North Killingholme Power Project

Non-Material Change to Development Consent Order

Environmental Report

C.GEN Killingholme Limited

C.GEN

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1 INTRODUCTION

1.1 Background

In March 2013, C.GEN Killingholme Limited (the 'Applicant') submitted an application (the '2013 Application') for development consent for the North Killingholme Power Project (the 'Project').

On 11 September 2014, the Secretary of State for Energy and Climate Change granted development consent by way of a Development Consent Order ('DCO') (SI 2014/2434) (which was subject to a correction order dated 26 October 2015 (SI 2015/1829)). Under the granted Order ('the Order'), the Applicant is authorised to construct and operate a new thermal generating station, generating up to 470 MW gross electrical output, with associated development, at North Killingholme, North Lincolnshire.

The Order authorises the operation of the Project in two modes: either as a Combined Cycle Gas Turbine ('CCGT') plant or as an Integrated Gasification Combined Cycle ('IGCC') plant. The CCGT plant would be fired on natural gas, obtained from existing high-pressure gas supply pipes in the area that cross the Applicant's land. When operating as an IGCC plant, the Project would be fuelled by coal, possibly blended with petroleum coke or biomass. The IGCC plant would include gasification equipment and include opportunities for carbon capture and storage, through transporting and storing captured carbon dioxide ('CO_2'). There is also opportunity for the Project to provide steam and / or hot water (combined heat and power ('CHP')) to local industry and homes.

The Application Site was described as comprising the Principal Project Area (108.2ha); the Electrical Grid Connection Land (92.9ha); and the Gas Connection Land (84.8ha). Since the Order was made, C.GEN has purchased and decommissioned the former Centrica Station ('Killingholme A' or 'KPS-A')). This change in land ownership means that access to the gas pipeline and substation is now available without the need for compulsory acquisition. The Gas Connection Land and Electrical Connection Land included in the original Order Limits are no longer required and the grid and gas connections will be delivered under permitted development rights. The Applicant has in place gas supply contracts and has secured the necessary Transmission Entry Capacity ('TEC') at the adjacent National Grid North Killingholme substation.

Since the Order was made, the Applicant has been developing the Project for delivery, including appointing an EPC contractor and participating in the Capacity Market Auctions ('CMAs'). However, as a result of market conditions (see section 4.1 of the Application Document), the Applicant has not yet implemented the Order. The Applicant still intends to participate in an upcoming CMA and wishes to implement the Order and construct and operate the Project. Given that requirement 2 of the Order states that the authorised development shall commence no later than the expiration of seven years beginning with the date that the Order came into force (i.e. 1 October 2021, as the Order came into force on 2 October 2014), the Applicant now wishes to apply for a non-material change to extend the timeframe by which the authorised development shall commence.

This application is made pursuant to Schedule 6 of the Planning Act 2008 (as amended) (the 'PA2008') and Regulation 4 of The Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011 (as amended in 2015) (the '2011 Regulations') to the Secretary of State for Business, Energy and Industrial Strategy ('BEIS').

1.2 Need for Environmental Assessment

There is no statutory definition of what constitutes a material change under either the PA2008 or the 2011 Regulations. The Government's December 2015 "Guidance on Changes to Development Consent Orders" (the 'DCLG Guidance') makes it clear that such decisions will inevitably depend on the circumstances of a specific case. However, the DCLG Guidance sets out four examples of characteristics which indicate that a change is more likely to be treated as material (albeit the guidance goes on to note that this is just a starting point). These include:

- The change "would require an updated Environmental Statement (from that at the time the original Development Consent Order was made) to take account of new, or materially different, likely significant effects on the environment";

- The change "would invoke a need for a Habitats Regulations Assessment" ('HRA') or would require a "new or additional licence in respect of European Protected Species".

The Environmental Statement ('ES') for the 2013 Application (document references 6.1 – 6.4) was prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the '2009 EIA Regulations'). These regulations have now been superseded by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the '2017 EIA Regulations'), which introduced new requirements for Environmental Statements. These include a need to consider human health, climate change, land take and the vulnerability of the project to risks of major accidents and/or disaster. In line with the DCLG Guidance, this report considers whether the proposed DCO amendment would result in "*new, or materially different, likely significant effects on the environment*". No new or materially different effects on the new topics introduced by the 2017 EIA Regulations are considered likely, given that no changes are proposed to the consented parameters.

1.3 Purpose and Structure of this Report

The purpose of this document is to set out changes relevant to EIA, HRA and European Protected Species ('EPS') since the Order was made, including the baseline environment, policy and guidance, necessary mitigation and likely environmental impacts. It addresses the question of whether an updated Environmental Statement, Habitats Regulations Assessment ('HRA') or a new or additional EPS licence are required.

It should be read in conjunction with the Application Document that has been submitted with the application, which assesses the proposed changes against other criteria for materiality contained in the DCLG Guidance.

This document is structured as follows:

- Section 2 sets out the proposed amendments to the Order and the potential implications for EIA.

- Section 3 describes a process of screening the proposed amendments to determine whether there is the potential for an updated Environmental Statement, HRA or a new or additional EPS licence to be required.

- Sections 4-9 set out in greater detail the work undertaken to review environmental issues relating to landscape and visual impact, air quality, ecology, noise and vibration, surface water and transport. These address consultation, the environmental baseline, policy, legislation and guidance, mitigation and impact assessment.

- Section 10 presents the conclusions of this report.

2 PROPOSED AMENDMENTS TO THE ORDER

The proposed amendments to the Order and reasons for them are set out in detail in Section 4 of the Application Document and are summarised below:

- Time limits – the existing Order must be implemented "*no later than the expiration of seven years beginning with the date that this Order comes into force",* or 1 October 2021. This application proposes to extend this period by a further 5 years. An extension to the implementation period for the Project is needed because Project financing requires security of revenue from a capacity payment regime. A combination of a low capacity price and the postponement of the 2019 T-4 auction have created uncertainty over whether the Project can feasibly be implemented by October 2021.

- Carbon Capture Readiness Provisions – the 2013 Application included a Carbon Capture Readiness Feasibility Study / Carbon Capture and Storage Design Concept Report (the 'CCR Report') that relied on a pre-combustion carbon capture solution requiring construction of the gasification plant and operation as an IGCC station. The land required for this (the 'CCR reserve space') is secured through Requirement 36 of the Order. Following the Government's decision not to support further development of carbon capture and storage, the IGCC mode of operation may not be feasible to deliver. Therefore, this application proposes changes to the CCR reserve space to enable an alternative, post-combustion carbon capture solution for the operation of the CCGT plant without gasification. The post-combustion solution would require its own planning and other consents, which would need to be secured at the appropriate juncture.

No changes to the consented parameters of the Project are proposed.

No changes are proposed to the Order Limits. The Gas Connection Land and Electrical Connection Land included in the 2013 Application Order Limits are no longer required and the grid and gas connections will be delivered separately including pursuant to permitted development rights.

No changes are proposed to the compulsory acquisition powers. The compulsory acquisition powers have already lapsed, but they are no longer required by the Applicant to implement the Order (as the Applicant owns all of the necessary land within the Principal Project Area).

3 SCREENING

An initial screening exercise was undertaken to determine whether there was the potential for new, or materially different, likely significant effects on the environment as a result of the proposed amendments to the Order. As no changes to the consented parameters of the Project are proposed, the assessment has focussed on whether there are any potential changes to the environmental baseline that could affect the significance of the environmental effects as assessed in the ES.

Table 3.1 provides the results of the screening exercise and indicates which topics have been taken forward for further assessment for the potential for new, or materially different, likely significant effects.

Table 3.1 - Screening of the potential for new, or materially different, likely significant effects

Topic	2013 ES Chapter	Potential effects	Notes
Air Quality	6	Yes	Potential changes to background concentrations of air pollutants (NOx, NO2)
Ecology and Biodiversity	7	Yes	Potential changes to habitats and species present
Historic Environment	8	No	No physical changes to heritage assets and no significant changes to setting of heritage assets likely (see Landscape and Visual Impact Assessment ('LVIA'))
Landscape and Visual Impact	9	Yes	Landscape remains largely industrial but potential for changes to surrounding land use such as the demolition of KPS-A
Noise and Vibration	10	Yes	Changes to background noise levels resulting from changes to land use and traffic flows
Socio-economics	11	No	No significant changes to baseline population, skills and education, labour force and employment, occupational profile, land use and open space or leisure and recreation/tourism
Traffic and Transport	12	Yes	Potential for traffic growth, road improvement works and cumulative effects of other committed schemes
Water Quality and Resources	13	Yes	No significant changes to existing baseline but potential changes to future baseline through updated climate change predictions
Geology and Land Contamination	14	No	No significant changes to underlying geology and land contamination
Public Health	15	No	Potential for changes to air quality and noise and vibration considered in this screening assessment. No changes expected with regard to water quality and resources, geology and land contamination and waste.

