptors.

7.2.17 The predicted ground level concentrations of air pollutants due to emissions from the stacks during operation of the Consented Development were calculated, which determined that the stack height of 102 m AOD was appropriate. The concentrations of air pollutants at human health and ecological receptors during operation of the Consented Development were determined to result in no significant adverse effects on human or ecological receptors.

Scope of Proposed Development Air Quality Assessment

7.2.18 There is potential for air quality impacts to occur during the construction, operation and decommissioning of the Proposed Development.

7.2.19 The assessment for the Consented Development EIA considered the following potential impacts, which are also relevant to the air quality assessment for the Proposed Development:

[1]Data annualised to 2017 as the most recent full year of MET data that was available at the time of writing the assessment in 2018.

- 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.

7.2.20 It is not expected that the findings of the assessment of dust emissions during construction carried out for the Consented Development would change as a result of the construction and installation of the additional elements now proposed as part of the Proposed Development. This is due to the fact that the Proposed Development will be constructed within the same Site and Main Development Area as the Consented Development and that the additional construction civil and ground works are relatively minor. However, for completeness a review of the dust assessment will be carried out.

7.2.21 Construction traffic movements are not expected to change greatly from those already assessed as part of the EIA for the Consented Development however this will be reviewed once the likely construction traffic generation for the Proposed Development is known and if required the air quality assessment will be updated for the Proposed Development. It is considered that the construction traffic air quality assessment conclusions of the EIA for the Consented Development are unlikely to change.

7.2.22 During operation the Proposed Development will emit known pollutants to air, via two stacks. 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 carbon dioxide (CO_2) 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).

7.2.23 The maximum dimensions identified for the Consented Development, which were used as the basis of the operational air quality assessment for the Consented Development EIA will not change for the Proposed Development, and this includes the stack heights and locations.

7.2.24 It is not anticipated that the key parameters in the Rochdale Envelope used to inform the detailed dispersion modelling of impacts due to emissions to air from the stacks and other emission sources from the Consented Development will change for the Proposed Development. However, the air quality assessment will include an appropriate level of verification of the previous dispersion modelling for the Consented Development to ensure that the findings of the assessment of process emissions from the operational plant will not be any different for the Proposed Development, and the impacts and effects of the Proposed Development are fully assessed. This will ensure a robust assessment of operational impacts to ensure that the Proposed Development will not give rise to any significant environmental effects.

7.2.25 In summary, it is proposed that the air quality assessment will include:

- a review of baseline and air quality background data (including at ecological receptors) gathered to inform the EIA for the Consented Development to confirm this is still valid (it is not considered that any further baseline monitoring is required but this will be discussed and agreed with the Environmental Health Officer at NELC);
- a review of the development design and impact avoidance measures for air quality that were included within the Consented Development ES (see Section 9) and updated if necessary;

- a review of the key parameters used to inform the air quality dispersion modelling for the operational emissions assessment of the Consented Development to check their applicability to the assessment of the Proposed Development;
- re-running of the detailed dispersion modelling for the Proposed Development, including:
  - an atmospheric impact assessment 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. 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),
  - 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. The modelling will be based on Emission Limit Values set by the IED and at full operating load. As with the assessment carried out for the Consented Development the modelling will be undertaken in accordance with Environment Agency guidance (Environment Agency, 2016), and
  - inclusion of other relevant committed developments within the Study Area to inform the cumulative assessment.
- review of the Human Health Risk Assessment (HHRA) that was submitted as Appendix 7B to the Consented Development ES. This assessment concluded that predicted impacts associated with emissions of particulate matter, nitrogen dioxide and sulphur dioxide from the Consented Development would not represent a significant effect when compared to the local baseline health of the population in each local authority area, and it is not anticipated that the findings of the HHRA will change as a result of the Proposed Development however a review will be carried out if required following the review of the key parameters described above;
- assessment of potential air quality impacts on ecological receptors, including statutory 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);
- assessment of air quality effects from traffic movements related to the construction of the Proposed Development (noting that this may be the same as previously assessed for the Consented Development);
- assessment of air quality effects from traffic movements related to the operation of the Proposed Development (this will be the same as the assessment presented in the Consented Development ES);
- consideration of carbon dioxide emissions from the operational Proposed Development; and
- review of any mitigation requirements for the Proposed Development (in addition to the development design and impact avoidance measures discussed above).

7.3 Noise and Vibration

Baseline Conditions - Noise Sensitive Receptors and Baseline Noise Levels

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

7.3.2 The closest residential properties to the Site (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).

7.3.3 As described above for air quality, ecologically sensitive receptors are located within fields to the north and south of the Site and also to the east along the banks of the Humber Estuary.

7.3.4 Long-term baseline noise monitoring was undertaken in 2018 by AECOM to inform the Consented Development EIA. A summary of the processed results for each noise survey position including residential and ecological receptors is presented in Tables 7.3 - 7.6 below.

Table 7.3 – Measured noise levels at Poplar Farm (residential receptor)

LOCATION	DAY OF WEEK	TIME OF DAY	TIME PERIOD	$L_{Aeq,T}$ DB	TYPICAL $L_{A90,T}$ DB	L_{AFMAX} DB RANGE
LT1 – Poplar Farm	Monday - Friday	Day	07:00 – 23:00	54	47	51-87
		Day	09:00 – 10:00	53	48	56-82
		Night	23:00 – 07:00	52	41	49-88
		Night	06:00 – 07:00	57	54	57-71
	Saturday - Sunday	Day	07:00 – 23:00	55	50	58-82
		Day	09:00 – 10:00	56	51	62-80
		Night	23:00 – 07:00	52	43	56-87
		Night	06:00 – 07:00	52	50	60-65

Table 7.4 – Measured noise levels at Cress Cottage (residential receptor)

LOCATION	DAY OF WEEK	TIME OF DAY	TIME PERIOD	$L_{AEQ,T}$ DB	TYPICAL $L_{A90,T}$ DB	L_{AFMAX} DB RANGE
LT2 – Cress Cottage	Monday - Friday	Day	07:00 – 23:00	65	62	58-97
		Day	09:00 – 10:00	63	59	67-75
		Night	23:00 – 07:00	60	42	59-86
		Night	06:00 – 07:00	65	62	68-78
	Saturday - Sunday	Day	07:00 – 23:00	67	65	72-81
		Day	09:00 – 10:00	65	61	73-77
		Night	23:00 – 07:00	61	52	67-80
		Night	06:00 – 07:00	64	58	75-77

Table 7.5 – Measured noise levels at south-eastern Site boundary (ecological receptor)

LOCATION	DAY OF WEEK	TIME OF DAY	TIME PERIOD	$L_{AEQ,T}$ DB	TYPICAL $L_{A90,T}$ DB	L_{AFMAX} DB RANGE
LT3 – South-eastern Site Boundary (Humber Estuary)	Monday - Friday	Day	07:00 – 23:00	53	45	46-84
		Day	09:00 – 10:00	48	43	53-83
		Night	23:00 – 07:00	50	44	44-83
		Night	06:00 – 07:00	50	48	51-81
	Saturday -Sunday	Day	07:00 – 23:00	51	48	47-77
		Day	09:00 – 10:00	51	45	53-72
		Night	23:00 – 07:00	49	45	49-69
		Night	06:00 – 07:00	47	45	50-65

Table 7.6 – Measured noise level at Humber Estuary edge (ecological receptor)

TIME	PARAMETER	SOUTH-EASTERN SITE BOUNDARY	ESTUARY WALL	DIFFERENCE DB	NOTES
14:45	$L_{Aeq,T}$ dB	44.0	54.4	10.4	Quad bike
15:00		44.7	48.8	4.1	-
15:15		44.9	50.6	5.7	-
15:30		45.2	54.5	9.3	Car turning 3 x motorbikes
14:45	$L_{A90,15min}$ dB	42.3	46.3	4	Quad bike
15:00		42.6	47.1	4.5	-
15:15		42.9	48.4	5.5	-
15:30		43.3	50.9	7.6	Car turning 3 x motorbikes
14:45	Highest $L_{AFmax,15min}$ dB	54.8	77.7	22.9	-
15:00		51.3	61.2	9.9	Quad bike
15:15		53.1	62.7	9.6	-
15:30		54.2	72.5	18.3	Car turning 3 x motorbikes

7.3.5 Noise levels at the Humber Estuary edge were noted to be higher than those at the Site boundary measurement location. Noise levels at the Estuary edge are regularly influenced by passing motor vehicles, in particular motorbikes. When there are no other additional noise sources influencing the noise climate at the Estuary edge, ambient and background levels are in the region of 5 dB higher at the Estuary edge than at the site boundary monitoring location (LT3). Therefore, to determine the daytime and night-time noise levels at the Estuary edge, the measured levels at the site boundary (LT3) have been increased by 5 dB. The resulting estimated ambient and background levels are presented in Table 7.7 below.

Table 7.7 – Estimated noise levels at Humber Estuary edge

DAY OF WEEK	TIME OF DAY	TIME PERIOD	$L_{AEQ,T}$ AT SITE BOUNDARY DB	ESTIMATE $L_{AEQ,T}$ AT ESTUARY EDGE DB	TYPICAL $L_{A90,T}$ AT SITE BOUNDARY DB	ESTIMATE $L_{A90,T}$ AT ESTUARY EDGE DB
Monday - Friday	Day	07:00 – 23:00	53	58	57	62
	Day	09:00 – 10:00	48	53	43	48
	Night	23:00 – 07:00	50	55	45	50
	Night	06:00 – 07:00	50	55	48	53
Saturday -Sunday	Day	07:00 – 23:00	51	56	60	65
	Day	09:00 – 10:00	51	56	45	50
	Night	23:00 – 07:00	49	54	50	55
	Night	06:00 – 07;00	47	52	45	50

7.3.6 Short-term attended noise monitoring was also undertaken at Mauxhall Farm (a residential receptor located away from the Site but on the HGV route from the A180 to Site) to determine the existing noise climate to inform an assessment of operational traffic noise impacts. Measured noise levels are given in Table 7.8.

Table 7.8 – Measured noise levels at Mauxhall Farm

TIME OF DAY	TIME PERIOD	$L_{AEQ,T}$ DB	$L_{A90,15MIN}$ DB	HIGHEST $L_{AFMAX,15MIN}$ DB
Day	07:00 – 23:00	50	47	75

7.3.7 Road traffic on the A180 dominated the noise climate at Mauxhall Farm. Other noise sources included farm vehicles in nearby fields and birdsong.

<u>Overview of Consented Development Noise and Vibration Assessment Conclusions</u>

7.3.8 During the construction of the Consented Development noise levels at the closest residential NSRs were predicted to remain below the ambient noise levels therefore no significant effects on residential properties were predicted.

7.3.9 Ecological receptors comprise the Humber Estuary and fields to the north and south of the Site that are likely to be used by water birds for feeding and roosting. No significant construction noise and vibration effects were predicted at ecological receptors with mitigation in place for piling noise and vibration disturbance of birds, such as alternative methods of pilling and/ or seasonal restrictions on drop-hammer piling. This mitigation is secured by a planning condition for the Consented Development requiring the contractor to submit details of the proposed piling mitigation for birds.

7.3.10 During the operation of the Consented Development, noise levels at the closest residential NSRs were predicted to remain below the measured background noise level therefore no significant noise effects were predicted.

7.3.11 At ecological receptors located along the Humber Estuary to the east, noise levels were predicted to remain below ambient noise levels during the operation of the Consented Development and no significant effects were predicted.

7.3.12 At the ecological receptors located immediately north and south of the Proposed Development, noise levels at the closest parts of the fields to the Site were predicted to exceed ambient noise levels during operation, but the ecological impact assessment concluded that, due to the distribution of water birds in the fields, the effects on water birds would be neutral and not significant.

Scope of Proposed Development Noise and Vibration Assessment

7.3.13 There is potential for noise and vibration impacts to occur during the construction, operation and decommissioning of the Proposed Development.

7.3.14 Construction and operational traffic movements are not expected to change from that already assessed as part of the EIA for the Consented Development, but traffic predictions for the Proposed Development will be reviewed and the assessment will be updated as necessary.

7.3.15 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 as it was for the Consented Development EIA.

7.3.16 It is noted that the only receptors within 500 m of the Site 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 compared to their own self-generated vibration.

7.3.17 The scope of the noise and vibration assessment will comprise:

- review of nearest noise sensitive receptors to verify any changed or new receptors since completion of the EIA for the Consented Development;
- review of baseline noise data gathered for the Consented Development EIA - it is not anticipated that any further noise monitoring will be required in addition to the data gathered to inform the noise assessment for the Proposed Development, but this will be discussed and agreed in advance with the Environmental Health Officer at NELC;
- liaison with NELC Environmental Health Officer to agree the detailed scope and methodology of the noise and vibration assessment;
- if required establishment of revised baseline noise levels in the locality;
- review of (and update if required) the development design and impact avoidance measures that were included within the Consented Development (see Section 9);
- calculation and assessment of construction noise and vibration impacts and effects of the Proposed Development (on both residential and ecological receptors);
- calculation and assessment of operational noise impacts and effects of the Proposed Development (on both residential and ecological receptors); and
- review of noise and vibration mitigation requirements for the Proposed Development (see Section 9 which summarises the mitigation previously identified for the Consented Development).

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

- National Planning Policy Framework, 2019;
- Noise Policy Statement for England, 2010; and
- Planning Practice Guidance for Noise, 2014.

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

- 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'; and
- Control of Pollution Act 1974.

7.3.20 Noise levels (and, where appropriate, vibration levels) associated with enabling and construction works are not anticipated to be significantly different to that calculated and assessed for the Consented Development using the data and procedures given in BS 5228.

7.3.21 The most likely difference to what has previously been assessed as part of the noise assessment for the Consented Development is the operational noise impact due to the additional components now proposed as part of the Proposed Development. Noise impacts associated with these additional components will be predicted using computer noise modelling software (SoundPLAN), based on information on plant layout, and the operating conditions and the levels of noise generated by plant items.

7.3.22 The modelling software will enable 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.

7.3.23 The significance of the operational noise effect of the Proposed Development 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 information regarding assessment of sleep disturbance.

7.3.24 Noise levels predicted to be experienced at the closest ecological receptors from both construction and operation of the Proposed Development will also be assessed. This will be used to inform the ecological impact assessment and Habitats Regulations Assessment (HRA) (see Ecology and Nature Conservation Section 7.6 below).

7.4 Landscape and Visual Amenity

Baseline Conditions – Landscape and Visual Amenity

7.4.1 The Site is not located within or adjacent to any national or regional designations for landscape protection (e.g. Area of Outstanding Natural Beauty (AONB) or Green Belt land). The Lincolnshire Wolds AONB lies approximately 8.5 km south-west of the Site. The Site is located within National Character Area 41: the Humber Estuary, which is focussed on the expanse of the Humber Estuary and associated low-lying land.

7.4.2 A Landscape Character Assessment was undertaken by NELC in 2015 (NELC, 2015). The North East Lincolnshire (NEL) Landscape Character Assessment identified three Local Landscape Types (LLTs) in the Study Area (5 km around the Site). These were refined slightly and re-named in the 2015 NEL Landscape Character Assessment, Sensitivity and Capacity Study:

- Landscape Type 1: Industrial Landscape;
- Landscape Type 2: Open Farmland; and
- Landscape Type 3: Wooded Open Farmland.

7.4.3 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."

7.4.4 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).

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

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

Overview of Consented Development Landscape and Visual Amenity Assessment Conclusions

7.4.6 The Consented Development ES concluded that during construction there would be changes in the landscape due to the movement of the plant within the Site and the introduction of large-scale structures in various stages of the development. However,

given the presence of existing large-scale power generation infrastructure in the landscape, no significant effects on the landscape were predicted.

7.4.7 Of the ten viewpoints considered in the assessment, only one visual amenity receptor (Viewpoint 9 - footpath users of the PRoW along Middle Drain to the north-west of the Site) was predicted to experience significant adverse effects, as a result of the close distance and height of the proposed structures. No specific mitigation measures were proposed since it is difficult to avoid or mitigate this effect due to the size of the buildings and structures proposed.

7.4.8 During operation, the Consented Development will introduce new structures to the landscape; however, these would be similar in scale and form to those structures in the wider landscape and will not result in any significant adverse landscape effects.

Scope of Proposed Development Landscape and Visual Amenity Assessment

7.4.9 There is potential for landscape and visual amenity impacts to occur during the construction, and operation and decommissioning of the Proposed Development.

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

- temporary changes to landscape character and views from sensitive receptors located in close proximity to the Site during construction; and
- permanent changes to landscape character and views from sensitive receptors located in close proximity to the Site during operation.

7.4.11 The proposed method of landscape and visual impact assessment has been devised to address the specific impacts likely to result from the Proposed Development. 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);
- 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 (Landscape Institute, 2017).

7.4.12 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.

7.4.13 The landscape and visual amenity assessment of the Proposed Development is anticipated to include where required:

- a review of the previous landscape and visual impact assessment carried out for the Consented Development;
- agreement with NELC on the extent of the Land and Visual Study Area for the landscape and visual baseline review, which we anticipate being 5 km around the Site (as per the Consented Development assessment). It is noted that the Lincolnshire

Wolds AONB lies approximately 8.5 km south-west of the Site however given the findings of the EIA carried out for the Consented Development it is likely that the Study Area will remain as 5km;

- a detailed study of the existing landscape components, character and views of the Site from identified receptors within the Study Area (although it is unlikely that this will have changed greatly from the Consented Development assessment);
- a review of the Zone of Theoretical Visibility model (ZTV) produced for the Consented Development including where appropriate other consented developments for consideration of cumulative effects (the ZTV was based on the agreed Study Area using site topographical survey and OS Digital Terrain Data (using Key Terra Firma software) and based upon the tallest proposed structure within the Site (the stacks at 102 mAOD), which will not change for the Proposed Development);
- identification of potential landscape and visual receptors for the consideration of NELC as potential representative views and receptors to be assessed (which we expect to be as per the Consented Development EIA);
- a site visit for assessment of sensitive visual and landscape receptors if required;
- a review of the development design and impact avoidance measures included in the Consented Development (see Section 9), and update for the Proposed Development if required;
- assessment of the Proposed Development impacts and effects;
- outline description of recommended landscape or visual mitigation measures; and
- update (if required) figures prepared for the Consented Development ES illustrating relevant information relating to landscape character, landscape designations, topography, ZTV, sensitive receptor locations, photographic panoramas and photomontages from selected viewpoints.

7.4.14 The location of representative views and photomontages will be agreed in consultation with consultees as appropriate, but are expected to be as per the Consented Development ES.

7.5 Traffic and Transportation

Baseline Conditions – Study Area

7.5.1 The Proposed Development is located approximately 3 km east of the A180 Stallingborough Interchange which connects to the A1173.

7.5.2 The A1173 runs approximately north-south linking to the A180 Stallingborough Interchange to the south at a grade separated roundabout and the A1173/ Kiln Lane roundabout to the north. The A1173 is a 7.3 m wide single carriageway road and is subject to the national speed limit.

7.5.3 At the A1173/ Kiln Lane roundabout, the A1173 heads north towards Immingham and Kiln Lane continues east. Kiln Lane is a 7.3 m wide single carriageway road which is street lit and is subject to a 40 mph speed limit and provides access to a number of industrial units.

7.5.4 Continuing approximately 1.8 km east along Kiln Lane, the road connects with Hobson Way and Laporte Road at a four arm standard roundabout. Continuing south along Hobson Way, the single carriageway road is subject to a 40 mph speed limit. The road is street lit and a pedestrian footway is provided along the western side of the carriageway.

7.5.5 Continuing south along Hobson Way, the road connects with South Marsh Road approximately 1.2 km south of Kiln Lane at a three-arm priority T-junction. Access to the Proposed Development is proposed from South Marsh Road which also provides highway access to the existing South Humber Bank Power Station, Synthomer (UK) Limited and the NEWLINCS Integrated Waste Management Facility. South Marsh Road is a 6.75 m wide single carriageway road which is street lit and is subject to a 40 mph speed limit.

7.5.6 The Study Area for the assessment for the Consented Development as agreed with NELC is presented in Plate 7.1 below. It includes 6 links (as set out in Table 7.9). Baseline 24-hour annual average daily traffic (AADT) two-way link flows for the Study Area (at the time of writing the ES for the Consented Development) are provided in Table 7.9.

Plate 7.1 – Traffic and transport assessment Study Area.

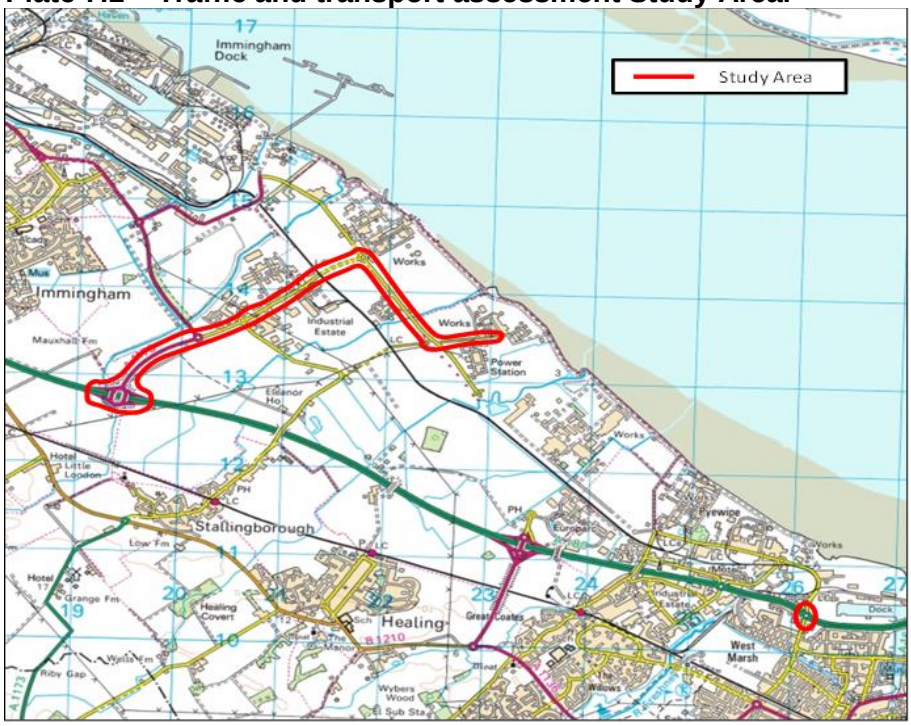

Table 7.9 – 2018 Baseline traffic flows

LINK NO.	LOCATION	TOTAL VEHICLES	TOTAL HGVS
1	South Marsh Road (East of Hobson Way)	790	208
2	South Marsh Road (West of Hobson Way)	781	56
3	Hobson Way (North of South Marsh Road)	1,220	256
4	Kiln Lane (West of Hobson Way)	2,854	1,005
5	A1173 (West of North Moss Lane)	8,997	2,537
6	A1173 (North of A180)	14,197	2,644

Baseline Conditions - Accident Record

7.5.7 Personal Injury Accident (PIA) data has been obtained from the Crashmap website for the period 1st January 2013 to 31st December 2017 for the Study Area, which includes A180/ A1173 interchange, A1173, Kiln Lane, Hobson Way, South Marsh Road and the A180 Westgate Roundabout.

7.5.8 In total, 14 accidents were recorded between the A180/ A1173 Interchange and South Marsh Road of which ten were recorded as 'Slight' and four as 'Serious'.

7.5.9 In total, 35 accidents were recorded at the A180 Westgate Roundabout of which 34 were recorded as 'Slight' and one as 'Serious.

7.5.10 In summary the cause of the majority of accidents within the Study Area was driver error due to lack of awareness or loss of control as opposed to any physical alignments on the highway infrastructure.

Baseline Conditions - Future Baseline Traffic Flows

7.5.11 'Future baseline' and 'future baseline plus committed development' traffic flows were calculated for the Consented Development by applying the standard Trip End Model Presentation Program (TEMPRO). These are presented within the Transport Assessment (TA) for the Consented Development (ES Appendix 9A).

Overview of Consented Development Traffic and Transport Assessment Conclusions

7.5.12 The traffic and transport assessment for the Consented Development concluded that:

- the construction phase will result in temporary increases of traffic flows, including HGVs, on the roads leading to the Site, but these additional traffic movements will not have significant adverse effects on the road network in terms of capacity and will not affect sensitive road users (pedestrians and cyclists);
- the effects of construction traffic on all road links and junctions within the Study Area were therefore considered to be not significant;
- once operational, there will be approximately 56 staff working in three shifts at the Consented Development and conservatively (assuming car occupancy of 1), this equates to 56 cars per day; in addition, there will be 312 HGVs per day associated with deliveries of fuel, consumables the collection of waste products;
- approximately every five or six years the Consented Development would be taken offline for approximately 5 weeks for maintenance works to be carried out, where it could be expected that up to 200 staff could be on site on any one day; and
- given the baseline traffic flows, the traffic effects during operation, maintenance and planned outages are considered to be not significant.

Scope of Proposed Development Traffic and Transport Assessment

7.5.13 There is potential for traffic and transport impacts to occur during the construction, and operation and decommissioning of the Proposed Development.

7.5.14 The Proposed Development will result in the generation of traffic during construction and operation affecting the local and strategic road network.

7.5.15 Development design and impact avoidance measures included in the Consented Development (see Section 9) will be reviewed and updated if necessary.

7.5.16 It is unlikely that there will be a major change to the number of construction vehicles associated with construction of the Proposed Development to that already assessed for

the Consented Development. However this will be reviewed and the assessment will be updated if required.

7.5.17 It is not anticipated that there will be any change to the number of operational HGV movements already assessed for the Consented Development as a result of the Proposed Development because the maximum fuel throughput will remain unchanged. However this will also be reviewed and updated if required.

7.5.18 There will also be no change to the site access arrangements for construction and operational traffic.

7.5.19 To ensure the ES assesses the 'worst case' for the Proposed Development the traffic and transportation chapter will be updated where required including a review and update of:

- baseline data (no additional baseline surveys are expected to be required); and
- derived development flows (including a review and update of committed developments to be included in the future baseline).

7.5.20 The TA prepared for the Consented Development will also be updated as required i.e. to update any baseline information or policy/ guidance since its preparation in late 2018, although updates are currently expected to be limited. Any updates to the TA will be in accordance with guidelines as set out in the Department of Communities and Local Governments 'Planning Practice Guidance' document (March 2014) (DCLG, 2014).

7.5.21 Cumulative traffic impacts were considered within the Consented Development assessment and a review of changes will be considered as part of the Proposed Development assessment.

7.5.22 Mitigation measures included in the Consented Development (see Section 9) will also be reviewed and updated as required.

7.6 Ecology and Nature Conservation

Baseline Conditions

7.6.1 A summary of the ecological surveys carried out to date to facilitate a robust assessment of the likely effects of the Proposed Development on designated sites and protected/ notable species is provided in Table 7.10.

7.6.2 Surveys for the following species were scoped out for the Consented Development EIA and continue to be scoped out for the Proposed Development EIA:

- 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 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 Site. Given the findings of the Consented Development ES it is considered that the importance of these fields to wintering/ passage birds (especially the fields to the north and south of the Site) 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 (HRA)) for the Proposed Development. These fields are considered to be functionally linked to the Humber Estuary SPA/ Ramsar. The available data is 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. This approach was agreed with Natural England when consulting on the scope of assessment for the Consented Development ES and the same approach will be adopted for the Proposed Development.

- 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 however precautionary mitigation will be incorporated into Site clearance works, as per the Consented Development EIA.
- Badger - there is no suitable habitat for badger within the Site, and no signs of badger were recorded during the Phase 1 Habitat survey.

Table 7.10 – Ecological surveys already completed to date to inform The Consented Development EIA.

SURVEY	BRIEF SCOPE	SURVEY TIMINGS	STATUS 2019
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 Site and on adjacent fields.	Completed May 2018	To be updated September 2019
Phase 1 Habitat survey	All habitats within Site and immediate surrounds to place site into context.	Completed May 2018	To be updated September 2019
Great crested newt	eDNA surveys of all ponds identified as potentially suitable for great crested newt within 250m of the Site. Samples were taken on 18th May and 8th June 2018.	Completed May-July 2018	No update required
Reptiles	Seven visits in suitable weather conditions to determine presence/ absence. Artificial	Completed July – Sept 2018.	No update required

SURVEY	BRIEF SCOPE	SURVEY TIMINGS	STATUS 2019
	refuges at a minimum density of 10 per hectare were set out within the Main Development Area on 8th June 2018.		
Water vole and otter	All ditches within and adjacent to the Site that may be directly or indirectly impacted.	Completed October 2018	No update required
Aquatic invertebrates	One visit to collect samples from the ditches that may be directly impacted by development.	Completed June – Sept 2018	No update required

7.6.3 No further habitats within or adjacent to the Site will require any further or additional ecological surveys over and above those already carried out for the Consented Development as a result of the Proposed Development.

7.6.4 A summary of the ecological baseline relevant to the Proposed Development is presented in Table 7.11.

Table 7.11 - Summary of baseline ecology features

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	CONSIDERED RELEVANT TO THE ASSESSMENT
Humber Estuary SPA/ SAC/ Ramsar/ SSSI	International	Site supports qualifying features under the relevant EC Directives that are of international importance.	Yes – potential for direct and indirect effects on habitats and qualifying features
Healing Cress Beds LWS	County	Meets LWS selection criteria.	Yes – potential for air quality impacts
Sweedale Croft Drain LWS	County	Meets LWS selection criteria.	Yes – potential for air quality impacts
Laporte Road Brownfield Site LWS	County	Meets LWS selection criteria.	Yes – potential for air quality impacts
Fish Ponds to the West of Power Station, Stallingborough LWS	County	Meets LWS selection criteria.	Yes – potential for air quality impacts
Semi-improved neutral grassland	District	Grassland meets the area and species-diversity criteria for LWS	Yes – this habitat will be entirely lost to the Proposed Development

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	CONSIDERED RELEVANT TO THE ASSESSMENT
		selection in the greater Lincolnshire area, but has originated relatively recently from a sown mixture.	
Ditches	Ditch 2 – District All other ditches - Local	Ditch 2 supports a diverse assemblage of aquatic invertebrates including one Nationally Scarce species.	Yes – potential for direct and indirect impacts on ditches
Breeding birds (non-Schedule 1)	Site	Small number of breeding pairs likely to be present including ground nesting birds in grassland habitat. Reeds in ditches also provide suitable nesting habitat for a range of species.	No
Breeding birds (Schedule 1)	Local	Pair of peregrines nesting on SHBPS.	Yes – although outside the Main Development Area, potential for indirect impacts
Wintering birds (Site)	District	Habitats on Site support very low numbers of SPA/ Ramsar birds, but are still considered to be functionally linked to the SPA/ Ramsar due to their proximity to the coastal environment.	Yes – habitats will be lost to the Proposed Development
Wintering birds (off Site)	Regional	Habitats off Site support important aggregations of wintering/	Yes – potential for indirect impacts such as noise/ vibration and

ECOLOGY FEATURE	NATURE CONSERVATION VALUE	JUSTIFICATION	CONSIDERED RELEVANT TO THE ASSESSMENT
		passage birds including those that are the qualifying features of the Humber Estuary SPA/ Ramsar wintering assemblage.	visual disturbance during construction and operation
Wintering birds (Pyewipe mudflats)	International	Coastal mudflats adjacent to the Site support important assemblages of water birds and are within the boundary of the Humber Estuary SPA/ Ramsar	Yes – potential for indirect impacts such as noise and visual disturbance during construction and operation.
Great crested newt	Absent	-	No
Reptiles	Absent	-	No
Water vole	District	Present on all perimeter ditches. Widespread in the county but populations have declined substantially across the UK.	Yes – potential for direct and indirect impacts on habitats
Otter	Local	Recorded on Site, likely to use all suitable ditches within Proposed Development boundary. Widespread in the county.	Yes – potential for direct impacts

Overview of Consented Development Ecological Assessment Conclusions

7.6.5 The ecological impact assessment (EcIA) for the Consented Development considered:

- the existing and future baseline conditions at the Site;
- the effects of construction of the Consented Development on habitats and species, with respect to construction traffic, construction dust and the development footprint; and
- the effects of the operation and maintenance of the Consented Development on habitats and species.

7.6.6 The Consented Development will result in a loss of functionally linked habitat to the Humber Estuary SPA/ Ramsar within the footprint of the Main Development Area. It was

concluded that this would be addressed through the adoption of Policy 9 of the Local Plan to deliver alternative habitat for feeding, roosting and loafing birds via the South Humber Gateway (SHG) strategic mitigation pathway and more specifically using the SHG site at Cress Marsh. A Section 106 agreement has been made between EP SHB and NELC to secure the required financial contribution.

7.6.7 With embedded mitigation to control surface water pollution during construction and operation the assessment concluded that there will be no adverse effects on the coastal and marine habitats of the Humber Estuary SAC/ SPA/ Ramsar/ SSSI.

7.6.8 Mitigation for noise/ vibration and visual effects during construction will be employed to ensure that there is no disturbance to water birds in adjacent fields that are functionally linked to the Humber SPA/ Ramsar. A report to inform HRA for the Consented Development therefore concluded that there will be no adverse effects on the integrity of the Humber Estuary SAC/ SPA/ Ramsar.

7.6.9 Habitats within or adjacent to the Main Development Area were found to support breeding birds, water vole and otter, and were assumed to support grass snake due to the suitability of the habitat. Mitigation for these species will be employed during construction to avoid killing/ injury and to ensure legislative compliance in respect of the Wildlife and Countryside Act 1981. The assessment therefore concluded that there will be no significant residual adverse effects on these species.

7.6.10 The loss of semi-improved grassland within the Main Development Area will be mitigated through the delivery of replacement, higher quality, habitats in the ecological mitigation and enhancement area to the west of the SHBPS (see area on Figure 3).

7.6.11 In summary the EcIA for the Consented Development concluded that there would be no significant residual adverse effects on habitats as a result of the Consented Development.