4 AIR QUALITY

4.1 Consultation

Consultation on air quality has been carried out, as detailed in Table 4-1.

Table 4.1 - Consultation relating to Air Quality

Date	Consultee	Notes
8th April 2020	Environment Agency	No issues raised with regard to air quality.

4.2 Baseline

The baseline environment for air quality was described in the ES in relation to the following metrics:

- Identification of receptors (human and ecological)
- Identification of Air Quality Management Areas ('AQMA')
- Monitored Pollutant Concentrations
- Review of the annual reporting undertaken by North Lincolnshire and North East Lincolnshire Councils
- Background pollutant concentration mapping produced at the national scale by Defra (1 km x 1 km grid)

The following paragraphs set out changes (if any) to the baseline environment since the Order was made with reference to these metrics.

The pollutants of interest are nitrogen oxides (and nitrogen deposition) and particulate matter (as PM_{10} and $PM_{2.5}$). For ease of reference, it is reiterated here that the UK's objectives (and EU limit values) for these pollutants are

- Nitrogen Dioxide: Annual Mean = 40µg/m^3 and Hourly Mean = 200µg/m^3 with 18 permitted exceedances per year
- PM_{10}: Annual Mean = 40µg/m^3 and Daily Mean = 50µg/m^3 with 35 permitted exceedances per year
- $PM_{2.5}$: Annual Mean = 25µg/m^3

Receptors

No additional sensitive receptors have been identified since the Order was made. Therefore, the key receptors for air quality impacts remain:

- Human Receptors
    - Settlements near the site including East Halton, North Killingholme and South Killingholme

- Areas of public access near the site e.g. footpaths, business premises

- Ecological Receptors
  - European and Nationally Designated Sites: Humber Estuary SAC /SPA, North Killingholme Haven Pits SSSI
  - Locally designated sites: East Halton Dismantled Railway SNCI; Chase Hill Wood

AQMA

Both North Lincolnshire and North-East Lincolnshire have declared AQMAs, with two in each authority (Table 4.2). Since the Order was made, two of these have been revoked (Low Stanton and Immingham AQMAs) and the Scunthorpe AQMA has reduced in area. Furthermore, in 2018 (the latest available data), there were no monitored exceedances of the annual mean NO_2 objective within the Grimsby AQMA. Overall, therefore, in terms of the presence of AQMAs within the study area, there is an overall improvement in NO_2 levels since the Order was made.

Table 4.2 - Summary of AQMA in study area

Authority	AQMA	Changes since ES
North Lincolnshire	**Scunthorpe AQMA** Declared for exceedances of objective for daily mean PM_{10} >20 km south-east of site	Slightly reduced in area (19th March 2018 Improvements in PM_{10} concentrations have reduced occurrences of exceedances of the daily mean objective
	Low Stanton AQMA Declared for exceedances of objective for annual mean PM_{10} >20 km south-east of site	Revoked (19th March 2018) Improvements in PM_{10} concentrations have removed exceedances of the annual mean objective.
North East Lincolnshire	**Immingham AQMA** Declared for exceedances of objective for daily mean PM_{10} ~5 km south-west of site	Revoked (29th January 2016) Improvements in PM_{10} concentrations have removed exceedances of the daily mean objective.
	Grimsby AQMA Declared for exceedances of objective for annual mean NO_2 ~15 km south-west of site	Area unchanged Reducing trend in concentrations of NO_2, and no monitored exceedances of annual mean NO_2 objective in 2018.

Monitored Concentrations

Baseline concentrations assessed for the ES were monitored in the year 2012. Tables 4.3 and 4.4 shows the evolution in concentrations at the monitors within the UK's national (AURN) network (Hull Freetown and Scunthorpe Town) and within North Lincolnshire's monitoring network (Killingholme School).

As for the AQMA, the data show an overall improving trend and the latest concentrations, for 2019, are lower than the values presented in the ES. The monitored concentrations are well within the air quality objectives.

Table 4.3 - Automatic monitoring of nitrogen dioxide. Annual mean concentrations (µg/m3), with the number of exceedances of the hourly mean standard shown in brackets

Site	2012 (as ES)	2013	2014	2015	2016	2017	2018	2019
Hull Freetown	27.0	27 (0)	26 (0)	24 (0)	23 (0)	24 (0)	22 (0)	22 (0)
Scunthorpe Town	21.6	27 (2)	25 (9)	18 (0)	17 (0)	16 (0)	18 (0)	15 (0)
Killingholme School	19.6	22	22	20	17	17	18	Not avail.

Table 4.4 - Automatic monitoring of PM10. Annual mean concentrations (µg/m3), with the number of exceedances of the daily mean standard shown in brackets

Site	2012 (as ES)	2013	2014	2015	2016	2017	2018	2019
Hull Freetown	11.9	14 (3)	15 (5)	-	-	-	-	-
Scunthorpe Town (BAM)	20.7	27 (18)	21 (17)	21 (15)	17 (6)	16 (5)	18 (9)	20 (18)
Killingholme School (FDMS)	21.7	19 (5)	19 (6)	18 (2)	18 (1)	18 (4)	19 (3)	Not avail.

The maximum hourly NO_2 concentration is quoted in the ES as being 118µg/m^3 at both the Hull Freetown and Scunthorpe Town monitors in 2012. In 2019, the maximum hourly mean concentrations were lower, at 105µg/m^3 and 89µg/m^3 respectively.

North Lincolnshire Council also monitor nitrogen dioxide concentrations with passive diffusion tubes. These were referenced, but not reported in the ES. Table 4.5 shows the trend in data at diffusion tubes within South Killingholme. These data show a consistent pattern to that observed at the continuous analysers, namely, that concentrations have decreased over time and are now well within the objectives. Concentrations peaked in 2013/2014, in part due to meteorological conditions but then decreased markedly and are now lower than recorded in 2012.

Table 4.5 - Diffusion tube monitoring of annual mean nitrogen dioxide (µg/m3). Exceedances of the objective are shown in bold

Site	2012	2013	2014	2015	2016	2017	2018
Ulceby Road, Killingholme	38	**51**	**43**	26	31	20	17
School Road, Killingholme	-	**48**	**47**	34	31	27	28
Humber Road Chip Shop	21	30	27	19	21	19	20
Humber Road Lamppost	30	**45**	35	27	26	25	26
East Halton Road, Killingholme	-	-	-	-	-	-	21

LAQM Reporting

The latest report published by North Lincolnshire council (2019 Annual Status Report, with data to 2018[1]), states that the pollutant of greatest concern in their district is particulate matter. The latest actions in the air quality action plan for the Scunthorpe Town AQMA focus on continuation of the monitoring programme for PM_{10} and communications with the public to reduce domestic and non-industrial emissions of particulate matter, working with the Environment Agency to reduce emissions of PM_{10} from industrial processes through the environmental permitting regime, and consideration of the emission potential of new sources of particulate matter through the planning regime.

As noted in the ES, the proposed gas-fired plant at the Site will not be a significant source of particulate matter and, therefore, will not contribute to significantly worsened PM_{10} concentrations either within the North Lincolnshire AQMA or across the district as a whole. Furthermore, the operation of the proposed plant will not interfere with the proposed measures within the air quality action plan to reduce concentrations of particulate matter. Measures proposed within the ES for the mitigation of dust impacts during construction remain applicable and do not require modification as a result of the ongoing measures within the action plan.

In recent years, monitored concentrations of nitrogen dioxide within North Lincolnshire have not been at risk of exceeding the air quality objective for NO_2 and, therefore, this pollutant is of secondary concern in relation to compliance with air quality objectives for the protection of human health within North Lincolnshire.