Scope of the Proposed Development Ecological Assessment

7.6.12 There is potential for impacts on ecological features to occur during the construction, operation and decommissioning of the Proposed Development.

7.6.13 The following potential impacts and their resulting effects on ecological features will be considered in relation to the Proposed Development:

- permanent loss of habitats within the Main Development Area during construction;
- temporary impacts on habitats within laydown areas within the Site during construction;
- temporary disturbance of ecological features (noise and vibration, visual and dust impacts) in the vicinity of the 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;
- temporary air quality impacts on ecological features (dust emissions) in the vicinity of the 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).

7.6.14 All of these potential impacts were assessed within the ES for the Consented Development and this assessment will be reviewed and updated where required within the ES for the Proposed Development.

7.6.15 Potential impacts on ecological features will be assessed using the Chartered Institute for Ecology and Environmental Management (CIEEM) Ecological Impact Assessment Guidelines (2018) (CIEEM, 2018). 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.

7.6.16 There is not expected to be any change to the area of habitat directly affected by construction of the Proposed Development compared to the Consented Development, so the assessment of direct impacts on habitats and species within the Site is not expected to be revised. However other impacts on ecological receptors from the Proposed Development, such as air quality or noise impacts, could be different and these will be assessed.

7.6.17 As for the Consented Development, the only potential impacts identified on the Humber Estuary SPA/ Ramsar from the Proposed Development are in relation to air quality and noise and vibration. The construction and operation of the Proposed Development has the potential to impact on birds using the fields to the north and south of the Site and protected habitats that contribute to the value of the SPA itself.

7.6.18 The EcIA undertaken for the Consented Development will be reviewed and updated for the Proposed Development where required, for example updating any baseline information following the desk study and Phase I Habitat survey update, or updating policy/ guidance if necessary. Although much of the assessment undertaken for the Consented Development is expected to remain valid for the Proposed Development, the assessment will be updated to reflect the revised air quality and noise assessments for the Proposed Development.

7.6.19 Detailed design and impact avoidance measures will be reviewed and, following the updated assessment, any additional mitigation requirements to those identified for the Consented Development (see Section 9) will be identified.

7.7 Habitats Regulations Assessment (HRA)

Baseline Conditions

7.7.1 The Humber Estuary SAC/ SPA and Ramsar site (collectively known as 'Natura 2000' sites) is located approximately 175 m east of the Site. The Proposed Development is not connected with, or necessary to, the management of the Natura 2000 sites associated with the Humber Estuary, and therefore an HRA will be necessary (arising from the Conservation of Habitats and Species Regulations 2017, Regulation 63).

Overview of Consented Development HRA Conclusions

7.7.2 Due to the proximity of the Site to European and International Designations a HRA Signposting Report was prepared as part of the Consented Development ES. Three European and international designations associated with the Humber Estuary were included within the impact assessment for the Consented Development.

7.7.3 The HRA Signposting Report, informed by the other technical assessments presented in the Consented Development ES, concluded that the Consented Development would not give rise to any significant effects on these designated sites alone or in combination with other plans or projects.

Scope of the Proposed Development HRA

7.7.4 The HRA Signposting Report for the Consented Development will be updated to include the findings of the EIA for the Proposed Development. The assessment will take into

consideration the findings of the revised air quality and noise assessments for the Proposed Development.

7.8 Geology, Hydrogeology and Land Contamination

Baseline Conditions

7.8.1 A desk-based assessment of historical ground condition information and previous site surveys was undertaken to identify the potential effects associated with ground conditions.

7.8.2 Baseline information indicated that the Main Development Area is likely to be underlain by some areas of made ground associated with historic developments on the Site. Below this are areas of clay, silt, sand and gravel, while the bedrock below that is Flamborough Chalk Formation, comprised of flint-free chalk.

7.8.3 The study area for the geology, hydrogeology and land contamination assessment is the boundary of the Site and up to 500 m from its boundary (the 'Study Area').

Geology

7.8.4 The Proposed Development is not situated within any identified areas of Artificial Ground. However, the uneven surfaces of the Main Development Area and the presence of a mound noted during the Site walkover indicate the presence of Made Ground.

7.8.5 The underlying geology comprises superficial deposits of Tidal Flat (Clay and Silt) normally a consolidated soft silty clay, with layers of sand, gravel and peat. The Tidal Flat deposits are underlain by Glacial Deposits of Devensian age. The bedrock geology underlying the Tidal Flats is the Flamborough Chalk Formation, described by the British Geological Survey (BGS) Lexicon (BGS 'GeoIndex Onshore' website) as being "White, well-bedded, flint-free chalk with common marl seams (typically about one per metre). Common stylolitic surfaces and pyrite nodules."

7.8.6 No geological faults have been identified at the Site either on BGS 1:50,000 or 1:10,560 scale maps.

7.8.7 There are four BGS boreholes within 250 m of the Main Development Area; TA21SW119, TA21SW347, TA21SW346 and TA21SW345. Made Ground was identified between ground level and 0.30 m below ground level (bgl) in borehole TA21SW119. From approximately 0.30 m bgl to 7.48 m bgl, the geology was described as mudflat intertidal channel comprising of layers of clayey silt and sandy silts. Underlying the mudflat intertidal channel to 9.00 m bgl (base of borehole) was low salt marsh which comprised of silty clay with peat, wood fragments, pebbly sandy silt with chalk pebbles. No groundwater strike was recorded. The three remaining boreholes recorded alluvium from ground level at depths of between 6.60 m and 9.30 m bgl. Underlying the alluvium glacial deposits was described comprising of layers of clay and sand to depths of 23.00 m bgl overlying the Flamborough Chalk. Groundwater was encountered in these three boreholes between depths of 9.70 m bgl and 11.40 m bgl.

7.8.8 The Site is not within an area affected by coal mining and there are no BGS Recorded Mineral Sites within the Study Area.

Hydrogeology

7.8.9 The superficial deposits within the Site are classified by the Environment Agency as an Unproductive Aquifer. The bedrock geology is designated as a Principal Aquifer, i.e. exhibiting high permeability and/ or provides a high level of water storage. Principal Aquifers may support water supply and/or river base flow on a strategic scale.

7.8.10 The Site is not located within a Groundwater Source Protection Zone and there are no groundwater abstractions within the Study Area.

Hydrology

7.8.11 To the east of the Site is the Humber Estuary. 'High Water Tide' mark is noted on the Ordnance Survey (OS) maps as approximately 175 m from the eastern boundary of the Main Development Area.

7.8.12 There is a system of drainage channels around the majority of the perimeter of the Site. The Oldfleet Drain is located approximately 140 m south of the Site boundary (at its closest point) and it connects to the Mawbridge Drain approximately 1 km south of the Site.

7.8.13 The Environment Agency Catchment Data Explorer[2] indicates the north-eastern area of the Site is within the 'North Beck Drain' catchment area and the south-western area is within the 'Mawbridge Drain' catchment area.

7.8.14 The Environment Agency's flood map for planning[3] indicates that the Site is within Flood Zone 3. These are areas assessed as having a 1 in 100 or greater annual probability of river flooding (>1%), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year. The flood zone does not take into account the presence of any flood defences in the area.

Designated and Non-Designated Geology Sites

7.8.15 There are no geologically designated sites identified within the Study Area.

7.8.16 Table 2.1 in Section 2 presents a summary of the history of the Proposed Development Site.

Potentially Contaminative Land Uses

7.8.17 The SHBPS, which lies directly to the west of the Main Development Area, is considered as a potentially contaminative land use.

7.8.18 No landfill sites or waste management facilities are listed within 250 m of the Site. One Permitted Waste Management Facility is located within 500 m of the Site - the NEWLINCS waste management facility, for which a Permit was issued in May 2012.

7.8.19 Just outside the Study Area there are:

- seven Licensed Waste Management Facilities located between 500 m and 1 km of the Site;
- one BGS Recorded Landfill Site located 825 m south-east of the Site; and
- four Historic Landfills listed between 500 m to 1 km south-east of the Site (Stallingborough Landfill located c. 750 m to the north-west and Landfills No2, No3 and No4 at Great Coates Works located c. 800 m to the south-east of the Site).

Contemporary Trade Uses

7.8.20 Two active Contemporary Trade Uses are listed on Site: a waste disposal service and a power transmission service.

[2] https://environment.data.gov.uk/ catchment-planning
[3] https://flood-map-for-planning.service.gov.uk

7.8.21 There are a further two entries within 250 m of the Site; one classified as a rubber and plastic products manufacturer, which is active, and the other a chemicals and allied products manufacturer which is listed as inactive.

7.8.22 Just outside the Study Area between 500 m and 1 km, there are two Contemporary Land Uses entries which are both active; one classified as a Recycling Centre and the other as a Gas Supplier.

Previous and Proposed Ground Investigation

7.8.23 In 2006, RSK Group was commissioned by Centrica to design a Site Protection and Monitoring Program for SHBPS, which included a ground investigation and installation of monitoring wells in the western part of the Site and a monitoring programme.

7.8.24 The intrusive ground investigation recorded variable thicknesses of Made Ground overlying superficial alluvial clay deposits comprising very soft or soft black to grey brown or dark grey clay with a slight organic reducing odour. The alluvial clay was observed as becoming very sandy at 4.0 m bgl along with groundwater seepages. During the ground investigation groundwater was encountered across the monitoring well network with resting groundwater elevations ranging from 9.88 mAD (above site datum) to 10.24 mAD. RSK inferred that groundwater flowed towards the south-east.

7.8.25 Analysis of the soils undertaken during the investigation indicated the presence of localised, trace concentrations of heavy fractions (C21 - C25) aromatic and aliphatic Total Petroleum Hydrocarbons (TPH) and Polycyclic Aromatic Hydrocarbons (PAH) at shallow depths. Groundwater chemical analysis results recorded TPH concentrations below the method detection limit and aqueous PAH concentrations of 0.129 µg/l and 0.29 µg/l. RSK's report noted that the groundwater pH and chloride concentrations suggested alkaline freshwater conditions beneath the Site, with no evidence of saline intrusion from the Humber Estuary.

7.8.26 Further ground investigation work is programmed prior to commencement of construction of the Consented Development.

<u>Overview of Consented Development Geology, Hydrogeology and Land Contamination Assessment Conclusions</u>

7.8.27 The Consented Development assessment considered the potential risks to people (staff on site during construction and operation), surrounding land uses, ecological receptors, buildings, soils and groundwater from the construction, operation and decommissioning of the Proposed Development.

7.8.28 Potential impacts during the construction phase included the discovery of contaminated groundwater and soils during groundworks, contamination risks to soils and groundwater from leaks and spills, airborne contamination (dusts) and risks from presence of ground gases. However, these potential impacts will be managed by appropriate construction mitigation measures (which will be outlined in the CEMP) and as such no significant adverse effects are anticipated.

7.8.29 Potential impacts during the operational phase could include leaks, spills and contamination from storage of chemicals, fuels and wastes on site affecting site users and groundwater, and the presence of gases, vapours and groundwater in the ground affecting site users and buildings.

7.8.30 However, with appropriate management, housekeeping and preventative maintenance practices (such as appropriate storage of potentially contaminating liquid), as required by the Environmental Permit that will be required for the operational site, potential impacts to soil and groundwater will be avoided. As such, significant adverse effects were not anticipated.

Scope of Proposed Development Geology, Hydrogeology and Land Contamination Assessment

7.8.31 There is potential for impacts in relation to geology, hydrogeology and land contamination to occur during the construction, operation and decommissioning of the Proposed Development.

7.8.32 Where necessary, the assessment of impacts will be extended outside the Study Area (500 m around the Site) to include important off-site features within the vicinity of the Site.

7.8.33 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 of the Proposed Development;
- pollution of soils, and controlled waters within or near the Site during construction, for example due to the spillage of polluting materials, if an appropriate CEMP is not adhered to; and
- pollution of soils and controlled waters within or near the Site during operation, for example due to the spillage of polluting materials, if materials are not appropriately stored in accordance with an appropriate Environmental Management Plan and/ or an appropriate drainage system is not implemented and maintained.

7.8.34 A desk-based (Phase 1) assessment was prepared and submitted as Appendix 12A to the Consented Development ES. It identified potential contaminative uses and provided a preliminary geotechnical assessment of the Site. It also identified the potential for land contamination and potential pathways to sensitive receptors and considered the potential for contaminants associated with current and historic land use in and around the Site.

7.8.35 As the proposed DCO application site boundary is as per the Consented Development planning application boundary, it is not proposed to prepare a new Phase 1 assessment, however the Phase I report will be reviewed and updated where required.

7.8.36 The results of the desk-based assessment and conceptual site model for the Consented Development have been used to assess data gaps and uncertainties and will be used to inform the scope of any ground investigation undertaken for the Consented Development. The results of this investigation will not only inform the design and construction of the Consented Development but will also inform the assessment of the Proposed Development.

7.8.37 Impact avoidance measures proposed for the Consented Development (see Section 9) will be reviewed and updated as necessary.

7.8.38 An assessment of potential impacts on existing ground conditions will be undertaken, 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.

7.8.39 Based on the assessment of the baseline and the identification of any potential impacts, the ES will review the proposed mitigation measures for the Consented Development (see Section 9) and identify any additional required mitigation measures for the Proposed Development.

7.8.40 Given the findings of the previous assessment for the Consented Development and the nature of the Proposed Development it is considered unlikely that there will be any additional impacts identified over and above those already assessed for the Consented Development.

7.9 Cultural Heritage

Baseline Conditions

7.9.1 There are no designated heritage assets within the Site.

7.9.2 There are a total of 16 designated heritage assets within the 5 km of the Site (the '5km Study Area') and seven non-designated archaeological assets within 1km of the Site (the '1 km Study Area'). This includes three Scheduled Monuments (the closest of which is 3.2 km from the Site) and 13 Listed Buildings (of which six are located within 3 km of the Site).

7.9.3 The Great Coates Conservation Area is located to 2.7 km to the south of the Site.

Overview of Consented Development Cultural Heritage Assessment Conclusions

7.9.4 The historic environment is characterised by small built up settlements. The significance of the assets within these settlements was not identified to be adversely affected by the Consented Development.

7.9.5 Impacts to the historic environment resulting from the Consented Development were considered to be limited to assets located on the edges of nearby settlements and high-level designated heritage assets which have taller elements, such as churches. No effects were anticipated on the majority of assets during construction, operation or decommissioning of the Consented Development.

7.9.6 Minor adverse (not significant) effects were predicted on the Church of St. Peter and St. Paul (NHLE 1379845) and the Church of St. Michael, Little Coates (NHLE 1379845) during construction of the Consented Development due to their locations on the edges of Stallingborough and Little Coates. These churches' locations result in the Site forming part of the setting of the designated heritage assets and the Consented Development will change the setting by the addition of new structures. However the Consented Development is unlikely to affect the significance of the asset and will not result in a change in the understanding of the asset.

7.9.7 No significant effects on buried archaeology were identified. The Main Development Area was stripped during the construction of the SHBPS and appears to have been used as a laydown area and construction compound. Any surviving remains will have been removed during this process and consequently there is no impact on archaeology.

Scope of the Proposed Development Cultural Heritage Assessment

7.9.8 There is potential for cultural heritage impacts to occur during the construction, operation and decommissioning of the Proposed Development.

7.9.9 Based on the outcome of the Consented Development ES and 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.

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

7.9.11 Baseline data will be reviewed and updated where required although it is not expected to be different from that already included within the Consented Development ES and therefore updates are expected to be limited.

7.9.12 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 ZTV (to be undertaken as part of the landscape and visual impact assessment as discussed in the Landscape and Visual Amenity section above) will be used as a tool 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.

7.9.13 The assessment will follow current professional good practice and guidance including that produced by the Chartered Institute for Archaeologists and Historic England.

7.9.14 The purpose of the assessment will be to identify the potential impacts of the Proposed Development upon the significance of the heritage resource and to understand the level of harm to that resource.

7.9.15 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. This will produce an initial significance of effect of the Proposed Development upon the heritage resource, taking into account any design or embedded mitigation.

7.9.16 Following the impact assessment process, any potential mitigation requirements will be identified. The significance of residual effects remaining after mitigation will be assessed according to accepted criteria for assessing impacts on heritage assets.

7.9.17 Given the nature of the Proposed Development compared to the Consented Development, the impacts of the Proposed Development are likely to be as per the conclusions of the Consented Development cultural heritage assessment.

7.10 Water Resources, Flood Risk and Drainage.

Baseline Conditions

7.10.1 The 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 Site benefits from the presence of tidal flood defences along the south bank of the Humber Estuary.

7.10.2 Surface water runoff within the existing site currently drains to the ditches in the north of the Site (to the south of South Marsh Road) and in the south of the Site. These drainage ditches are maintained by EP SHB Ltd.

7.10.3 The nearest watercourse is Oldfleet Drain located approximately 140 m to the south of the Site (at its closest point) which is classed by the Environment Agency as a Main River. Middle Drain an Ordinary Watercourse, is located approximately 340 m to the north of the Site (at its closest point). A series of minor land drainage ditches (also Ordinary Watercourses) run along the northern, western, eastern and southern boundaries of the Site and convey surface water runoff discharges from the greenfield areas of the Site into Middle Drain and Oldfleet Drain towards the Humber Estuary.