North East Lincolnshire's latest report[2] states that all actions within their air quality action plan were completed in 2015 and that a new plan is in development. Since they're only remaining AQMA is the Grimsby AQMA, which relates to non-compliance with the air quality objective for annual mean nitrogen dioxide, their focus for the coming year will be on the promotion of sustainable transport. Given the distance of the Grimsby AQMA from the site (~15 km), the operation of the proposed plant will not significantly affect air quality within the AQMA and will not interfere with the potential benefits that may arise from modal shift from private cars to active or public transport.

Mapped Concentrations

The impacts of the operation of the plant were assessed in the ES in combination with both monitored concentrations and, in an alternative analysis, in combination with the mapped background concentrations provided by Defra at 1 km x 1 km resolution. Since the Order was made, these mapped concentrations have been updated and Table 4.6 shows the comparison of the data presented in the ES and the latest data.

Concentrations are presented for 2019 (for comparison with C.GEN's project specific monitoring in the next section). They are projected to decrease further in future years. As seen in the monitoring, the mapped concentrations have decreased since 2012. The concentrations of NO_2 and PM_{10} are well within the air quality objectives.

[1] https://www.northlincs.gov.uk/wp-content/uploads/2020/03/Air-Quality-Status-Report-2019.pdf

[2] 2019 Annual Status Report, https://www.nelincs.gov.uk/wp-content/uploads/2019/08/Air-Quality-Annual-Status-Report-2019.pdf

Table 4.6 - Defra's 1 km x1 km Mapped Background Concentrations (µg/m³)

Pollutant	As presented in ES for 2012		Data for 2019	
	Maximum in North Lincolnshire	Average in North Lincolnshire	Maximum in North Lincolnshire	Average in North Lincolnshire
NO_2	36.0	12.1	23.9	9.6
NO_X	69.6	17.2	39.3	13.0
PM_{10}	22.4	17.2	19.3	14.2

Average concentrations of NO_X are within the critical level for the protection of vegetation. The margin by which the maximum NO_X concentration within North Lincolnshire exceeds the critical level for the protection of vegetation (30µg/m³) has decreased markedly since the Order was made.

Monitoring

WSP UK Ltd, on behalf of the Applicant, undertook a project-specific diffusion tube survey from September 2019 to December 2019 to further investigate the potential impacts of the scheme on ecological receptors. Full details of the survey are provided in Appendix 4.1 and a summary is provided in Table 5.6. Monitoring was undertaken for nitrogen oxides, nitrogen dioxide and ammonia.

The monitored concentrations of NO_2, NO_X and NH_3 are all within their respective air quality objectives for the protection of human health (40µg/m³ for NO_2) and critical levels for the protection of vegetation (30µg/m³ for NO_X; 3µg/m³ for NH_3).

Table 4.7 - Summary of WSP monitoring and co-located Defra/APIS mapped concentrations (µg/m³)

Location	Monitored NO_2*	Defra Back-ground NO_2	Monitored NO_X*	Defra Back-ground NO_X	Monitored NH_3**	APIS Back-ground NH_3
NK1	14.8	10.5		14.4		2.0
NK2	8.7	10.3		14.0		2.6
NK3	14.0	10.6		14.6		2.6
NK4	8.7	11.2		15.4		1.1
NK5	11.6	11.7		16.2		1.1
NK6	23.4	23.9		39.2		1.1
NK7	27.0	23.9		39.2		1.1
NK8	17.8	23.9		39.2	0.8	1.1
NK9	21.1	13.8		19.6		1.1
NK10	20.4	16.1	16.4	23.6	0.6	1.1
NK11	15.3	13.8		19.6		1.1
NK12	18.5	13.8	16.2	19.6	0.6	1.1
NK13	17.8	13.3		18.9		0.9
NK14	18.0	13.8	24.8	19.6	1.0	1.1

Location	Monitored NO_2*	Defra Back-ground NO_2	Monitored NO_X*	Defra Back-ground NO_X	Monitored NH_3**	APIS Back-ground NH_3
NK15	16.7	16.1		23.6		1.1
NK16	10.5	13.2		18.7		1.1
NK17	21.6	14.8		21.3		1.1
NK18	17.1	13.9		19.8		0.9
NK19	18.6	14.4		20.6		0.9
NK20	24.5	11.3		15.5		1.1
NK21	12.4	10.4		14.2		2.0
NK22	15.2	13.5	18.7	18.9		1.1
* Data for NO_2 and NO_X are annualised to 2019. ** Data for NH_3 are the 3 month period average from 23 September 2019 to 19 December 2019						

The results of the monitoring demonstrate that the mapped data provided by Defra and the APIS website for nitrogen oxides and ammonia are robust. The monitored nitrogen dioxide concentrations are, on average, approximately 20% higher than mapped data, whilst the ammonia concentrations are around 50% lower. Given the uncertainty in diffusion tube monitoring and the limited duration of the survey, the monitored concentrations are consistent with the mapped data and, by inference, the mapped nitrogen deposition data for the area are also likely to be robust.

APIS Deposition

Baseline nitrogen deposition levels are quoted in the ES as 16.6kgN/ha/yr for the North Killingholme Haven Pits. Deposition levels over the remaining designated sites are not provided. In the latest available data[3], the baseline deposition over the North Killingholme Haven Pits is 15.3kgN/ha/yr. Nitrogen deposition levels have therefore, on a location by location basis, decreased from the time of publication of the ES.

Within 10 km of the plant, deposition levels range from 13.7kgN/ha/yr to 32.5kgN/ha/yr for short vegetation. This exceeds, in places, the critical loads for sensitive habitats. However, as evidenced by the data for North Killingholme Haven Pits, total deposition levels have decreased since the Order was made.

4.3 Policy, Legislation and Guidance

Ambient Air Quality: Policy, Legislation and Guidance

The key legislation for ambient air quality remains the Air Quality Standards (2010) and Air Quality Regulations (2000, 2002). The Air Quality Standards Regulations were subject to a minor change in 2016, but this did not change the air quality limit values and has no impact on the assessment presented in the ES.

Similarly, the local air quality management regime, as set out in the Environment Act 1995 remains unchanged. The primary technical guidance document, LAQM.TG16, has been updated since the Order was made, but this has no impact on the assessment of the plant

[3] http://www.apis.ac.uk/

since it primarily relates to the monitoring and assessment of air quality by local authorities for the purpose of air quality management.

The assessment methodology follows Environment Agency and technical advice group (AQTAG) advice that has not been altered significantly since publication of the ES.

Planning: Policy, Legislation and Guidance

National Policy Statements for Energy, EN-1, and Fossil Fuel Generating Infrastructure, EN-2, are unchanged since the Order was made.

The UK Government's National Planning Policy Framework (NPPF) was updated in 2018 and 2019. In relation to local air quality, the revised NPPF states (para 181) that

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

Furthermore, it states (para 180) that

"*Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development*."

Therefore, with the air quality standards and objectives being unchanged since the Order was made, the revision to the NPPF does not introduce any new constraints or requirements for the plant.

Emissions to Air: Policy, Legislation and Guidance

As stated in the ES, emissions from the plant will need to meet the requirements of the Industrial Emissions Directive (IED, 2010/75/EU).

IED requires that permit conditions for new plant shall be set with reference to the latest reference documents on Best Available Techniques ('BAT'), and the BAT conclusions and associated emission levels ('AELs').

The latest BAT conclusions for large combustion plants were adopted on 31st July 2017 (Commissions Implementing Decision (EU) 2017/1442). These conclusions reduce the emission limits from previous levels. Table 4.8 sets out the limits used for the ES, and the revised limits.

Table 4.8 - Emission limits used for ES modelling and revised limits set by BAT Conclusions for New Combined Cycle Gas Turbines

Pollutant	Emission Limit for ES (mg/Nm^3)	Revised BAT Associated Emission Levels (mg/Nm^3)	
		Yearly	Daily
NOx	50	10 - 30	15 - 40
CO	100 (Daily value not to exceed 110% of this value)	5 – 30 (Indicative)	No limit set

NOx emissions from the plant were modelled at full load to equate to 34.2g/s or 123.12kg/hr. With the revised emissions levels, these would reduce to a maximum of 74.0kg/hr as an annual average, or 98.6kg/hr as a daily maximum. Emissions of CO would reduce from 246.6kg/hr to 74kg/hr.

Impacts on ambient air quality from the dispersion of pollutants from a source are linearly proportional to*, inter alia*, the mass release rates of pollutants. Therefore, with no changes expected for other emissions parameters (flow rate / temperature / exit velocity etc), it is concluded that impacts on ambient concentrations of primary emissions (NO_x and CO) will reduce with plant meeting the revised BAT AELs in comparison to model results presented in the ES.

4.4 Mitigation

No changes to the proposed mitigation relating to air quality are required.

Impacts during construction are unchanged and, as such, will require mitigation to reduce dust effects. However, the measures set out in the ES remain appropriate.

Emissions to air during operation are expected to reduce as a result of the changes to BAT introduced since the Order was made. As such, with the retention of the proposed stack height of 80m, no additional mitigation measures are required to reduce operational impacts.

4.5 Impact Assessment

In summary, the information that has been updated since the Order was made relates to baseline air quality and the rate of emissions pollutants in the exhaust gases of the combustion plant.

In both cases, the updates result in an improvement in comparison to data presented in the ES. That is, baseline air quality, including pollutant concentrations, nitrogen (and acid) deposition levels and the extent of AQMA, has improved over time and the rate of emissions of pollutants to air from the operation of plant will be reduced under the latest BAT conclusions.

Whilst historical improvements in concentrations over time do not guarantee future improvements, they are consistent with actions taken by the government to improve air quality which are anticipated to result in further improvements over time.

Compliance with the updated BAT AELs will be enforced and monitored through the permitting regime.

To demonstrate the robustness of this statement, an updated dispersion modelling assessment has been undertaken, as set out in Appendix 4.2. As in the ES, effects on human health and ecology are considered.

It has not been possible to exactly replicate the data published in the ES due to various factors including multiple updates to the modelling software and uncertainty over various (non-emission related) model input parameters such as meteorological and atmospheric chemistry parameters. Therefore, the dispersion modelling update has been undertaken using the main stack exhaust parameters set out in the ES, coupled with the ES emissions standards and the revised emission standards (Table 5.7), and conservative input parameters that will tend to overestimate impacts. As such, the numerical results from the updated modelling should not be compared directly to the results presented in the ES, rather, it is the overall conclusions of the modelling that should be compared.

Two scenarios have been tested, namely:

- ES Scenario B – with the facility operating as a combined cycle gas turbine (CCGT) plant, and

- ES Scenario E1 – with the facility operating as an integrated gasification combined cycle (IGCC) plant, fired on coal.

These are the same as the two core scenarios considered in the ES.

A summary of the model results is presented below. Further details of the modelling methodology are provided in Appendix 4.2. The discussion is limited to nitrogen oxides and nitrogen deposition, and carbon monoxide, since these are the only pollutants that are affected by the updated BAT emission limits. New limits were also imposed for SO_2 and PM_{10}, but the concentrations modelled in the ES are below the revised limits and are, therefore, unchanged.

Human Health Impacts

Tables 4.9 and 4.10 set out the results of the modelling of impacts in relation to air quality standards set for human health taken from the ES, with ES Emission Limits, and from the updated modelling for Scenario B and Scenario E1 respectively.

Table 4.9 - Modelled maximum annual and hourly mean NO2 (Scenario B, CCGT)

Model	Emissions	Process Contribution µg/m3	% of AQS	Defra Back-ground µg/m3	Predicted Environmental Concentration µg/m3	% of AQS
Annual Mean NO2 – Air Quality Standard 40µg/m3						
ES	ES Limits	0.2	0.5%	19.6 a	19.8	49.5%
Updated Model	ES Limits	1.24	3.1%	18 a	19.2	48.1%
	Revised BAT	0.75	1.9%	18 a	18.7	46.9%
Hourly Mean NO2 – Air Quality Standard 200µg/m3						
ES	ES Limits	3.3	1.7%	118 b	121.3	60.7%
Updated Model	ES Limits	5.69	2.8%	105 b	110.7	55.3%
	Revised BAT	4.56	2.3%	105 b	109.6	54.8%

a. Killingholme Primary School, 2012 and 2018

b. Hull Freetown, 2012 and 2019

Table 4.10 - Modelled maximum annual and hourly mean NO2 (Scenario E1, IGCC)

Model	Emissions	Process Contribution µg/m3	%AQS	Defra Back-ground µg/m3	Predicted Environmental Concentration µg/m3	%AQS
Annual Mean NO2 – Air Quality Standard 40µg/m3						
ES	ES Limits	0.2	0.5%	19.6 a	19.8	49.5%
Updated Model	ES Limits	0.93	2.3%	18 a	18.9	47.3%
	Revised BAT	0.46	1.2%	18 a	18.5	46.2%
Hourly Mean NO2 – Air Quality Standard 200µg/m3						
ES	ES Limits	2.6	1.3%	118 b	120.6	60.3%
Updated Model	ES Limits	7.21	3.6%	105 b	112.2	56.1%
	Revised BAT	5.03	2.5%	105 b	110.0	55.0%

a. Killingholme Primary School, 2012 and 2018

b. Hull Freetown, 2012 and 2019

The high level conclusions of the assessment of impacts on human health are that there is no risk of exceedance of the air quality objectives for nitrogen dioxide in either the ES or updated modelling (Predicted Environmental Concentration, PEC, < Air Quality Standard) and, therefore, there are no changes to the conclusions of the ES for any emission scenario.

In the updated modelling, the use of the BAT conclusions emission limit decreases the modelled impact in proportion to the decrease in emissions. However, with no risk of exceedance of the objectives, the effects are negligible whichever emission limit is used.

The modelled NO_2 concentrations (PC) are higher in the updated model than presented in the ES. This is primarily due to the more conservative assessment of the conversion of NOx to NO2 and unrelated to any change in emissions. At the point of maximum impact, which is just over 1km to the north-east of the stack in all cases, the proportion of NOx in the form of NO2 was assumed to be 70% and 35% in the updated modelling for annual and hourly mean concentrations respectively, and around 10% - 16% in the original modelling. Notwithstanding this, the assumed conversion of NOx to NO_2 does not affect the conclusion that there is no risk of exceedance of standards and that the impact decreases with the reduced emission limits.

Similar conclusions hold for carbon monoxide concentrations i.e. there is no risk of exceedance of the air quality standard and impacts are reduced with reduced emission limits.

Ecological Impacts

The impacts of the facility on ecological receptors were considered over the Humber Estuary SPA, SAC, SSSI and North Killingholme Pits SSSI (Designated sites within 15km of the stack) in relation to nitrogen oxides, nitrogen deposition and sulphur dioxide concentrations. As noted above, the latter are unaffected by the revision to the emission limits and, as such, this section focusses on impacts to annual mean NOx and nitrogen deposition. The designated habitats (or species supporting habitats) within the Humber Estuary and North Killingholme Pits conservation sites are not sensitive to acid deposition (www.apis.ac.uk) and, therefore, only nutrient nitrogen deposition requires reporting here.

In the updated modelling, the area of maximum impact of the plume from the facility lies within the Humber Estuary SPA, SAC and SSSI on the estuary coast, around 1km to the north-east of the stack. This is driven by dispersion on the prevailing winds from the south-west. The sensitive habitats in this area are mudflats and coastal saltmarsh. In the ES, the area of maximum impact was over the water in the estuary, and coastal habitats experienced lower impacts.

In both the ES and in the updated modelling, the modelled impacts on annual mean concentrations decrease rapidly to the north-west and south-east of the point of maximum impact as you move away from the direction of dispersion under the prevailing winds. This is illustrated in the model results below by consideration of impacts over the North Killingholme Pits SSSI, where the sensitive habitats are saline lagoons.

Tables 4.11 and 4.12 show the modelled impacts on nitrogen deposition as presented in the ES and for the updated modelling, for Scenario B and Scenario E1 respectively.

All modelled impacts are less than 1% of the relevant critical load and the total deposition is within the critical load. Therefore, as was the case for impacts on human health, impacts decrease with the reduction in emission limits, and there are no significant effects on habitats in any modelled scenario.

Tables 4.13 and 4.14 show the modelled impacts on nitrogen oxides and, for Scenario E1, sulphur dioxide. The maximum impacts on NOx are >1% of the critical level in all scenarios, and the total concentration exceeds critical level. However, importantly, the impacts decrease with the reduction in emission limits and the total concentrations are lower than those presented in the ES. Moreover, the project specific monitoring indicated that the Defra and APIS datasets significantly overestimate NOx concentrations in the vicinity of the facility and that total concentrations are, in reality, likely to be within the critical level.