7.10.4 Fluvial flood defences are present along Oldfleet Drain upstream of the Site, located approximately 270 m south-west, upstream of the railway line. According to the information provided by the Environment Agency, these reduce the risk of flooding up to a 1% AEP (1 in 100 chance) event. However, alongside the Site (downstream of the railway line to the sea), no formal defences are present.

7.10.5 The Environment Agency's 'Flood Map for Planning' identifies there to be existing tidal flood defences located approximately 25 m east of the Site, extending from north-west to south-east alongside the Humber Estuary, which reduce the risk of flooding up to a 0.5% AEP (1 in 200 chance) event.

7.10.6 The 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.

7.10.7 The Site is located 175 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).

7.10.8 The Humber Estuary is designated under both the Nitrates Directive and Urban Wastewater Treatment Directive.

Overview of Consented Development Water Resources, Flood Risk and Drainage Assessment Conclusions

7.10.9 The assessment identified the key water bodies that may receive runoff or discharges from the Site during construction, operation and decommissioning of the Consented Development, and considered the potential contamination risk to these water bodies as a result.

7.10.10 The main surface watercourses close to the Site are the Humber Estuary to the east and a number of land drains (ranging in size from Main Rivers to minor drainage ditches).

7.10.11 The Site is located in an area of high flood risk (Flood Zone 3), as defined by the Environment Agency as land that has a 1 in 100 year or greater probability of river flooding; or 1 in 200 year 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 to effectively manage this risk. A standalone Flood Risk Assessment (FRA) was prepared for the Consented Development.

7.10.12 During construction there is the potential for spillages to occur which could impact upon water quality of surface waterbodies or groundwater, but the likelihood of these occurring would be low through the use of working methods that will be formalised through the CEMP. As a result, no significant effect on surface or groundwater is predicted.

7.10.13 Any increase in impermeable area during construction, which could lead to increased flood risk, will be managed by effective drainage design as described in the FRA.

7.10.14 Any drain crossings required for access during construction of the Consented Development will use appropriately sized culverts to allow the existing flow capacity of the drain to be maintained and as such no significant adverse effects on flood risk are expected.

7.10.15 As in the construction phase, the change to impermeable area during operation of the Consented Development, which could increase surface flows of water and potentially impact on flood risk, will be managed by an appropriate drainage system. Likewise, with appropriate measures put in place to prevent spillages, there is a low probability of pollution events occurring and therefore it has been concluded there are no significant

adverse effects on surface or groundwater as a result of the operation of the Consented Development.

7.10.16 In the unlikely event that the Humber Estuary defences were overtopped or breached flood risk could be increased by the Consented Development because the development footprint would displace flood water that might otherwise be stored within the Site. However as no land raising is proposed, the displacement impact would be small so the effect is not considered to be significant. With flood resilience measures and emergency protocols for the Consented Development, no significant adverse effects are anticipated during operation.

Scope of the Proposed Development Water Resources, Flood Risk and Drainage Assessment

7.10.17 There is potential for impacts to occur during the construction, operation and decommissioning of the Proposed Development.

7.10.18 Construction, maintenance and operational activities from the Proposed Development could potentially alter the water resources (water quality), flood risk and drainage of local watercourses with direct surface water interactions from Site runoff. There is also the potential for these effects to continue to adjacent receiving watercourses, primarily Oldfleet Drain and Middle Drain as well as other downstream drainage ditches.

7.10.19 The potential impacts from construction activities have been identified as follows (as per the Consented Development):

- potential change to the surrounding ditches (culverting/ extension to culverts/ installation of fencing);
- potential loss of tidal floodplain storage and temporary changes to fluvial flood water flow routing within Flood Zone 3 during construction (although the Site benefits from flood defences);
- pollution of surface watercourses within or near the Site during construction due to spillages or polluted surface water runoff entering the watercourse (if an appropriate CEMP is not adhered to); and
- change to the impermeable area within the Site, and associated changes to surface water flows during construction.

7.10.20 Potential impacts from maintenance and operational activities have been identified as follows (as per the Consented Development):

- change to the impermeable area within the Site, and associated changes to surface water flows during maintenance and operation of the Proposed Development;
- potential loss of tidal floodplain storage as the footprint of the Proposed Development is located in Flood Zone 3 (although the Site benefits from flood defences); and
- pollution of surface watercourses within or near the Site during maintenance and operation, due to spillages or polluted surface water runoff entering the watercourse (if materials are not appropriately stored at the Site in accordance with an appropriate Environmental Management System and/ or an appropriate drainage system is not implemented and maintained).

7.10.21 The Proposed Development will be located on the same part of the Site already included within the FRA for the Consented Development, the impermeable area is not expected to change significantly, and ground raising is still not proposed (as per the Consented Development). Attenuation requirements for the Proposed Development will be reviewed as part of update to the FRA. The requirement for a safe place of refuge to be elevated

above a level of 4.55 mAOD is expected to remain and will not be affected by the Proposed Development.

7.10.22 It is not expected that the conclusions of the water resources, flood risk and drainage assessment for the Consented Development will change for the Proposed Development, as the same design, impact avoidance and mitigation measures are expected to be proposed (see Section 9). For example an appropriate drainage strategy will be prepared, and the ditch crossing required to create the new site access into the Main Development Area will be constructed as approved for the Consented Development.

7.10.23 Any additional impact avoidance or mitigation measures required for the Proposed Development will be identified as part of the updated assessment.

7.11 Socio Economics

Baseline Conditions

7.11.1 The Study Area for the Socio Economic Assessment is defined as the area covered by the Direct Impacts Area and the Wider Impact Area (these are defined further below).

7.11.2 Baseline conditions are defined for the socio economics Study Area itself against England as a whole. The local population and labour market are the main receptors in the assessment for employment effects. Understanding the baseline conditions enables the impact of employment generated by the Proposed Development on the local population and labour market to be determined. The impact is mostly influenced by the size of the labour market and whether it has the relevant skills, occupations and sector strengths.

7.11.3 The Site falls within Lower Super Output Area (LSOA) North East Lincolnshire 007A (the 'Direct Impact Area'). LSOAs are small geographic areas defined by the Office of National Statistics. There are 34,753 LSOAs across England and Wales with a minimum population of 1,000 and a maximum of 3,000.

7.11.4 The Direct Impact Area is located in North East Lincolnshire, between the settlements of Immingham to the north-west and Grimsby to the south-east. The Site is located in the north-east corner of the Direct Impact Area, close to the adjacent LSOA North East Lincolnshire 007B and the River Humber. The Direct Impact Area extends further to the south-west, away from the River Humber.

7.11.5 As well as understanding the socio economic conditions immediately surrounding the Site (as per the LSOA), the socio economic assessment baseline includes the principal labour market catchment area of the Travel to Work Area (TTWA).

7.11.6 The Site falls within the Grimsby TTWA (the 'Wider Impact Area'). The Grimsby TTWA features the town of Grimsby as its employment centre, also covering other local settlements including Cleethorpes and Immingham. The Site is located relatively centrally in the TTWA, located between the two largest settlements of Grimsby and Immingham

Overview of Consented Development Socio Economic Assessment Conclusions

7.11.7 This socio economic assessment for the Consented Development considered the worst-case scenario in terms of socio economic effects as being the construction and operation of a single combustion stream plant - as the other scenarios outlined within the Consented Development ES (i.e. construction and operation of a two-stream plant) would lead to greater socio economic benefits.

7.11.8 The socio economic assessment concluded that the Consented Development will have an overall positive economic effect on the Grimsby TTWA economy, through the provision of employment and through associated multiplier effects.

7.11.9 The creation of employment opportunities during both the construction and operation phases of the Proposed Development supports the objectives set out in the Humber LEP's SEP related to job creation, in particular skilled roles and the overall contribution to the growth of the energy sector in the Humber Estuary.

Scope of the Proposed Development Socio Economics Assessment

7.11.10 There is potential for socio economic impacts to occur during the construction, operation and decommissioning of the Proposed Development.

7.11.11 The Proposed Development will have a beneficial effect on employment during the construction phase. There will also be employment opportunities associated with the operation of the Proposed Development (associated with operating and maintenance works).

7.11.12 A policy review update to that carried out for the Consented Development will be undertaken including relevant local, sub-regional and national policies around economic development and planning in a socio economic context to understand how the Proposed Development fits with existing policy and identify, where available, relevant service provision standards. This will provide an interpretation of where the Proposed Development would meet local policy requirements.

7.11.13 In order to provide an accurate assessment of the potential impacts of the Proposed Development, a review will be undertaken where required of the baseline of the social and economic profile of the local area, including local urban centres, compared to the regional and national context, based on the relevant impact and benchmark areas identified.

7.11.14 The baseline will be updated as necessary using appropriate data sources including Census Data, ONS Annual Population Survey, ONS Mid-year Population Estimates, ONS Labour Market Statistics, Business Register and Employment Survey data, Annual Survey of Hours and Earnings, and current provision and position in relation to the relevant impact areas (e.g. employment, demography, provision of education, health, community services and open space).

7.11.15 The assessment will identify the additional demand created in the economy and for social infrastructure resulting from the Proposed Development both during the construction and operational phases, including any mitigation measures required as a result of residual impacts.

7.11.16 The socio economic assessment will consider both construction and operational phases and provide an assessment of both gross and net additional impacts resulting from the Proposed Development.

7.11.17 Since the Consented Development assessment was undertaken, construction of a single stream scenario had been discounted and therefore the Proposed Development is likely to result in increased benefits to those already reported in the Consented Development ES.

7.12 Waste Management

Baseline Conditions

7.12.1 Baseline data to inform the Consented Development waste management assessment was obtained from the Environment Agency's Waste Management Information 2017 (published in 2018) which includes following information about waste sent to landfills in 2017 and remaining landfill capacity in former Humberside, and in the wider Yorkshire and the Humber region.

7.12.2 The data showed that there was approximately 14 million m^3 of inert waste landfill capacity in the Yorkshire and the Humber region and therefore the surplus excavated material generated by the site comprises approximately 1.1% of this available capacity.

7.12.3 Annual arisings of construction, demolition and excavation waste in Yorkshire and the Humber was approximately 10.5 million tonnes per year in 2017.

Overview of Consented Development EIA Conclusions

7.12.4 The waste assessment for the Consented Development considered the likely effects associated with the generation of waste and use of resources associated with the Consented Development.

7.12.5 It was estimated that the construction of the consented Development could generate approximately 160,000 m^3 of surplus excavation material if the top layer of ground is cut and filled to improve its engineering properties for construction. Some of this material may be re-used within the Site; however, to undertake a worst-case assessment it was assumed that all of this will be disposed of in off-site landfill.

7.12.6 This was considered in the context of the total regional waste arisings of around 14 million m^3 of inert waste landfill capacity in the Yorkshire and Humber region. As a percentage of the regional total (approximately 1.1%), waste from the Consented Development was therefore estimated to be small and was not considered significant or likely to lead to any capacity issues within the regional waste management network.

7.12.7 Good practice waste management procedures will minimise the risk of adverse effects on human or ecological receptors from the waste storage, transfer or disposal. During operation the Proposed Development will generate inert bottom ash which can either be recycled for use in the construction industry or landfilled. The estimated annual quantity of bottom ash generated represents approximately 1.7% of Yorkshire and the Humber's annual construction, demolition and excavation waste arisings. The Applicant will explore opportunities for beneficial re-use of bottom ash.

7.12.8 In addition, small amounts of hazardous wastes will be generated and will be carefully disposed of. Neither of these waste quantities are considered to result in significant adverse effects on regional waste management infrastructure.

Scope of the Proposed Development Waste Management Assessment

7.12.9 There is potential for impacts to occur during the construction, operation and decommissioning of the Proposed Development.

7.12.10 Relevant baseline data and policy/ guidance will be reviewed and updated as necessary to inform the waste management assessment of the Proposed Development.

7.12.11 The Consented Development waste management assessment considered the impacts associated with the potential cut and fill of the entire Main Development Area, as a worst-case scenario. This will be reviewed but is anticipated to remain the worst-case scenario for the Proposed Development construction waste assessment.

7.12.12 As for the Consented Development, operational waste will predominantly comprise combustion residues (bottom ash) and flue gas treatment (FGT) residues, which will be managed in accordance with the relevant environmental regulations using licensed waste contractors. The estimated volumes and waste management methods for these operational wastes are not expected to change from that presented in the Consented Development ES (because the maximum fuel throughput is not expected to change), therefore it is not anticipated that the conclusions of the previous assessment will change.

7.13 Cumulative and Combined Effects.

7.13.1 Cumulative impacts 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 approved projects or activities (e.g. have planning consent) and are located within a realistic geographical scope where environmental impacts could act together to create a more significant overall effect.

7.13.2 Cumulative effects of the Consented Development and the Proposed Development will not be assessed as the EIA that will accompany the DCO application will inherently encompass the effects of the Consented Development as presented in each technical chapter discussed above. Each technical chapter will provide a comparison of their effects.

7.13.3 Combined effects will also be assessed. The combination of predicted environmental impacts resulting from a single 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), are referred to as combined effects.

7.13.4 An assessment of potentially significant cumulative effects with other proposed developments in the vicinity of the Consented Development was undertaken for each of the technical topics and reported in the Consented Development ES. It is not anticipated that the findings of this assessment will be altered greatly as a result of the Proposed Development however a review of other approved or known developments since the Consented Development EIA was completed will be carried out to scope any requirements for further cumulative assessment.

7.13.5 Once a review of approved or known developments has been completed a list will be compiled of those to be included within the cumulative assessment and issued to NELC for agreement/ comment.

8.0 NON-SIGNIFICANT ENVIRONMENTAL ISSUES

8.1 Introduction

8.1.1 The aim of the EIA 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, sometimes resulting in certain aspects being considered 'non-significant'.

8.1.2 The following section provides a summary of those issues considered during the preparation of this EIA Scoping Report, which are not considered likely to lead to significant environmental effects. It is proposed that these would therefore not be considered and will be scoped out of the ES.

8.1.3 Table 8.1 below presents the aspects and matters that the Applicant proposes to scope out of the EIA. Further detail is presented in this Section, with the exception of archaeology which is discussed in the Cultural Heritage section in Section 7.9.

Table 8.1 – Aspects and matters to be scoped out of the EIA

ASPECT	REASON
Aviation	No impacts anticipated.
Electronic Interference	No nearby residential properties likely to be affected and height and mass of the buildings and stack unlikely to result in significant effects.
Accidental Events/ Health and Safety	Dealt with in the individual chapters and through the Environmental Permit.
Major Incidents and Natural Disasters	Dealt with in the individual chapters where required- e.g. Flood Risk.
Sustainability and Climate Change	Dealt with in the individual chapters where required e.g. Air Quality.
Archaeology	No archaeological remains within Site due to previous construction activity associated with SHBPS.

8.2 Aviation

8.2.1 Humberside International Airport is located approximately 14 km to the west of the Site. 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.

8.2.2 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 SHBPS stacks are 75 m in height, with lighting at the top for aviation purposes.

8.2.3 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. The Extant Planning Permission includes a requirement to install aviation lighting at the top of the stack, and it is currently anticipated that this requirement will also apply to the Proposed Development. Should taller stacks or cranes be required than currently expected, the need for an aviation assessment will be reviewed accordingly.

8.2.4 In response to the Scoping Opinion for the Consented Development Humberside Airport provided a response which in summary stated that "*this development is within the*

published Safeguarding area for the airport and for any development above 90 m this area the airport is to be consulted. That said, as long as the development is lit in accordance with 'The Air Navigation Order 2016 and Regulations' and any Civil Aviation Authority requirements, Humberside Airport would not object to this proposal unless the stack height was to be greater than 171m".

8.2.5 Humberside Airport will be consulted but no material change to the previous comments (for the Consented Development) is expected.

8.2.6 Following receipt of the Scoping Opinion from NELC for the Consented Development, aviation was scoped out of the Consented Development EIA.

8.2.7 The Proposed Development stack height will remain at 102 mAOD - no change from that previously consulted on for the Consented Development and therefore it is considered acceptable to scope aviation out of the EIA for the Proposed Development.

8.3 Electronic Interference

8.3.1 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 be considered. The proposed maximum building heights will be no higher than the existing stacks associated with the SHBPS. The stack will be taller at 102 mAOD. The expected maximum heights of temporary construction cranes will similar to the height of the proposed stack.

8.3.2 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.

8.3.3 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 and it is acceptable to scope electromagnetic interference out of the EIA.

8.4 Accidental Events/ Health and Safety

8.4.1 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 Environment Agency.

8.4.2 Consultation with the Health and Safety Executive (HSE) was carried out in relation to the Consented Development giving due consideration to the consultation zones for nearby potentially hazardous installations using the HSE's Land Use Planning Methodology.

8.4.3 The Proposed Development will be designed, as per the Consented Development, to meet HSE requirements regarding the maximum number of occupants and maximum number of occupied stories within an HSE Inner Zone, which covers a small part of the Main Development Area.