A full analysis of SO_2 impacts was not presented in the ES. However, the data in Table 4.13 show that there is no risk of exceedance of the critical levels for SO_2 whether or not the

facility is operating. As noted above, SO_2 emissions are unaffected by the revision to emission limits.

Summary of Results of Updated Modelling

The implications of the data updates since the publication of the ES are consistent across both human health and ecological receptors, namely:

- When modelled with consistent model input parameters, the revised BAT emission limits *result in a reduction in the impact* of the plant i.e. comparing the updated modelling with ES and revised BAT emission limits

- The improving trends in pollutant concentrations and nitrogen deposition *result in reductions in total concentrations and depositions* in comparison to those presented in the ES i.e. comparing the predicted environmental concentration/deposition in the ES and in the updated modelling.

Overall, therefore, the modelling exercise demonstrates that no adverse changes are expected to the significance of environmental effects described in the Environmental Statement as a result of changes since the time of its publication.

Taking into account the information outlined above, no new or materially different effects to those reported in the ES are predicted on air quality.

Table 4.11 - Modelled maximum annual mean nitrogen deposition (Scenario B, CCGT)

Model	Emissions	Designated Site	Habitat	Critical Load	N Deposition Process Contribution kgN/ha/yr	% of Critical Load	APIS Background kgN/ha/yr	N Deposition PEC kgN/ha/yr	% of Critical Load
ES	ES Limits	Humber Estuary SAC/SPA/SSSI	Mudflats/Saltmarsh	20	0.088	0.4%	16.64	16.731	83.7%
		North Killingholme Pits SSSI/Humber Estuary SPA	Saline Lagoons	20	0.065	0.3%	16.64	16.708	83.5%
Updated Modelling	ES Limits	Humber Estuary SAC/SPA/SSSI	Mudflats/Saltmarsh	20	0.180	0.9%	15.51	15.69	78.4%
		North Killingholme Pits SSSI/Humber Estuary SPA	Saline Lagoons	20	0.083	0.4%	15.33	15.41	77.1%
	Revised BAT	Humber Estuary SAC/SPA/SSSI	Mudflats/Saltmarsh	20	0.108	0.5%	15.51	15.61	78.1%
		North Killingholme Pits SSSI/Humber Estuary SPA	Saline Lagoons	20	0.050	0.3%	15.33	15.38	76.9%

Table 4.12 - Modelled maximum annual mean nitrogen deposition (Scenario E1, IGCC)

Model	Emissions	Designated Site	Habitat	Critical Load	N Deposition Process Contribution kgN/ha/yr	% of Critical Load	APIS Background kgN/ha/yr	N Deposition PEC kgN/ha/yr	% of Critical Load
ES	ES Limits	Humber Estuary SAC/SPA/SSSI	Mudflats/Saltmarsh	20	0.062	0.3%	16.64	16.705	83.5%
		North Killingholme Pits SSSI/Humber Estuary SPA	Saline Lagoons	20	Not provided in ES				
Updated Modelling	ES Limits	Humber Estuary SAC/SPA/SSSI	Mudflats/Saltmarsh	20	0.134	0.7%	15.51	15.64	78.2%
		North Killingholme Pits SSSI/Humber Estuary SPA	Saline Lagoons	20	0.060	0.3%	15.33	15.39	77.0%
	Revised BAT	Humber Estuary SAC/SPA/SSSI	Mudflats/Saltmarsh	20	0.067	0.3%	15.51	15.57	77.9%
		North Killingholme Pits SSSI/Humber Estuary SPA	Saline Lagoons	20	0.030	0.1%	15.33	15.36	76.8%

Table 4.13 - Modelled maximum annual mean NOx and SO2 concentrations (Scenario B, CCGT)

Model	Emissions	Designated Site	Annual Mean PC NOx µg/m^3	% of Critical Level (30µg/m^3)	Background µg/m^3	Defra Annual Mean NOx PEC µg/m^3	% of Critical Level (30µg/m^3)	Annual Mean PC SO_2 µg/m^3	% of Critical Level (20µg/m^3)	APIS Background µg/m^3	Annual Mean SO_2 PEC µg/m^3	% of Critical Level (20µg/m^3)
ES	ES Limits	Humber Estuary SAC/SPA/SSSI	0.94	3.1%	62.8	63.74	212.5%	Not applicable (Negligible SO2 emissions from natural gas combustion)				
			0.45	1.5%	44.1	44.55	148.5%					
Updated Modelling	ES Limits	Humber Estuary SAC/SPA/SSSI	1.8	5.9%	39.2	41.0	136.8%					
	Revised BAT		1.1	3.6%	39.2	40.3	134.4%					

Table 4.14 - Modelled maximum annual mean NOx and SO2 concentrations (Scenario E1, IGCC)

Model	Emissions	Designated Site	Annual Mean PC NOx µg/m^3	% of Critical Level (30µg/m^3)	Defra Background µg/m^3	Annual Mean NOx PEC µg/m^3	% of Critical Level (30µg/m^3)	Annual Mean PC SO_2 µg/m^3	% of Critical Level (20µg/m^3)	APIS Background µg/m^3	Annual Mean SO_2 PEC µg/m^3	% of Critical Level (20µg/m^3)
ES	ES Limits	Humber Estuary SAC/SPA/SSSI	0.68 (max)	2.3%	62.8	63.48	211.6%	0.09	0.4%	Not reported but background concentrations well within critical level		
			0.31 (over habitat)	1.0%	44.1	44.41	148.0%	0.04	0.2%			
Updated Modelling	ES Limits	Humber Estuary SAC/SPA/SSSI	1.3	4.4%	39.2	40.6	135.3%	0.16	0.8%	3.6	3.7	18.6%
	Revised BAT		0.7	2.2%	39.2	39.9	133.0%	0.16	0.8%	3.6	3.7	18.6%

5 ECOLOGY AND BIODIVERSITY

5.1 Consultation

Consultation on Ecology and Biodiversity has been carried out, as detailed in Table 5-1.

Table 5.1 - Consultation relating to Ecology and Biodiversity

Date	Consultee	Notes
30th March 2020 – Aug 2020	Natural England	Natural England (NE) were contacted in March 2020 and asked for comments via their Discretionary Advice Service ('DAS'). They provided comments on the draft Environmental Report and associated Ecology Appendices on the 25th June 2020. Natural England's comments are summarised below and included in Appendix 5.8 and 5.9. NE provided the following advice/comments in their DAS response: i) A request for the air quality section of the report to include a summary table setting out the full results of the air quality modelling (for designated sites) from the original assessment compared to modelling for the non-material amendment request. ii) Discussion of sulphur dioxide concentrations should be included in the Air Quality chapter of the Environmental Report. iii) Additional information in relation to updated in-combination assessment should be provided in the Air Quality chapter. iv) A request for clarification over the 2019/20 wintering bird survey results for knot and avocet, and whether the results alter impact pathways for these species compared to the original assessment. v) A request for a summary table setting out the results of bird survey data used for the original application against the results from the updated 2019/20 assessment. vi) A request for clarification as to why passage surveys for birds were not completed in August 2019. vii) A request for clarification of

Date	Consultee	Notes
		potential construction and operational noise impacts, in relation to use of Halton Marshes by breeding hen harriers. viii) NE agreed that there had been no significant changes in the baseline for terrestrial protected species since the original assessment, and that Requirement 32 of the DCO remained appropriate in relation to bats and their roosts. A memo response to the points where NE requested additional information was provided on the 22nd July. This was followed by a call between WSP (CGen's consultants) and NE on the 23rd July. During this call, it was agreed that several of the points raised by NE were addressed by the memo issued on the 22nd June, with NE recommending additional information be included in relation to some of the points raised. NE provided an email on the 24th July , in which they confirmed that they required more time to consider point (iv) from the list above. They also provided advice on the information they felt should be included in the Environmental Report, in relation to points (v) and (vii), above. Additional information has been inserted into this report in response to these comments. A further response from NE in relation to point (iv) was awaited at the time this document was finalised. Additional correspondence took place week commencing 3rd August, during which the remaining comments from NE were addressed. Relevant correspondence is contained within Appendices 5.8 and 5.9.
August 2019 – Jun 2020	North Lincolnshire Planning Ecologist	The LPA Ecologist was consulted over the scope of ecology surveys being completed to update the ecological baseline, between August and September 2019. Following their review and a conference call on the 24th September 2019, it was agreed that the proposed scope of ecological surveys was appropriate. The LPA Ecologist was contacted again on the 30th March 2020, to request their comments

Date	Consultee	Notes
		on the results of the ecological surveys, and a draft of this EUR. They were provided with the draft EUR and the completed ecology reports on the 29th May 2020. They provided comments on the 9th July. The LPA's comments are summarised below and included in Appendix 5.10 In summary, the LPA ecologist agreed that there had been no significant changes in the ecological baseline since the original application, and that the survey effort and methods followed for update ecological surveys were appropriate for the site. They also advised that due to the presence of a confirmed bat roost the Planning Inspectorate should consider the 'three tests' for European Protected species licensing (Natural England in their DAS response confirmed Requirement 32 *Bat Mitigation Strategy* of the DCO remained an appropriate mechanism for protecting bats and their roosts). The LPA Ecologist also supported the continued imposition of Requirements to secure environmental control measures and biodiversity enhancements.
March – Aug 2020	Marine Management Organisation	The Marine Management Organisation was contacted on 26th March 2020 and asked for comments on the draft Environmental Report. The MMO confirmed on the 16th April that any advice would need to be provided through their paid consultation service. A request was logged for this on the Marine Licensing Case Management System (marinelicensing.marinemanagement.org.uk) on the 28th April. A conference call to discuss the proposed DCO amendments was held with the MMO on the 28th May. Reports were subsequently provided to the MMO on the 29th April for their review. The MMO provided comments on the draft EUR and associated Ecology Appendices on the 16th July. MMO comments relevant to Ecology and Biodiversity are summarised below and included in Appendix 5.11 In addition to a small number of typographical comments, The MMO provided the following comments/advice: i) Whether consideration of Holderness Inshore Marine Conservation Zone (designated in 2016) was required in the EUR. ii) That section 5.3 of the EUR should include reference to the

Date	Consultee	Notes
		Killingholme Haven Pits SSSI. iii) Request for an update baseline in relation to fish, lampreys and grey seals. iv) suggestion that consideration should be given to recent case law and whether this had amended the assessment process, in particular with regards to Habitats Regulations Assessment. v) A request for all ecology and biodiversity mitigation secured under the existing DCO to be identified in the Environmental Report. vi) Advice that a review of the plans and projects that could interact with the project's revised timescales be made. vii) Advice that black-tailed godwit was not a feature of the Humber Estuary SPA. CGen however understands that this species is a qualifying interest of the SPA. A number of amendments were made to the submission version of the Environmental Report, Breeding Bird Report (Appendix 5.5), and wintering bird report (Appendix 5.6) in response to the MMO comments. CGen also issued a memo to the MMO on the 31st July, 2020, setting out a response to their comments. Further correspondence took place week commencing 3rd of August, with all comments having been addressed by the 6th August. Relevant correspondence is included in Appendix 5.11.
March – April 2020	Humber Estuary Nature Partnership	The Humber Nature Partnership was contacted in March 2020 to request any consultation comments they might have on the proposed non-material change application. They responded on the 14th April 2020 (Appendix 5.12), confirming they had no comments to make or additional information to provide in relation to the proposed non-material change application.
March – May 2020	Lincolnshire Wildlife Trust	Lincolnshire Wildlife Trust was contacted in March 2020 to request any consultation comments they might have on the proposed non-material change application. They provided an initial consultation response on

Date	Consultee	Notes
		the 28th April, with comments on the results of ecological surveys, and requesting whether there were opportunities for the proposed DCO amendment to be assessed for Biodiversity Net Gain opportunities as part of the proposed DCO amendment. A response to the points raised by the LWT was issued to them by WSP on behalf of CGEN on the 12th May. The LWT responded with a 'phone call on the 22nd May and followed up with an email (Appendix 5.13) confirming they had no additional comments to make and that they would be able to provide advice on enhancing biodiversity on industrial margins to CGen.
March – May 2020	RSPB	The RSPB was contacted in March 2020 to request any consultation comments they might have on the proposed non-material change application. They provided a consultation response on the 9th June (Appendix 5.14) confirming they had no comments to make and were not aware of any significant changes to the baseline that might be relevant to the ecological assessment.

5.2 Baseline

The ecological baseline has not undergone a significant change since the initial assessment set out in the ES. The habitat composition within the Principal Project Area has altered slightly; however, the overall mix of habitats remains largely the same. This information is based on updated ecological surveys and assessments that have been carried out by WSP UK Ltd on behalf of the Applicant to support the non-material change application since 2019. These surveys consist of the following:

- Preliminary Ecological Appraisal (Appendix 5.1);
- Bat inspections, emergence/re-entry and activity surveys (Appendix 5.2);
- Great crested newt (eDNA) surveys (Appendix 5.3);
- Reptile surveys (Appendix 5.4);
- Breeding Bird Surveys (Appendix 5.5);
- Wintering bird surveys (Appendix 5.6);
- Otter and water vole surveys (Appendix 5.7); and
- Badger surveys (Confidential Appendix C5.1[4]).

[4] Due to the sensitivities of badger survey data in relation to historical persecution, this appendix has been provided to the Planning Inspectorate and statutory nature conservation organisations on a confidential basis and is not publicly available.

All survey reports can be viewed in Appendices 5.1 to 5.7. The updated baseline for all ecological receptors specific to the Project, as assessed in the ES, is outlined below.

5.3 Statutory and Non-Statutory Designated Sites

There are no new statutory designated sites or candidate sites since the Order was made as confirmed by Joint Nature Conservation Committee ('JNCC')'s SAC[5] and SPA[6] list and WSP's in-house GIS software, iGIS[7]. All statutory designated sites remain the same as per the original assessment (see Preliminary Ecological Appraisal report in Appendix 5.1). The closest designated sites are the Humber Estuary Special Protection Area ('SPA'), Special Area of Conservation ('SAC'), Ramsar and Site of Special Scientific Interest ('SSSI'), part of which lies within the Principal Project Area (to the east). Killingholme Haven Pits SSSI remains located adjacent to the southern boundary of the Project. As highlighted by the MMO in their consultation response Holderness Inshore Marine Conservation Zone (MCZ) was designated in 2016. This is located approximately 25 km downstream of the Project. At 25 km distant and with the designating features not including migratory species, no conceivable impact pathways by which the MCZ could be affected have been identified.

There are no new non-statutory designated sites within 2 km of the Principal Project Area since the Order was made. All non-statutory designated sites (with the exception of East Halton Dismantled Railway Site of Nature Conservation ('SNCI') and Eastfield Railway Embankment Local Wildlife Site ('LWS') remain the same (See Preliminary Ecological Appraisal Report in Appendix 5.1). The aforementioned sites are no longer listed as non-statutory designated sites as per data on non-statutory sites provided by the Greater Lincolnshire Nature Partnership ('GLNP'), North East Yorkshire Environmental Data Centre ('NEYEDC') and Lincolnshire Wildlife Trust. One of these two sites, East Halton Dismantled Railway SNCI was located within the Principal Project Area of the Project. Therefore, the ecological importance of these receptors has reduced since the Order was made, and hence effects upon them are likely to be of reduced ecological significance.

The closest non-statutory designated site is Killingholme Haven Pits Lincolnshire Wildlife Trust Site ('LWTS') which is located 10 m to the south of the Principal Project Area. This reflects the situation at the time the Order was granted.

In summary, the baseline for designated sites remains similar to when the Order was granted. The update baseline surveys have also confirmed that use of the Site by bird species that underpin statutory wildlife designations near the site[8] remains comparable to that recorded and assessed for the original DCO application in 2013.

Marsh harrier (a SPA qualifying interest) were recorded at Halton Marshes (north of the Site) in March 2020. Natural England confirmed that breeding by this species at Halton Marshes had been confirmed in 2019 and requested clarification that this did not introduce any additional impact pathways in relation to disturbance (see Appendix 5.8). Requirements 15 (CEMP) and 49 (Acoustic screening of Operations Area) require acoustic screening (which would also provide a visual barrier) to be in place along the northern and

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[5] Joint Nature Conservation Committee – SACs in England. https://sac.jncc.gov.uk/site/england. Accessed March 2020.

[6] Joint Nature Conservation Committee – SPAs in England. https://sac.jncc.gov.uk/site/england. Accessed March 2020.