8.4.4 It is not expected that the Proposed Development will result in any impacts on nearby hazardous installation over and above those already consulted upon with the HSE in relation to the Consented Development and as such it is acceptable to scope out accidental events and health and safety from the EIA.

8.5 Major Incidents and Natural Disasters

8.5.1 The need for an assessment of major incidents and natural disasters was scoped out of the EIA for the Consented Development but where relevant these issues were covered within the topic chapters e.g. severe weather (storms, flood) were considered within the FRA. The same approach is proposed for the Proposed Development EIA.

8.5.2 It is not considered that there would be potential for significant effects that are not already considered in the technical assessments scoped in to the EIA, so it is acceptable to scope major incidents and natural disasters out of the EIA.

8.6 Sustainability and Climate Change

8.6.1 Sustainability and climate change matters that have been incorporated into the design of the Proposed Development will be detailed in the ES. The main consideration is future flood risk with climate change, and associated measures required to ensure the Proposed Development is designed appropriately (e.g. surface water attenuation, flood resilient design), but sustainability is also relevant to the needs case for the Proposed Development, which comprises a form of renewable energy. Carbon dioxide emissions will be considered in the air quality chapter.

8.6.2 It is not considered that there would be potential for significant effects that are not already considered elsewhere in the ES, so it is considered acceptable to scope sustainability and climate change out of the EIA.

9.0 PROPOSED DEVELOPMENT DESIGN, IMPACT AVOIDANCE AND MITIGATION MEASURES

9.1.1 Table 9.1 below provides a summary of avoidance or mitigation measures already secured for the Consented Development and which are anticipated to be retained for the Proposed Development, subject to the findings of the Proposed Development EIA.

9.1.2 Through granting permission for the Consented Development these measures have been deemed acceptable by NELC, and were informed by representations from statutory consultees. Many of these measures are secured through conditions attached to the permission for the Consented Development, and are expected to be similarly secured by requirements in the DCO for the Proposed Development. The suitability and adequacy of the measures will however be considered in full in the EIA for the Proposed Development, with different or additional measures proposed were appropriate.

Table 9.1 – Mitigation measures specified within The Consented Development ES

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
Air Quality (Construction)	Implementation of a CEMP.	No significant adverse effects identified therefore no additional mitigation or enhancement over and above development design and impact avoidance measures.
	Where appropriate, storage of sand and aggregates in bunded areas and storage of cement powder and fine materials in silos.	
	Use of water suppression and regular cleaning to minimise mud on roads.	
	Covering of vehicles leaving the construction site that are carrying construction waste materials or spoil.	
	Employment of a wheel wash system at site exits.	
	Restriction where practicable of the use of unmade road access.	
	Minimising duration of storage of top soil or spoil during construction.	
	Prohibiting open fires on Site.	
	Minimising vehicle and plant idling.	
	Where possible, locating static plant away from sensitive boundaries or receptors, in particular by retaining the existing landscaping around the Site.	
Air Quality (Operation)	Process emissions to air will comply with the ELV requirements specified in the IED, or, if tighter, the revised waste incineration BREF and in accordance with Environment Agency guidance.	
	The stack heights have been set at 100 m above the finished ground level (102	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	mAOD), in order to provide appropriate dispersion of the emitted pollutants.	
Noise and Vibration (Construction)	All construction plant and equipment will comply with EU noise emission limits.	Implement appropriate mitigation to reduce impacts on ecological receptors including: • alternative quieter piling methods e.g. Continuous Flight Auger (CFA) piling to reduce noise, which could be applied at any time of year; and/ or • seasonal restrictions to avoid impacts by not using drop hammer piling for two hours either side of high tide between September and March (inclusive)
	Proper use of plant with respect to minimising noise emissions – all vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good efficient working order.	
	Selection of inherently quiet plant where appropriate, for example and where practicable major compressors will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use, and all ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers.	
	Machines in intermittent use will be shut down in the intervening periods between work or throttled down to a minimum.	
	Materials should be handled with care and be placed, not dropped. Materials should be delivered during standard working hours where possible.	
	All ancillary plant such as generators, compressors and pumps will be positioned so as to cause minimum noise	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	disturbance, i.e. furthest from receptors or behind close boarded noise barriers; if necessary, acoustic enclosures will be provided and/or acoustic shielding.	
	Construction contractors will be obliged to adhere to the codes of practice for construction working and piling given in BS 5228 and the guidance given therein minimising noise emissions from the Site.	
Noise and Vibration (Operation)	Operational noise will be controlled through the use of BAT, which will be determined and regulated through an Environmental Permit.	No significant adverse effects identified therefore no additional mitigation or enhancement over and above development design and impact avoidance measures.
Traffic and Transport (Construction)	Implementation of a Construction Worker Travel Plan (CWTP).	No significant adverse effects identified therefore no additional mitigation or enhancement over and above development design and impact avoidance measures.
	Managing the number and use of parking spaces on-site to ensure that the number of vehicles arriving at the Site is controlled.	
	Encouraging contractors to provide minibuses for transporting their workers from key points of construction worker origin to the Site.	
	Implementing a construction worker car share scheme.	
	Providing secure parking for bicycles.	
	Implementation of a Construction Traffic Management Plan (CTMP).	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	HGV routing plan communicated to all drivers during their induction.	
	Local signage strategy.	
	Limiting construction delivery hours to 07:00 – 19:00.	
	Management of abnormal load deliveries.	
	24 hour contact name and number for members of the public should there be any issues relating to construction traffic.	
Traffic and Transport (Operation)	Implementation of an Operational Travel Plan.	
	Implementation of a Delivery and Servicing Plan.	
Ecology and Nature Conservation (Construction)	The calculation of the sum of money will be carried out for the application of Policy 9, which will contribute towards the SHG strategic mitigation land being delivered at Cress Marsh (which is part of a wider package of 120 ha of strategic mitigation land to be delivered in the SHG region for the South Humber Industrial Investment Programme (SHIIP). This will ensure that the loss of functionally linked land within the footprint of the Consented Development will not result in adverse effects on the integrity of the Humber Estuary SPA/ Ramsar, and is therefore compliant with the Habitat Regulations see Appendix 10G3 in ES Volume III.	Implement appropriate mitigation to reduce impacts on Ecological Receptors including: • alternative quieter piling methods e.g. Continuous Flight Auger (CFA) piling to reduce noise, which could be applied at any time of year; and/ or • seasonal restrictions to avoid impacts by not using drop hammer piling for two hours either side of high tide between September and March (inclusive).

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	For the Consented Development, the total sum to be commuted to NELC to buy into the SHG mitigation scheme is calculated as follows: Site Area x £11,580. A close board fence approximately 2.5 m in height will be installed along part of the southern boundary of the Site to provide visual screening during construction and operation to the adjacent field to the south (Field 37). This field has been identified as a key high tide roost for SPA / Ramsar water birds, and the eastern portion of the field is allocated as part of the SHG strategic mitigation package for the SHIIP.	Creation and appropriate management of 1 ha species-rich grassland within the Site with higher ecological value than the habitat lost.
	The layout of the Consented Development has been designed to accommodate a minimum 5 m undeveloped buffer zone along the banks of all perimeter ditches, to avoid damage and disturbance to the main water vole habitats (i.e. the ditches) associated with the Main Development Area during construction and operation. The buffer zone will be fenced from the Consented Development to prevent accidental damage during construction.	
Ecology and Nature Conservation (Construction)	Implementation of a CEMP detailing all requirements for environmental protection and legal compliance.	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	To ensure legislative compliance in relation to nesting birds, all clearance of suitable vegetation during site preparation would be undertaken outside the breeding season (typically March-August inclusive for most species), where possible. In situations where this is not possible, an ecologist would survey the working area for nests before works commence. If nests were discovered, appropriate mitigation would be implemented to ensure that they are not disturbed or destroyed before any works can commence in that area. This would include imposing exclusion zones between the works and nest(s) and suspending vegetation clearance works within the area until any young had fledged.	
	Precautionary measures would be implemented to prevent trapping wildlife in construction excavations, in order to ensure compliance with animal welfare legislation. Any excavations deeper than 1m would be covered overnight, or where this is not practicable, a means of escape would be fitted (e.g. battered soil slope or scaffold plank), to allow animals (e.g. otter) to vacate excavations should they fall in.	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Construction temporary lighting would be arranged so that glare is minimised outside the construction site. Measures will be detailed in the CEMP.	
Ecology and Nature Conservation (Operation)	Lighting impacts beyond the Site boundary would be minimised as far as possible, for example by directing lighting away from adjacent habitats, in accordance with the lighting design for the scheme.	No significant adverse effects identified therefore no additional mitigation or enhancement over and above development design and impact avoidance measures.
	Air quality impacts on designated sites will be minimised through the use of appropriate stack heights to aid dispersion of pollutants, and emissions monitoring to demonstrate continued compliance with emission limit values set by the Environment Agency through an Environmental Permit required for the operation of the Consented Development.	
	Surface water discharge would be attenuated to green-field run-off rates and therefore there would be no changes in the flow rate within the adjacent drainage ditches. There is therefore no potential for adverse operational effects on the ditch habitats and the protected species they support (water vole).	
Ecology and Nature Conservation (Decommissioning)	Survey findings and associated mitigation requirements would be discussed and	No significant adverse effects identified therefore no additional mitigation or

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	agreed with stakeholders as required prior to the start of works.	enhancement over and above development design and impact avoidance measures.
	Relevant stand-off working distances would be identified by the project ecologist and implemented to avoid effects, where practicable, particularly along the banks of ditches where a minimum 5 m buffer zone should be achieved.	
	All necessary protected species licences would be obtained to derogate unavoidable impacts on relevant protected species. Mitigation and monitoring would be implemented in accordance with the requirements of the relevant licences.	
	Works would be planned to avoid key risk periods (seasons) where appropriate and practicable.	
	Relevant works would be undertaken under the supervision of an Ecological Clerk of Works to deliver compliance with relevant legislation and approved mitigation.	
Landscape and Visual Amenity (Construction)	Any future landscape proposals will seek to retain existing boundary features such as drainage channels and associated habitat, including fragmented hedgerow where possible.	Moderate adverse (significant) effect on visual amenity footpath users at Viewpoint 9 during construction activity, but no suitable mitigation could be identified.

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	The design will consider • how the built form of proposed structures relates to landscape character; • how colour may be used to either integrate the Consented Development with the landscape, reflect the character of the surrounding landscape or to relate to what the buildings will be seen against; • how the Consented Development will relate to existing landscape or built features and its immediate setting in views from key locations; • whether provision of screening and/or reduction of massing may be utilised where sensitive views are identified; and • how landscape mitigation may reflect and reinforce local character.	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Suitable materials will be used, where possible, in the construction of structures to reduce reflection and glare and to assist with breaking up the massing of the buildings and structures.	
	Visual clutter will be minimised where possible through careful design.	
	Lighting required during the construction and operation stages of the Consented Development will be designed to reduce unnecessary light spill outside of the Site boundary.	
Geology, Hydrogeology and Land Contamination (Pre- Construction and Construction)	The ground investigation will comprise the following: • investigation of the nature and extent of the Made Ground across the Site; • investigation of the nature of the underlying natural strata, where present, including determination of in-situ soil properties; • investigation of depths to rockhead; • chemical and geotechnical testing of soil and groundwater samples;	No significant adverse effects identified therefore no additional mitigation or enhancement over and above development design and impact avoidance measures.

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• installation of gas and groundwater monitoring wells and monitoring of ground gas concentrations and groundwater levels; and • testing of a range of suitable soil, leachate and groundwater chemicals, including Building Research Establishment (BRE) sulphate tests.	
	Remediation and/ or earthworks strategy may be required.	
	Prepare a Materials Management Plan (MMP).	
	The Flamborough Chalk formation is known to contain pyritic minerals. Therefore, upon completion of an additional ground investigation, chemical analysis of soil samples will be required to determine the appropriate design sulphate concrete classification to prevent chemical attack on concrete.	
	Include installation of monitoring wells with targeted response zones, groundwater level monitoring and chemical testing to determine the presence of any contaminants in groundwater.	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Materials used in infrastructure will be designed and specified accordingly taking due account of the potential for aggressive ground conditions, if these are identified through the pre-construction ground investigation. The assessment methodology set out in BRE Special Digest 1 (2005) will be adopted to determine the appropriate concrete classification in relation to the protection of buried concrete against sulphate attack.	
	Ground investigation will determine the suitable founding material which will be required across the Main Development Area.	
	Surface water runoff will be controlled using appropriate drainage measures and segregating uncontaminated surface water from any process effluent streams, as well as impermeable surfacing to minimise infiltration into the ground.	
	The implementation of a CEMP will minimise the risk of any contaminated surface water runoff from the Site during the site preparation, earthworks and construction phase so that it does not have a detrimental effect on the receiving watercourse and the underlying aquifers.	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Disposal of soil waste, contaminated or otherwise to landfill sites will be best mitigated by minimisation of the overall quantities of waste generated during construction and by ensuring that excavated material consigned to landfill cannot, as an alternative, be put to use either on Site or on other sites.	
	The potential impacts on soil resources will be managed by minimising trafficking over topsoil materials and undertaking soil stripping during appropriate weather conditions, such that the soils are not wet. Once stripped the soils will be stored in soil bunds to an agreed height so that the materials own weight does not damage the structure of the soil. The topsoil will be reused in areas of landscaping within the Site or off -Site if it cannot be re-used on Site.	
	Impacts specific to construction workers during construction will be managed by adherence to the working practices in accordance with Construction Industry Research and Information Association (CIRIA) C741 Environmental Good Practice on Site 4th Edition (CIRIA, 2015).	
	Provision of personal protective equipment (PPE), such as gloves, barrier	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	cream, overalls etc. to minimise direct contact with soils.	
	Provision of adequate hygiene facilities and clean welfare facilities for all construction site workers.	
	Monitoring of confined spaces for potential ground gas accumulations, restricting access to confined spaces i.e. by suitably trained personnel, and use of specialist PPE, where necessary.	
	Preparation and adoption of a Site and task specific health and safety plan.	
	If dewatering of the Site is required during the construction phase a permit from the Environment Agency to discharge to surface water or a consent to discharge to foul sewer will be obtained, and arrangements will be made to store any waters collected during dewatering to determine whether contamination is present before deciding on where to discharge the waters.	
	Undertake a piling risk assessment.	
	The prevention of pollution of surface water and/ or groundwater will comply with the requirements of the following Environment Agency Pollution Prevention Guidelines (PPG) documents:	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• PPG1 Basic Good Environmental Practices (2013); • PPG5 Works in, near or over Watercourses (2014); and • PPG6 Construction and Demolition Sites (2014).	
	The Consented Development will maintain an area of hardstanding across the majority of the Main Development Area, which will break the potential contaminant linkage and therefore reduce the likelihood of contact further.	
Geology, Hydrogeology and Land Contamination (Operation)	Suitable drainage systems will be employed during construction and maintained during operation to prevent infiltration of surface water or potential contaminants into the ground during the operation phase.	
	In order to mitigate potential risks to sub-surface concrete structures from aggressive ground conditions associated with the presence of sulphate, the following options will be considered on a case by case basis: • the specification of materials to be used for the construction of the Consented Development	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	will be specific to the ground conditions into which they will be placed; • the modification of concrete mix to resist sulphate attack; • bitumen coating of sub-surface structures; and • additional sacrificial thickness of sub-surface concrete.	
	For maintenance workers during the operation phase, any maintenance works will be carried out in accordance with CIRIA (2015) C741 Environmental Good Practice on Site 4th Edition. Maintenance workers will be provided with appropriate PPE such as gloves and overalls to minimise direct contact with soils. Entry into excavations or confined spaces will comply with confined space legislation and assessed prior to entry. Should the detailed design of the Consented Development incorporate any confined spaces such as ducts, manholes and inspection chambers, a gas monitoring programme and gas risk assessment will be undertaken to determine the site Characteristic Situation in accordance with CIRIA Report C665 (CIRIA, 2007).	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	The operator will comply with the requirements of any permits and/ or will handle and store materials such as chemicals and fuels as recommended by the manufacturer.	
	Potential impacts on soil resources will be managed by minimising trafficking over topsoil.	
Geology, Hydrogeology and Land Contamination (Decommissioning)	Potential impacts specific to demolition workers during decommissioning phase will be mitigated by adherence to the working practices in accordance with CIRIA (2015) C741 Environmental Good Practice on Site 4th Edition, including: • measures to minimise dust generation; • provision of PPE such as gloves, barrier cream, overalls etc. to minimise direct • contact with soils; • provision of adequate hygiene facilities and clean welfare facilities for all demolition workers; • monitoring of confined spaces for potential ground gas accumulations, restricting; and	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• access to confined spaces i.e. by suitably trained personnel, and use of specialist PPE	
	The surface water runoff will be controlled using appropriate drainage measures and segregating uncontaminated surface water from any process effluent streams, as well as impermeable surfacing to minimise infiltration into the ground.	
	If dewatering of the Site is required during the decommissioning phase a permit from the Environment Agency to discharge to surface water or a consent to discharge to foul sewer will be obtained, and arrangements will be made to store any waters collected during dewatering to determine whether contamination is present before deciding on where to discharge the waters.	
	Produce pollution plans for accidental pollution and get them agreed with the Environment Agency and North East Lincolnshire Internal Drainage Board. The Environment Agency and NELC will be informed immediately in the unlikely event of a suspected pollution incident.	
Water Resources, Flood Risk and Drainage (Pre- Construction)	Any necessary equipment (e.g. spillage kits) shall be held on the Site and all Site personnel will be trained in their use.	No significant adverse effects identified therefore no additional mitigation or