[7] This draws on publicly available government GIS datasets, including datasets for statutory designated sites held on the Multi-Agency Geographic Information Centre (MAGIC). A verification check of the following designations was completed on www.magic.defra.gov.uk on the 18/04/2020: SAC; cSAC; pSAC; SPA; pSPA; Ramsar Sites; and Proposed Ramsar Sites

[8] The Humber Estuary SPA, Ramsar Site and SSSI; the North Killingholme Haven Pits SSSI.

western boundaries of the Proposed Scheme during construction, of at least 5m west and north of the Operations Area, and at least 2.4m north of the Construction Laydown Area.

With this screening in place, the impact of construction noise within the closest part of Halton Marsh suitable for breeding marsh harriers (reedbeds fringing waterbodies) would be approximately 46dB LAeq. Baseline monitoring at the edge of Halton Marshes in 2019/2020 (see Appendix 7.1, Figure 7-1B) found daytime noise levels varying between 40-53db LAeq. The operational noise assessment remains as published in the ES, with Halton Marshes experiencing impacts of less than 45 dB LAeq. As such, no significant difference in noise levels between baseline and construction/operation is predicted, and no additional disturbance impact pathways are predicted should marsh harriers attempt to breed at Halton Marshes again during construction or operation of the Proposed Scheme.

The designations of the Humber Estuary SAC and SSSI include the same habitats and migratory fish species (sea lamprey *Petromyzon marinus* and river lamprey *Lampetra fluviatilis*) and grey seal *Halichoerus grypus* populations as was assessed for the original DCO application. No surveys were completed for the original DCO application and as such there was no site-specific baseline to update for these species groups. The potential for these species to be present in the vicinity of the Proposed Scheme is therefore assumed, as was the case for the original application. The mitigation measures previously proposed in relation to statutory designated sites therefore remain appropriate to be implemented as part of the Proposed Scheme. This includes measures to avoid or mitigate effects on European Sites and SSSI, secured via Requirements 7, 8, 11, 12, 15, 19, 23, 25, 26, 30, 31, 48, 49, 50, and 51 of the made DCO, and Conditions 19 to 23 inclusive of the Deemed Marine Licence[9].

As reported in the Air Quality section of this report (see section 4.5), baseline air quality, including pollutant concentrations, nitrogen (and acid) deposition levels, has improved over time and the rate of emissions of pollutants to air from the operation of plant will be reduced under the latest BAT conclusions. As such air quality impacts on designated sites will be the same or reduced compared to the assessment presented in the ES.

The identified changes relate to the de-designation of previously designated local sites. This would potentially reduce the value of these receptors and hence the significance of effects upon them. As other locally designated sites within the Zone of Influence remain unchanged, this is not considered to alter the overall value of locally designated sites as part of the ecological baseline.

In light of the above, there are considered to be no significant changes to the assessment of effects on designated sites, including Habitats Regulations Assessment (HRA) of European Sites.

Habitats

The Principal Project Area is dominated by hardstanding and buildings covering approximately 88 hectares. Other habitats recorded within the Principal Project Area include: dense and scattered scrub, scattered broadleaved trees, semi-improved grassland, tall ruderal, swamp, marginal vegetation, standing water and amenity grassland. Other less common habitats include dry ditches, earth banks, fences, bare ground, intertidal mud/sand, brackish water and saltmarsh (see Phase 1 habitat map located within the Preliminary Ecological Appraisal report in Appendix 5.1).

[9] The deemed Marine Licence forms Schedule 7 of the made DCO (SI 2014 No. 2434. Infrastructure Planning – The North Killingholme Generating Station Order 2014.

Four Habitats of Principal Importance ('HPI')[10] were recorded within the Principal Project Area, these include ponds, reedbeds, intertidal mudflats and coastal saltmarsh.

Although no new habitat types have been recorded since the Order was made, the habitat composition has altered slightly, particularly to the west. Some areas that were previously identified as tall ruderal and scattered scrub in the south west of the Principal Project Area have overgrown and have become denser in nature. Similarly, some scrub habitats have regressed and have become tall ruderal, likely as a result of ongoing intermittent management. New bare earth mounds were also noted in this area, that had not been recorded during survey work to inform the ES submission. The altered habitat composition does not represent a significant change to the baseline habitats documented in the ES, as all the habitats that have changed are common and widespread. No new or increased extents of HPIs were recorded across the Principal Project Area.

Overall, baseline habitat conditions in and around the Principal Project Area have not changed significantly since the Order was made.

Bats

Bat surveys were carried out in 2019/2020 to gather updated baseline survey information for this species group. Surveys included:

- Activity transects to assess levels of foraging and commuting bat activity; and
- Ground-based assessments and subsequent emergence/re-entry surveys to assess bat roosting activity within buildings at the site.

A total of three transect surveys were carried across the bat active season in August and September 2019 and April 2020 in order to capture summer, autumn and spring activity, to gather updated baseline information. One activity transect was carried out per season combined with automated static detectors during 2019 and 2020.

Activity recorded during the update surveys remains of a similar level as identified during surveys to inform the ES, with most activity recorded of common pipistrelle *Pipistrellus pipistrellus*. Overall activity during the 2019/20 surveys was of a low – moderate level, reflecting the levels of activity recorded during the surveys to inform the ES. The wooded strip of dense scrub bisecting the middle of the Principal Project Area (see Figure 2 in Appendix 5.2) and the western boundary recorded the highest level of activity within the Site. Bats were recorded commuting and foraging along both linear stretches of scrub habitat during all activity transect surveys. Species recorded included common pipistrelle, soprano pipistrelle *Pipistrellus pygmaeus*, brown long-eared *Plecotus auritus*, a *Myotis* sp. and noctule *Nyctalus noctula*.

A total of seven buildings (B1 – B7) were assessed as having suitability to support roosting bats during update preliminary bat roost assessments. These buildings were all located in the western part of the Principal Project Area (See Figure 3a – 3c in Appendix 5.2). These buildings were subject to further emergence / re-entry surveys to ascertain if a roost was present or likely absent. Common pipistrelle bats were seen to emerge from Building B5 during emergence and re-entry surveys of the building in 2019. Four emergences were recorded on two separate survey visits. This roost has been characterised as a day roost[11]

[10] Habitats identified as being of particular importance for the conservation of biodiversity in England, via their identification through Section 41 of the Natural Environment and Rural Communities Act (2006).

[11] i.e. a feature that bats use as a resting site during daylight hours.

of a small number (less than five) common pipistrelle bats. No emergences or re-entries were recorded on any surveys of other buildings.

No bat roosts were recorded during the surveys to inform the original ES. Despite this, the baseline as assessed in the ES is not considered to have significantly changed. Section 7.5 paragraph 33 of the ES[12] states '*Given the known population in the area and as bats are highly mobile, it is acknowledged that there is a small chance that they could start using the buildings as roosts in the future*'. This has been affirmed by the updated bat surveys in 2019. Furthermore, information in the bat report (ES Appendix 7.4) identifies that two or more buildings were recorded as being used as feeding stations by bats including the presence of bat droppings characteristic of *Pipistrellus* sp. The potential for bat roosts to be present was assessed in the ES with appropriate mitigation measures captured by way of Requirement 32 of the Order. As such, confirmation of presence of a low-conservation importance roost does not materially alter the baseline as assessed for the 2013 Application.

Overall, baseline bat activity within and around the Principal Project Area has not changed significantly since the Order was made.

Birds

Updated breeding and wintering bird surveys have been carried out in 2019 and 2020 (see breeding bird report in Appendix 5.5 and wintering and passage bird survey report in Appendix 5.6). Breeding bird surveys were focused within the western section of the Principal Project Area as this was the only area considered to contain suitable nesting habitat. Less than 50 breeding territories of 25 bird species were recorded during the breeding bird surveys in 2019.

Wintering bird surveys were also completed along the Humber Estuary (eastern side of the Principal Project Area) and Killinghome Haven Pits (south of the Principal Project Area). The intertidal region adjacent to the eastern boundary of the Principal Project Area is considered an important commuting route and feeding ground for waders and waterfowl. Similarly, the saline lagoons located at Killingholme Haven Pits to the south remain an important feeding and over wintering site for black-tailed godwit *Limosa limosa* and redshank *Tringa totanus*. No new species have been recorded during the breeding and wintering bird surveys. Breeding and wintering behaviour remain similar to that identified in surveys to inform the original ES.

Overall, baseline wintering and breeding bird activity within and around the Principal Project Area has not changed significantly since the Order was made.