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Surface water is to be collected within the Site and conveyed to a surface water attenuation pond sustainable drainage system (SuDS) feature via the use of gullies, drainage ditches/ swales, where possible. Site topography is conducive for flows to be gravity drained to a new surface water attenuation pond located at the eastern edge of the Main Development Area. It is proposed that this attenuation pond will outfall into one of the existing land drainage ditches located along the northern or southern boundaries of the Site	enhancement over and above development design and impact avoidance measures.
	If monitoring demonstrates unsatisfactory levels of solids or other pollutants, measures would be implemented (e.g. changes to site drainage and settlement facilities and/ or use of flocculants) to control suspended solids or other polluted discharge to watercourses.	
	The CEMP will cover guidance for the contractor(s) ensuring that construction personnel are fully aware of the potential impact to water resources associated with the proposed construction works and procedures to be followed in the event of an accidental pollution event occurring. This will be included in the Site induction and training, with an emphasis on	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	procedures and guidance to reduce the risk of water pollution. Measures set out in the Environment Agency, Defra and Government guidance will be followed in the storage of materials within the Main Development Area of the Site. Examples of such measures include: • placing arisings and temporary stockpiles away from drainage systems, and directing surface water away from stockpiles to prevent erosion; • implementing containment measures including drip trays, bunding or double-skinned tanks of fuels and oils, storing all chemicals in accordance with their Control of Substances Hazardous to Health (COSHH) guidelines and providing spill kits in areas of fuel/oil storage; • keeping plant and machinery away from surface water bodies wherever possible and installing drip trays beneath oil tanks/ engines/ gearboxes and	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	hydraulics, which are checked and emptied regularly; • locating refuelling and delivery areas away from surface water drains; and • protecting exposed ground and stockpiles as appropriate and practicable to prevent windblown migration of potential contaminants, and • using water suppression if there is a risk of fugitive dust emissions.	
	Construction works undertaken adjacent to, beneath and within watercourses will comply with relevant guidance during construction, including the Environment Agency, Defra and Government guidance and the requirements of NELC. Measures set out in the Environment Agency, Defra and Government guidance will be followed in the storage of materials within the Main Development Area of the Site. Examples of such measures include: • placing arisings and temporary stockpiles away from drainage systems, and directing surface	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	water away from stockpiles to prevent erosion; • implementing containment measures including drip trays, bunding or double-skinned tanks of fuels and oils, storing all chemicals in accordance with their Control of Substances Hazardous to Health (COSHH) guidelines and providing spill kits in areas of fuel/oil storage; • keeping plant and machinery away from surface water bodies wherever possible and installing drip trays beneath oil tanks/ engines/ gearboxes and hydraulics, which are checked and emptied regularly; • locating refuelling and delivery areas away from surface water drains; and • protecting exposed ground and stockpiles as appropriate and practicable to prevent windblown migration of potential contaminants, and using water suppression if	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	there is a risk of fugitive dust emissions.	
	Implementation of a CEMP that will incorporate measures aimed at preventing an increase in flood risk during the construction works associated with the Consented Development. Examples of measures that will be implemented in the Main Development Area within Flood Zone 3 include: • storing topsoil and other construction materials is not possible outside of tidal Flood Zone 3. A permit will therefore need to be obtained from the Environment Agency; and • maintaining connectivity between the floodplain and the River Humber, with no land raising within the floodplain as far as practicable. Construction works undertaken adjacent to, beneath and within watercourses will comply with relevant guidance during construction, including the Environment Agency, Defra and Government guidance and the requirements of NELC.	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Produce an Emergency Response Plan which will provide details of the response to an impending flood and include: • a 24 hour availability and ability to mobilise staff in the event of a flood warning; • the removal of all plant, machinery and material capable of being mobilised in a flood for the duration of any holiday close down period; • details of the evacuation and site closedown procedures; and • arrangements for removing any potentially hazardous material and anything capable of becoming entrained in floodwaters, from the temporary works areas. Implementation of a CEMP that will incorporate measures aimed at preventing an increase in flood risk during the construction works associated with the Consented Development. Examples of measures that will be implemented in the	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Main Development Area within Flood Zone 3 include: • storing topsoil and other construction materials is not possible outside of tidal Flood Zone 3. A permit will therefore need to be obtained from the Environment Agency; and • maintaining connectivity between the floodplain and the River Humber, with no land raising within the floodplain as far as practicable.	
	The Flood Emergency Response Plan would utilise the Environment Agency Flood Warning Service (Environment Agency, 2018). The construction supervisor will be notified of any potential flood occurring by use of the Floodline Warnings Direct service. Produce an Emergency Response Plan which will provide details of the response to an impending flood and include: • a 24 hour availability and ability to mobilise staff in the event of a flood warning;	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• the removal of all plant, machinery and material capable of being mobilised in a flood for the duration of any holiday close down period; • details of the evacuation and site closedown procedures; and • arrangements for removing any potentially hazardous material and anything capable of becoming entrained in floodwaters, from the temporary works areas	
	Plans for any discharge and/ or disposal of potentially contaminated water will be agreed in advance with the Environment Agency, Anglian Water, the Internal Drainage Board and NELC where appropriate (and permits obtained as required). Such plans would include the following: • all foul water from any site compound (including temporary toilets) would either be tankered away to an appropriate disposal facility by a licensed waste disposal	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	contractor or treated on Site in a septic tank. Any potentially contaminated water will be tested, and if it is not of a suitable quality, agreed disposal procedures will be followed. Construction drainage details will be developed in consultation with the Environment Agency; • any waters removed from excavations by de-watering will be discharged appropriately, subject to the relevant licenses being obtained; and • foundations and services will be designed and constructed to prevent the creation of pathways for the migration of contaminants and will be constructed of materials that are suitable for the ground conditions and designed use; a • no discharges from any self-contained wheel wash and localised wheel wash would be permitted to discharge into any surface water system;	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• the Flood Emergency Response Plan would utilise the Environment Agency Flood Warning Service (Environment Agency, 2018); and • the construction supervisor will be notified of any potential flood occurring by use of the Floodline Warnings Direct service	
	Facilities will be provided during the construction phase, where necessary, to ensure controlled discharge of any surface water runoff that might occur. Plans for any discharge and/ or disposal of potentially contaminated water will be agreed in advance with the Environment Agency, Anglian Water, the Internal Drainage Board and NELC where appropriate (and permits obtained as required). Such plans would include the following: • all foul water from any site compound (including temporary toilets) would either be tankered away to an appropriate disposal facility by a licensed waste disposal	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	contractor or treated on Site in a septic tank. Any potentially contaminated water will be tested, and if it is not of a suitable quality, agreed disposal procedures will be followed. Construction drainage details will be developed in consultation with the Environment Agency; • any waters removed from excavations by de-watering will be discharged appropriately, subject to the relevant licenses being obtained; and • foundations and services will be designed and constructed to prevent the creation of pathways for the migration of contaminants and will be constructed of materials that are suitable for the ground conditions and designed use. • No discharges from any self-contained wheel wash and localised wheel wash would be permitted to discharge into any surface water system.	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Measures to be considered on the finalisation of detailed design include implementation of temporary drainage through the construction design and/ or CEMP include: • installation of measures such as silt fences and appropriately sized settlement tanks/ ponds to reduce sediment load; • cut-off ditches or geotextile silt-fences, installed around excavations, exposed ground and stockpiles to prevent uncontrolled release of sediments; • regular cleaning of site access points to prevent build-up of dust and mud; • installation of valves to isolate the settlement tank/ ponds in the event of a polluted discharge; • installation of oil interceptors (notably the outflow from the settlement pond/tank) to reduce the potential risk for	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	contamination of groundwater and surface water; and • separate drainage for all potentially polluted waters (including washdown areas, stockpiles and other areas of risk for water pollution) which are to be tankered away from the Site; and • facilities will be provided during the construction phase, where necessary, to ensure controlled discharge of any surface water runoff that might occur/	
	A septic tank is likely to be used for treatment of sanitary or domestic wastewater from offices/ administration/ welfare facilities during the construction period. This septic tank will be emptied as required and tankered off Site to a waste water treatment plant. Measures to be considered on the finalisation of detailed design include implementation of temporary drainage through the construction design and/ or CEMP include:	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• installation of measures such as silt fences and appropriately sized settlement tanks/ ponds to reduce sediment load; • cut-off ditches or geotextile silt-fences, installed around excavations, exposed ground and stockpiles to prevent uncontrolled release of sediments; • regular cleaning of site access points to prevent build-up of dust and mud; • installation of valves to isolate the settlement tank/ ponds in the event of a polluted discharge; • installation of oil interceptors (notably the outflow from the settlement pond/tank) to reduce the potential risk for contamination of groundwater and surface water; and • separate drainage for all potentially polluted waters (including washdown areas, stockpiles and other areas of	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	risk for water pollution) which are to be tankered away from the Site	
	The following resilient measures have been identified as possible options for inclusion at the Site, subject to final design: • critical equipment and a safe place of refuge for people (as outlined in the Consented Development FRA) will be raised/ provided on an upper level of the building respectively above the 0.1% AEP event plus an allowance for climate change scenario flood water level of 4.55 mAOD for the year 2115 as per Environment Agency guidance on climate change allowances; • boundary walls and fencing could be designed with high water resistance materials and/or effective seals to minimise water penetration for low depth, short duration floods; and	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• tanks could be bunded to a level higher than the 0.5% AEP plus climate change event breach flood level. A septic tank is likely to be used for treatment of sanitary or domestic wastewater from offices/ administration/welfare facilities during the construction period. This septic tank will be emptied as required and tankered off Site to a waste water treatment plant.	
	The following measures might also be considered for inclusion in the Consented Development: • pipelines and storage tanks designed to withstand the water pressures associated with high return period event flooding; • tanks securely tethered in such a way as to ensure the infrastructure remains secure should flooding occur; • electrical supply entering the Consented Development from	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	height and down to required connections; • use of flood barriers or ramps on access points; • protecting wiring for operational control of the Consented Development, telephone, internet and other services by suitable insulation in the distribution ducts to prevent damage; • materials with low permeability up to 0.3 m and acceptance of water passage through building at higher water depths; • flood proofing including the use of flood resistant building materials, use of water resistant coatings, use of galvanised and stainless steel fixings and raising electrical sockets and switches; • utilising floor materials that are able to withstand exposure to floodwater without significant deterioration and that can be	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	easily cleaned, e.g. concrete-based or stone; • incorporating water resistant services within the buildings, i.e. avoid services using ferrous materials; • design of the Consented Development to drain water away after flooding; • providing access to all spaces to permit drying and cleaning; and • carefully considering the type of usage and layout of ground floor areas to minimise the potential impact on business operations following a flood; and suitable waterproofing measures to development located below ground i.e. tanking below ground storage areas etc. The following resilient measures have been identified as possible options for inclusion at the Site, subject to final design:	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• critical equipment and a safe place of refuge for people (as outlined in the Consented Development FRA) will be raised/ provided on an upper level of the building respectively above the 0.1% AEP event plus an allowance for climate change scenario flood water level of 4.55 mAOD for the year 2115 as per Environment Agency guidance on climate change allowances; • boundary walls and fencing could be designed with high water resistance materials and/or effective seals to minimise water penetration for low depth, short duration floods; and • tanks could be bunded to a level higher than the 0.5% AEP plus climate change event breach flood level.	
Water Resources, Flood Risk and Drainage (Operational)	SuDS standards require that the first choice of surface water disposal should be to discharge to infiltration systems. SuDS systems/ units shall also contribute	

	to improving the water quality and sediment control. Attenuation will be achieved by limiting discharge through an appropriate flow attenuation device. In line with the NPPF, Defra, Environment Agency, NELC and Internal Drainage Board advisory recommendations, best practice guidelines and local planning policy, SuDS techniques detailed in the CIRIA SuDS Manual (CIRIA, 2007) will be used as a preferential option. The following measures might also be considered for inclusion in the Consented Development: • pipelines and storage tanks designed to withstand the water pressures associated with high return period event flooding; • tanks securely tethered in such a way as to ensure the infrastructure remains secure should flooding occur; • electrical supply entering the Consented Development from height and down to required connections; • use of flood barriers or ramps on access points;	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• protecting wiring for operational control of the Consented Development, telephone, internet and other services by suitable insulation in the distribution ducts to prevent damage; • materials with low permeability up to 0.3 m and acceptance of water passage through building at higher water depths; • flood proofing including the use of flood resistant building materials, use of water resistant coatings, use of galvanised and stainless steel fixings and raising electrical sockets and switches; • utilising floor materials that are able to withstand exposure to floodwater without significant deterioration and that can be easily cleaned, e.g. concrete-based or stone; • incorporating water resistant services within the buildings,	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	i.e. avoid services using ferrous materials; • design of the Consented Development to drain water away after flooding; • providing access to all spaces to permit drying and cleaning; and • carefully considering the type of usage and layout of ground floor areas to minimise the potential impact on business operations following a flood; and suitable waterproofing measures to development located below ground i.e. tanking below ground storage areas etc.	
	Surface water will be collected on Site from the Main Development Area and conveyed into a surface water attenuation pond SuDS feature at the eastern extent of the Main Development Area via the use of drainage gullies, ditches/ swales (where possible). It is proposed that this attenuation pond will outfall into one of the existing Land Drains located along the southern or northern boundaries of the	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Site using a flow control mechanism such as a Hydro-Brake to limit the discharge to greenfield rates. The detailed drainage design phase will need to confirm that the bed levels of the local land drains into which the attenuation solution will discharge are appropriate relative to the bed levels of the storage solution to ensure they are positively drained by gravity (i.e. to confirm that no additional pumping is required). SuDS standards require that the first choice of surface water disposal should be to discharge to infiltration systems. SuDS systems/ units shall also contribute to improving the water quality and sediment control. Attenuation will be achieved by limiting discharge through an appropriate flow attenuation device. In line with the NPPF, Defra, Environment Agency, NELC and Internal Drainage Board advisory recommendations, best practice guidelines and local planning policy, SuDS techniques detailed in the CIRIA SuDS Manual (CIRIA, 2007) will be used as a preferential option.	
	As the Middle Drain pumping station discharges into the tidal Humber Estuary, it may be the case that during some high-tide events, discharges into the southern	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	drain become restricted. Design for this will be allowed for during the outline and detailed design phases of the Consented Development. To illustrate the effect that this may have on the storage volume, a conservative assumption that no discharge is allowed into the drain during the duration of the critical storm has been applied. Surface water will be collected on Site from the Main Development Area and conveyed into a surface water attenuation pond SuDS feature at the eastern extent of the Main Development Area via the use of drainage gullies, ditches/ swales (where possible). It is proposed that this attenuation pond will outfall into one of the existing Land Drains located along the southern or northern boundaries of the Site using a flow control mechanism such as a Hydro-Brake to limit the discharge to greenfield rates. The detailed drainage design phase will need to confirm that the bed levels of the local land drains into which the attenuation solution will discharge are appropriate relative to the bed levels of the storage solution to ensure they are positively drained by gravity (i.e. to confirm that no additional pumping is required).	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	In order to reduce the additional risk of failure, blockage and capacity exceedance above that of the design events for the drainage infrastructure, maintenance of the system will be incorporated in general site management and remains the responsibility of EP SHB Limited. A manual will be prepared detailing each drainage feature on Site, the maintenance required, timescales for maintenance and who is responsible for undertaking the maintenance. It is expected the Site owners will ultimately be responsible for maintenance of the Site drainage system including all pipes, discharge structures and any SuDS implemented on Site in accordance with the recommendations in the SuDS Manual. As the Middle Drain pumping station discharges into the tidal Humber Estuary, it may be the case that during some high-tide events, discharges into the southern drain become restricted. Design for this will be allowed for during the outline and detailed design phases of the Consented Development. To illustrate the effect that this may have on the storage volume, a conservative assumption that no discharge is allowed into the drain	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	during the duration of the critical storm has been applied.	
	The Consented Development will be regulated by the Environment Agency through an Environmental Permit, which will include conditions relating to handling, storage and use of diesel and other chemicals, including emergency procedures in line with the use of Best Available Techniques (BAT). In order to reduce the additional risk of failure, blockage and capacity exceedance above that of the design events for the drainage infrastructure, maintenance of the system will be incorporated in general site management and remains the responsibility of EP SHB Limited. A manual will be prepared detailing each drainage feature on Site, the maintenance required, timescales for maintenance and who is responsible for undertaking the maintenance. It is expected the Site owners will ultimately be responsible for maintenance of the Site drainage system including all pipes, discharge structures and any SuDS implemented on Site in accordance with the recommendations in the SuDS Manual	

	Site operator's Environmental Management System (EMS) will include impact avoidance measures such as: • plans to deal with accidental pollution and any necessary equipment (e.g. spillage kits) will be held on Site and all Site personnel will be trained in their use, for example the plan will incorporate details on how to appropriately deal with accidental; • spillages to ensure they are not drained to any surface water system; • containment measures will be implemented, including bunding or double-skinned tanks for fuels and oils, and all chemicals will be stored in accordance with their COSHH guidelines; and • oil interceptors will be incorporated into the drainage system to prevent material entering the surface water drainage system or local waterbodies. The Consented Development will be regulated by the Environment Agency	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	through an Environmental Permit, which will include conditions relating to handling, storage and use of diesel and other chemicals, including emergency procedures in line with the use of Best Available Techniques (BAT).	
	Produce a Drainage Strategy. Site operator's Environmental Management System (EMS) will include impact avoidance measures such as: • plans to deal with accidental pollution and any necessary equipment (e.g. spillage kits) will be held on Site and all Site personnel will be trained in their use, for example the plan will incorporate details on how to appropriately deal with accidental spillages to ensure they are not drained to any surface water system; • containment measures will be implemented, including bunding or double-skinned tanks for fuels and oils, and all chemicals will be stored in accordance with their COSHH guidelines; and	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	• oil interceptors will be incorporated into the drainage system to prevent material entering the surface water drainage system or local waterbodies.	
	Surface water discharge of surface water runoff from the Main Development Area within the Site will be restricted to the existing greenfield runoff rate to prevent an increased risk of flooding downstream. The Consented Development includes an attenuation pond as a surface water attenuation solution.	
	The impact avoidance measures for decommissioning will be similar to those identified above for construction. Surface water discharge of surface water runoff from the Main Development Area within the Site will be restricted to the existing greenfield runoff rate to prevent an increased risk of flooding downstream. The Consented Development includes an attenuation pond as a surface water attenuation solution.	
	Produce a Decommissioning Environmental Management Plan. The impact avoidance measures for	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	decommissioning will be similar to those identified above for construction.	
Water Resources, Flood Risk and Drainage (Decommissioning)	A dedicated entrance to the Consented Development will be provided in order to avoid impacts on SHBPS. Produce a Decommissioning Environmental Management Plan.	
	EP SHB Limited will commit to hosting a careers fair to promote employment opportunities at the Consented Development for local residents. In addition a Meet the Buyer event will be held to promote supply chain opportunities for local businesses. A dedicated entrance to the Consented Development will be provided in order to avoid impacts on SHBPS.	
Socio Economics (Construction)	Waste arisings will be prevented and designed out where practicable through working with suppliers to minimise wastage in materials and packaging. EP SHB Limited will commit to hosting a careers fair to promote employment opportunities at the Consented Development for local residents. In addition a Meet the Buyer event will be held to promote supply chain opportunities for local businesses.	No significant adverse effects identified therefore no additional mitigation or enhancement over and above development design and impact avoidance measures.
Socio Economics (Operation)	Agreements with material suppliers to reduce the amount of packaging or to	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	participate in a packaging take-back scheme. Waste arisings will be prevented and designed out where practicable through working with suppliers to minimise wastage in materials and packaging.	
Waste Management (Construction)	Implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste. Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme.	No significant adverse effects identified therefore no additional mitigation or enhancement over and above development design and impact avoidance measures.
	Attention to material quantity requirements to avoid over-ordering and generation of waste materials. Implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste.	
	Re-use of materials wherever feasible, e.g. re-use of excavated soil for landscaping. Concrete will be either taken off Site for crushing and re-use, or crushed and re-used on site. Attention to material quantity requirements to avoid over-ordering and generation of. waste materials.	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Segregation of waste at source where practical. Re-use of materials wherever feasible, e.g. re-use of excavated soil for landscaping. Concrete will be either taken off Site for crushing and re-use or crushed and re-used on site.	
	Re-use and recycling of materials off Site where re-use on Site is not practical (e.g. through use of an off Site waste segregation facility and re-sale for direct re-use or re-processing). Segregation of waste at source where practical	
	Damping down of surfaces during spells of dry weather and brushing/ water spraying of heavily used hard surfaces/ access points across the Site as required. Re-use and recycling of materials off Site where re-use on Site is not practical (e.g. through use of an off Site waste segregation facility and re-sale for direct re-use or re-processing).	
	Off Site prefabrication, where practical, including the use of prefabricated structural elements, cladding units, toilets, mechanical and electrical risers and packaged plant rooms. Damping down of surfaces during spells of dry weather and brushing/ water spraying of heavily used hard surfaces/ access points across the Site as required.	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	Open burning of waste or unwanted materials will not be permitted on Site. Off Site prefabrication, where practical, including the use of prefabricated structural elements, cladding units, toilets, mechanical and electrical risers and packaged plant rooms.	
	All hazardous materials including fuels, chemicals, cleaning agents, solvents and solvent containing products to be properly sealed in sealed containers at the end of each day prior to storage in appropriately protected and bunded storage areas. Open burning of waste or unwanted materials will not be permitted on Site.	
	Any waste effluent will be tested and where necessary, disposed of at the correctly licensed facility by a licensed specialist contractor/s. All hazardous materials including fuels, chemicals, cleaning agents, solvents and solvent containing products to be properly sealed in sealed containers at the end of each day prior to storage in appropriately protected and bunded storage areas.	
	Materials requiring removal from the Site will be transported using licensed carriers and records will be kept detailing the types and quantities of waste moved, and the destinations of this waste, in	

TOPIC	DEVELOPMENT DESIGN AND IMPACT AVOIDANCE MEASURES (EMBEDDED MITIGATION)	ADDITONAL MITIGATION MEASURES PROPOSED
	accordance with the relevant regulations. Any waste effluent will be tested and where necessary, disposed of at the correctly licensed facility by a licensed specialist contractor.	
	Materials requiring removal from the Site will be transported using licensed carriers and records will be kept detailing the types and quantities of waste moved, and the destinations of this waste, in accordance with the relevant regulations.	
Waste Management (Operation)	The Environmental Management System that will be developed and maintained for the operational Consented Development as required by the Environmental Permit will include procedures for the management of waste in accordance with relevant legislation.	

10.0 SUMMARY

10.1.1 This EIA Scoping Report has identified the potential for significant effects to arise from the construction, operation (including maintenance) and decommissioning of the Proposed Development.

10.1.2 In summary the following topics will be included within the scope of the EIA for the Proposed Development:

- air quality;
- noise and vibration;
- traffic and transportation;
- ecology and nature conservation;
- landscape and visual amenity;
- geology, hydrogeology and land contamination;
- cultural heritage;
- flood risk, hydrology and water resources;
- socio economics;
- waste management; and
- cumulative and combined effects.

10.1.3 The 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.

11.0 REFERENCES

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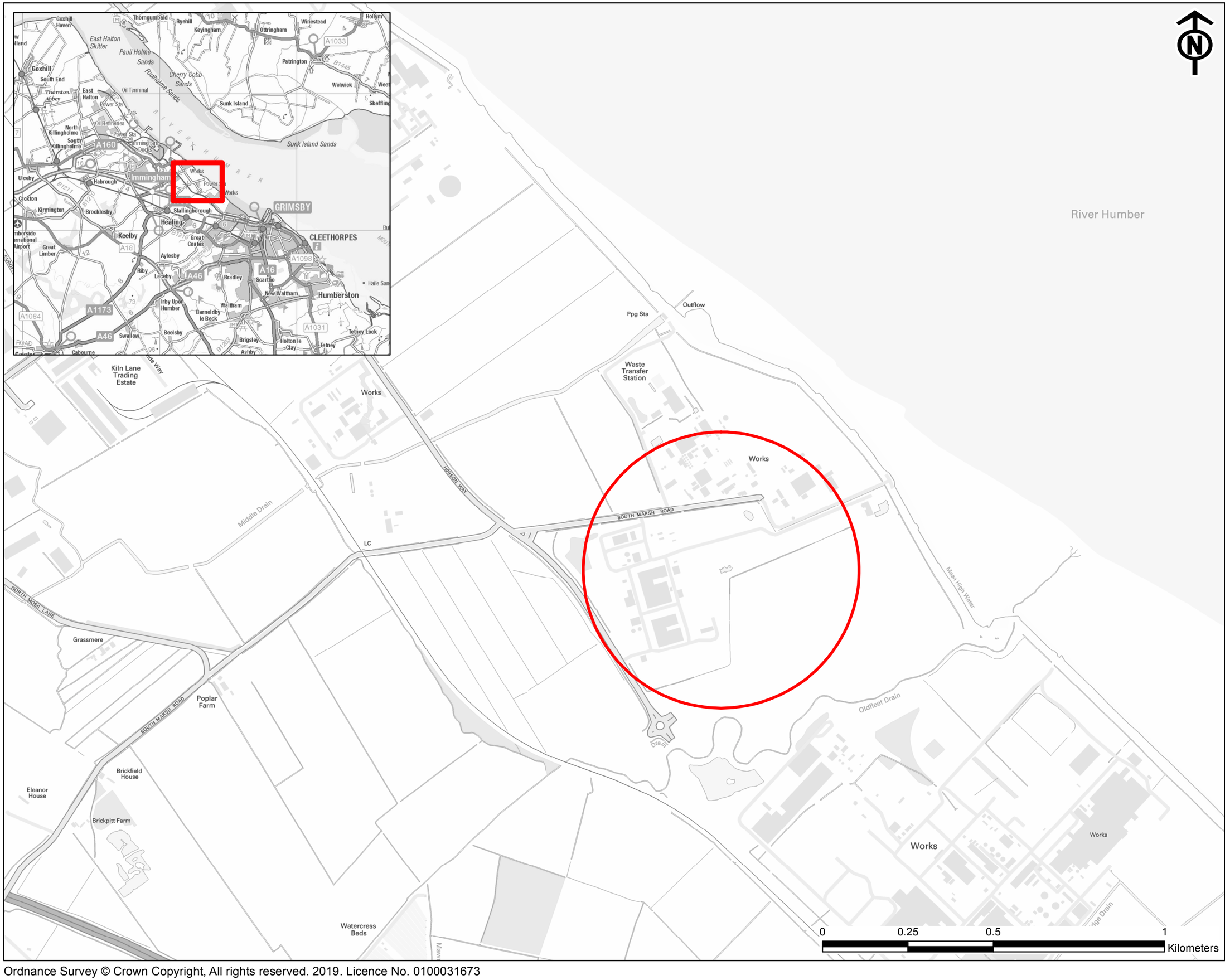
FIGURES

Project Management Initials: IC Designer: HW Checked: LK Approved: IC



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LEGEND

Site Location

Purpose of Issue
EIA SCOPING

Client
EP WASTE MANAGMENT LIMITED

Project Title
SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
SITE LOCATION PLAN

Drawn	Checked	Approved	Date
HW	LK	KC	12/08/2019

AECOM Internal Project No.	Scale @ A3
60580855	1:10,000

AECOM
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Drawing Ref
FIGURE 1

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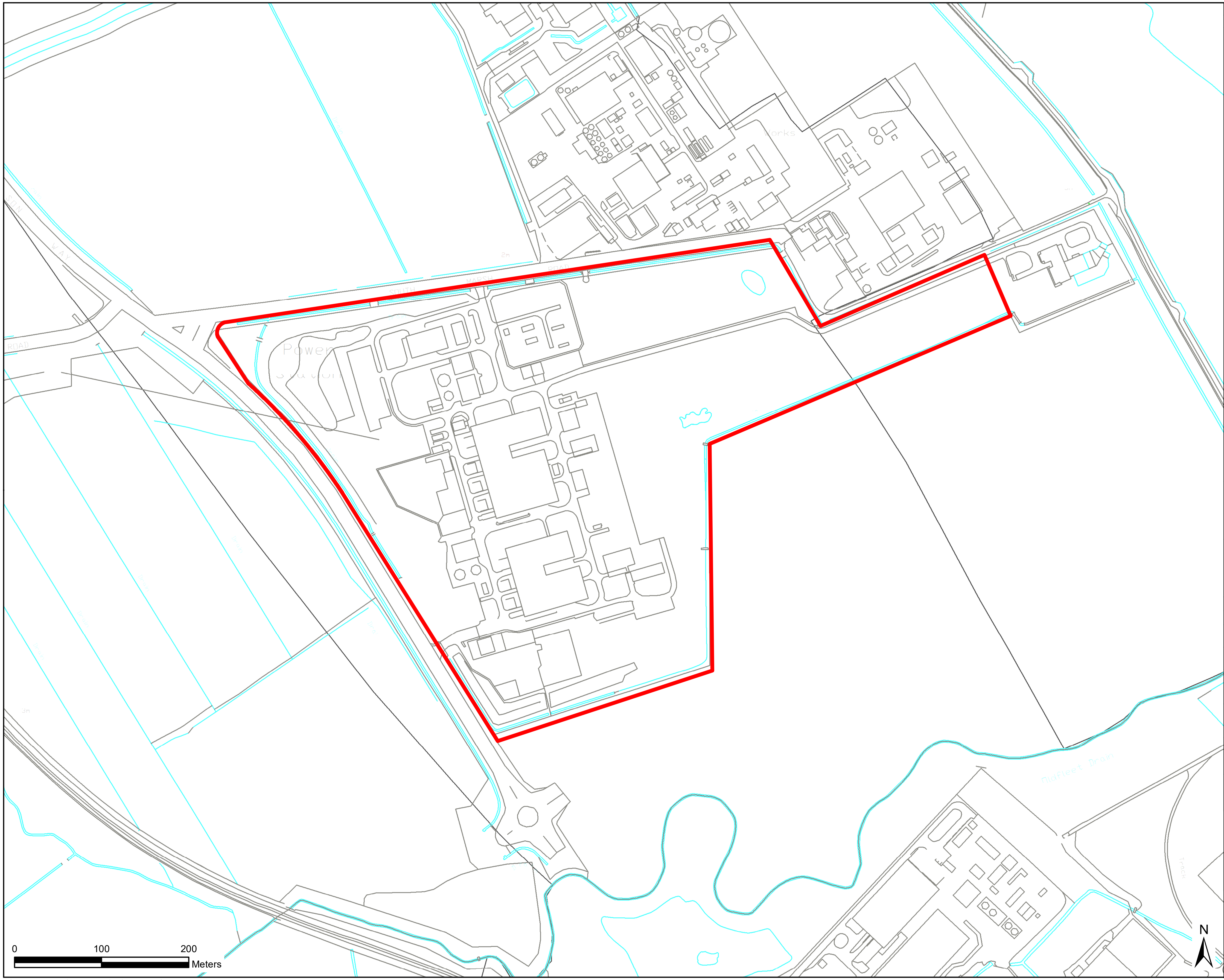

LEGEND

Proposed DCO Application Boundary

Purpose of Issue
EIA SCOPING

Client
EP WASTE MANAGEMENT LIMITED

Project Title
SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
PROPOSED DCO APPLICATION BOUNDARY

Drawn	Checked	Approved	Date
HW	LK	KC	14/08/2019

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60580855	1:4,000

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FIGURE 2

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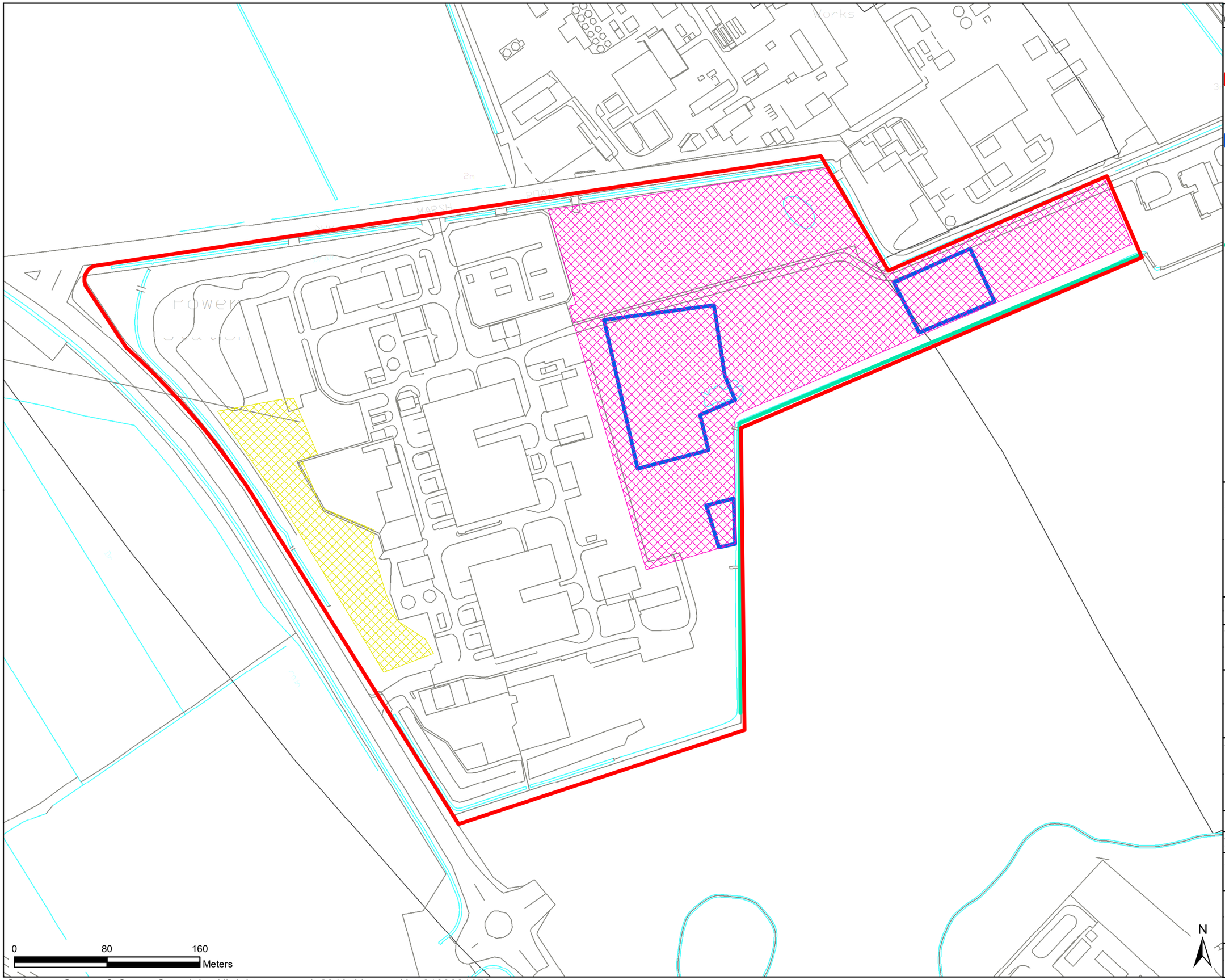

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LEGEND

- Proposed DCO Application Boundary
- Main Development Area
- Construction Laydown Areas
- Proposed Ecological Miigation and Enhancement Area (Indicative)
- Proposed Extents of 2.5m Close Board Fence to Provide Visual Screening for Waterbirds

Purpose of Issue
EIA SCOPING

Client
EP WASTE MANAGEMENT LIMITED

Project Title
SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
PARTS OF THE SITE

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FIGURE 3

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LEGEND

- Proposed DCO Application Boundary
- 2km_Buffer
- Access Route to A180
- Residential Receptors
- PRoW

National Designated Sites within 2km

- Priority Habitat

Non-Statutory Designations within 2km

- Local Wildlife Site
- Site of Nature Conservation Interest

Statutory Designations within 5km

- RAMSAR
- Special Area of Conservation
- Special Protection Area
- Site of Special Scientific Interest

Cultural Heritage

- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building
- Non Designated Assets
- Great Coates Conservation Area
- Scheduled Monument

Purpose of Issue
EIA SCOPING

Client
EP WASTE MANAGEMENT LIMITED

Project Title
SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
ENVIRONMENTAL RECEPTORS WITHIN 2KM

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HW	LK	KC	14/08/2019

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FIGURE 4

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0 0.25 0.5 0.75 1 Kilometers

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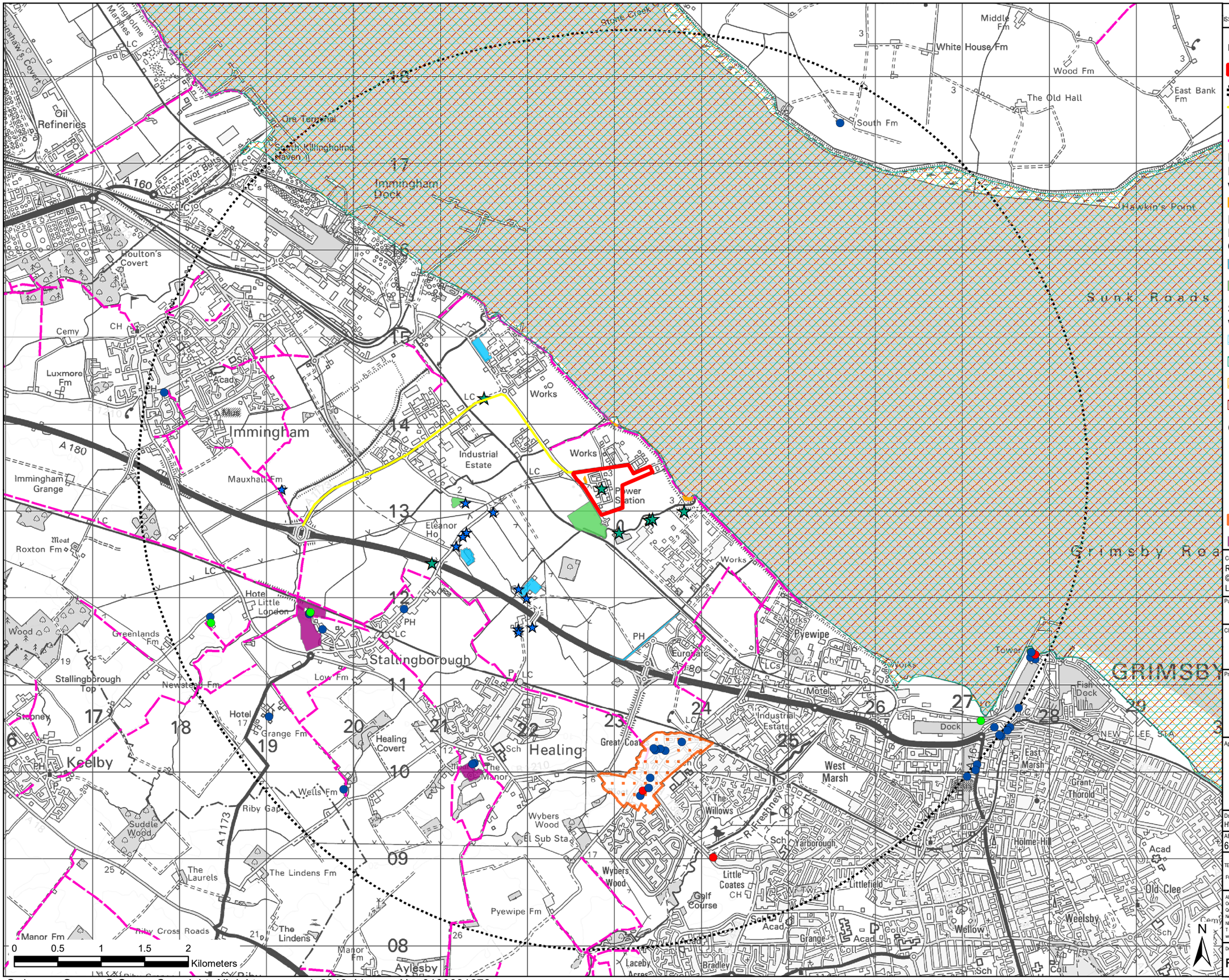

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LEGEND

- Proposed DCO Application Boundary
- 5km Buffer
- Access Route to A180
- Residential Receptors
- PRoW

National Designated Sites within 2km

- Priority Habitat

Non-Statutory Designations within 2km Only

- Local Wildlife Site
- Site of Nature Conservation Interest

Statutory Designations within 5km

- RAMSAR
- Special Area of Conservation
- Special Protection Area
- Site of Special Scientific Interest

Cultural Heritage

- Grade I Listed Building
- Grade II* Listed Building
- Grade II Listed Building
- Non Designated Assets
- Great Coates Conservation Area
- Scheduled Monument

Purpose of Issue
EIA SCOPING

Client
EP WASTE MANAGEMENT LIMITED

Project Title
SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
ENVIRONMENTAL RECEPTORS WITHIN 5KM

Drawn	Checked	Approved	Date
HW	LK	KC	14/08/2019

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FIGURE 5

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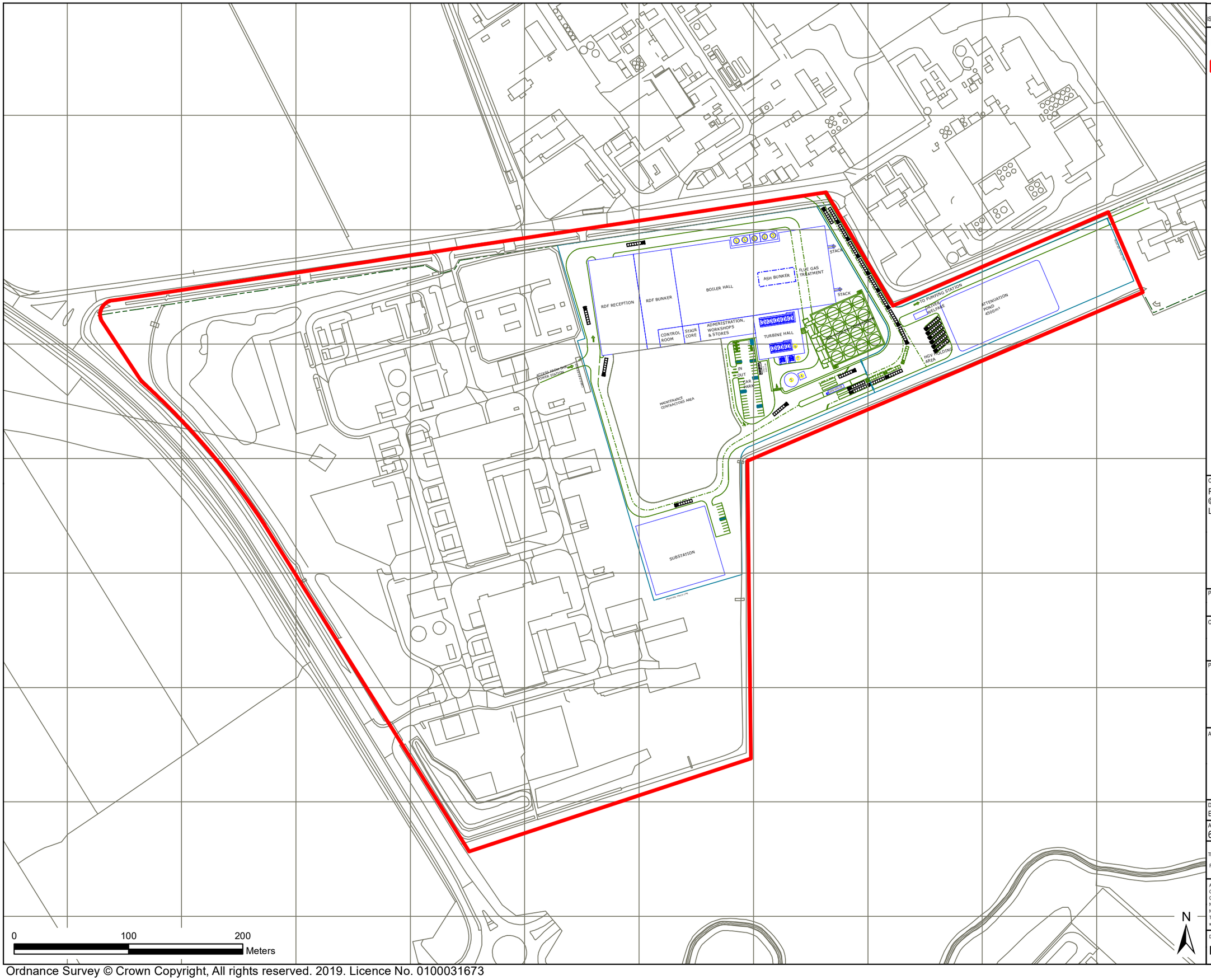

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LEGEND

DCO Application Boundary

FICHTNER
CONSULTING ENGINEERS LIMITED
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Website: www.fichtner.co.uk

Purpose of Issue
EIA SCOPING

Client
EP WASTE MANAGEMENT LIMITED

Project Title
SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
PROPOSED DEVELOPMENT LAYOUT

Drawn	Checked	Approved	Date
EC	LK	KC	20/08/2019

AECOM Internal Project No.	Scale @ A3
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FIGURE 6

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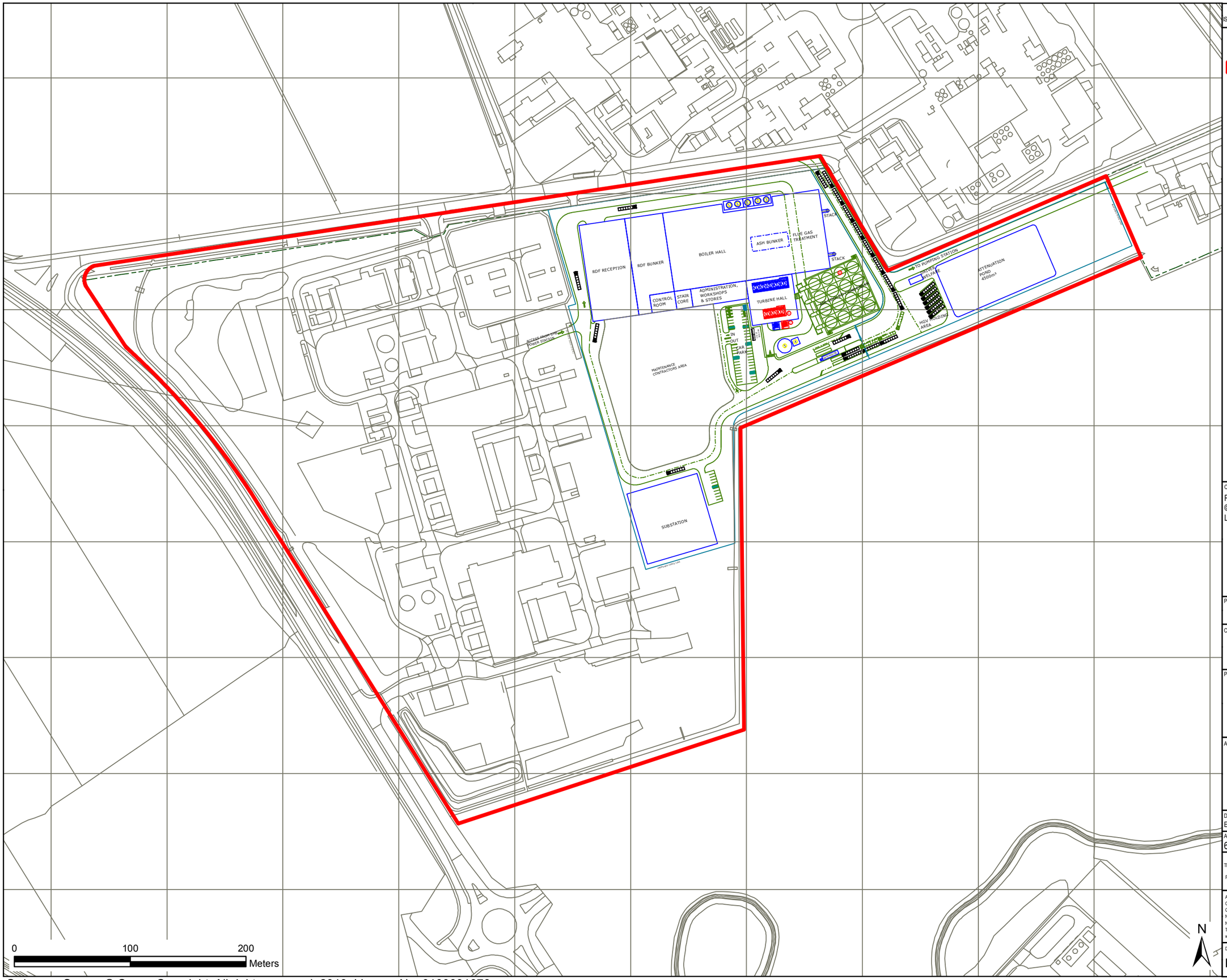

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DCO Application Boundary

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Purpose of Issue
EIA SCOPING

Client
EP WASTE MANAGEMENT LIMITED

Project Title
SOUTH HUMBER BANK ENERGY CENTRE DCO

Application Document Ref
COMPARISON OF CONSENTED AND PROPOSED DEVELOPMENT LAYOUTS

Drawn	Checked	Approved	Date
EC	LK	KC	20/08/2019

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FIGURE 7

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LEGEND

- Application Boundary
- Grimsby AQMA
- Human Receptors
- North East Lincolnshire Council Continuous Monitors
- AECOM NO_2 Diffusion Tubes
- North East Lincolnshire Council NO_2 Diffusion Tubes

Revision Details	By / Check	Check Date	Suffix

Purpose of Issue: EIA SCOPING

Client: EP WASTE MANAGEMENT LIMITED

Project Title: SOUTH HUMBER BANK ENERGY CENTRE DCO

Drawing Title: AIR QUALITY RECEPTORS AND DIFFUSION TUBE MONITORING LOCATIONS

Drawn	Checked	Approved	Date
JM	LK	LK	16/08/19

AECOM Internal Project No.	Scale @ A3
60580855	1:40,000

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Drawing Number: **FIGURE** 8

Rev:

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0 1 2 3 4 5 km

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