Reptiles

Reptile surveys were carried out within the Principal Project Area over a period of seven survey visits within suitable habitat in 2019 (see Appendix 5.4). As the Site predominantly comprises hard-standing and buildings which are unsuitable for reptiles, the reptile survey was confined to the west of the Principal Project Area (see reptile report located in Appendix 5.4). No reptiles were found.

Reptile surveys were also carried out by BSG Ecology in 2019 (BSG, pers comm., 2 May 2020), covering part of the Principal Project Area. These surveys were undertaken to support a different project with an overlapping survey area. No reptiles were recorded during these surveys.

[12] C.GEN (2013) North Killingholme Power Project. Environmental Statement - Volume 1. Section 7 – Ecology and Biodiversity.

Overall, baseline reptile activity within and around the Principal Project Area has not changed significantly since the Order was made, with reptiles likely to remain absent from the Site.

Amphibians

Great crested newt ('GCN') eDNA sampling was carried out in June 2019. These surveys were undertaken to determine whether GCN were present or likely absent from the Principal Project Area and surrounding suitable aquatic habitat. A total of five waterbodies were identified within 250 m of the Principal Project Area (see GCN report in Appendix 5.3).

All eDNA samples taken from the identified waterbodies tested negative for the presence of GCN eDNA (see Appendix 5.3). As a result, there is no change to the assessment of the baseline documented in the ES, with GCN considered likely to be absent from the Site.

Badger

During updated badger surveys carried out in 2019 and 2020, no badger setts were recorded that had not been previously recorded during surveys to support the ES. Due to the welfare implications associated with revealing the locations of badger's setts, the results of the surveys are not presented here. Results of the badger survey are provided in a separate report, provided in confidential Appendix C5.1.

The survey results suggest that badger activity is of the same level or lower than that of the assessment made within the ES. The updated survey information indicates that badgers are still using the site and are using the same setts as defined in the Confidential Badger Appendix (ES Appendix C7.5) submitted to support the 2013 application.

Otter and Water Vole

Updated otter and water vole surveys were carried out in 2019 and 2020 to ascertain if these species were present or likely absent from the Principal Project Area.

Waterbodies, ditches and drains were surveyed for signs of otter and water vole within the Principal Project Area. Although some of the waterbodies provided suitability for water voles including connectivity to other waterbodies and the wider landscape, no evidence of these species was recorded. Small mammal burrows were recorded within bankside habitats, but these were identified as being too small for water vole. Suitable aquatic and terrestrial habitat for otter was restricted within the Principal Project Area. Due to the nature of the site, terrestrial habitat was also of low suitability. Signs of otter were limited to one otter spraint, recorded during the 2019 surveys. Detailed results of the surveys are presented in Appendix 5.7.

Overall, baseline otter and water vole activity within and around the Site has not changed significantly since the Order was made, with these species considered unlikely to regularly use habitats within the Site.

5.4 Policy, Legislation and Guidance

There have been some changes to policy, legislation and guidance related to biodiversity and ecology, since publication of the ES. Key documents that have been updated are listed below.

A review has been undertaken to identify pertinent changes in legislation, policy and guidance relating to the assessment of ecological effects upon biodiversity since the Order was made:

- The Birds Directive (Directive 2009/147/EC of the European Parliament) – no changes to the Directive since the Order was made – no material change to the assessment;

- The Habitats Directive (Directive 92/43/EEC of the European Parliament) – no changes to the Directive since submission of the 2013 Application – no material change to the assessment;

- The Conservation of Habitats and Species Regulations (2017, as amended) replace the Conservation of Habitats and species Regulations (2010) – no material changes to the assessment;

- Wildlife and Countryside Act (1981, as amended) – there have been some amendments to the plants and animals listed under the various schedules to the Act since submission of the 2013 Application, for example additions to the list of invasive non-native species and introduction of Species Control Agreements and Orders under Schedule 9 of the Act. No material changes to the assessment are considered to result from these changes;

- The Countryside and Rights of Way Act (2000) – no changes to the legislation since submission of the 2013 Application – no material change to the assessment;

- The Natural Environment and Rural Communities Act (2006) – no changes to the legislation since the Order was made – no material change to the assessment;

- National Policy Statement EN-1 (July 2011) - No amendments have been published since the Order was made – no material change to the assessment;

- The NPPF (July 2018 and February 2019) – Supersedes NPPF 2012 – No material change to the assessment;

- North Lincolnshire Council Core Strategy was adopted in 2011. No amendments or updates have been published that would lead to a material change to the assessment.

- The East Marine Plan was adopted in April 2014. This was referenced in the Examining Authority's recommendation report to the Secretary of State. The ExA stated that '*The plan for the East Inshore Marine Area was formally adopted in April 2014. The ExA considers that there are no specific implications within this plan, for the ExA's consideration of the application offshore works and DML'*. As the proposed non-material change application does not include any physical changes to the Project, it is considered that the ExA's conclusion still applies – no material change to the assessment.

As set out above, some changes and updates to UK policies, legislation and guidance have been made. In the case of the Ecology and Biodiversity Assessment these do not significantly influence how the Project would be constructed, operated or decommissioned. As such, the original Ecology and Biodiversity assessment detailed in the ES remains valid.

5.5 Mitigation

The results of the baseline ecological surveys indicate that the mitigation measures specified and secured via the DCO and DML remain appropriate and should be delivered as part of the Project. All Requirements set out in the DCO and DML would remain in place as part of the proposed non-material amendment application. For clarity, the mitigation measures relevant to ecology and biodiversity are presented below in Table 5.2

This includes measures to avoid or mitigate effects on European Sites and SSSI, secured via Requirements 7, 8, 11, 12, 15, 19, 23, 25, 26, 30, 31, 48, 49, 50, and 51 of the made DCO, and Conditions 19 to 23 inclusive of the Deemed Marine Licence[13].

Table 5.2 - Mitigation measures for Ecology and Biodiversity

Requirement/Condition	Summary of Requirement/Condition
Requirement 7 of DCO	Requires a detailed landscaping scheme and management plan to be submitted and approved by the relevant planning authority prior to commencement.
Requirement 8 of DCO	Requires maintenance and management of landscape planting, with a five year aftercare period after vegetation has been planted
Requirement 11 of DCO	Requires a written plan for dealing with surface and foul water during construction to be submitted and approved by the relevant planning authority prior to commencement.
Requirement 12 of DCO	Requires a written plan for dealing with surface and foul water during operation to be submitted and approved by the relevant planning authority prior to commencement.
Requirement 15 of DCO	Requires a Construction Environmental Management Plan to be submitted and approved by the relevant planning authority prior to commencement. This to be substantially in accordance with the draft CEMP certified by the SoS as part of the original DCO.
Requirement 19 of DCO	Requires an acoustic design report to be submitted and approved by the relevant planning authority prior to commencement of construction of the power plant, to specify the detailed measures for the control of operational noise.
Requirement 23 of DCO	Imposes operational restrictions on noise levels at two locations on the northern edge of North Killingholme Haven Pits SSSI. A scheme for achieving this must be submitted and approved by the relevant planning authority in consultation with Natural England, prior to commencement. A programme of monitoring to ensure compliance is also proposed.
Requirement 25 of DCO	Requires a piling method statement to be produced prior to any piling operations commencing, for the purpose of protecting the North Killingholme Haven Pits SSSI and Humber Estuary SPA.
Requirement 26 of DCO	Requires a strategy for mitigating effects from construction on North Killingholme Haven Pits to be submitted and approved by the relevant planning authority in consultation with Natural England in relation to works 6a and 6b (fuel conveyer system). The strategy shall include: i) Restrictions on piling to be between the months of January to March only; ii) Details of screening including hoarding along the southern boundary of the works; iii) Retention of existing vegetation; and iv) Details of construction lighting to minimise lightspill to the North Killingholme Haven Pits.

[13] The deemed Marine Licence forms Schedule 7 of the made DCO (SI 2014 No. 2434. Infrastructure Planning – The North Killingholme Generating Station Order 2014.

Requirement/Condition	Summary of Requirement/Condition
Requirement 30 of DCO	Requires a written scheme for the management and mitigation of construction phase lighting to be submitted and approved by the relevant planning authority prior to commencement of construction.
Requirement 31 of DCO	Requires a detailed written permanent lighting scheme to be submitted and approved by the relevant planning authority prior to commencement of construction, including details of how impacts on ecological receptors will be avoided and minimised.
Requirement 32 of DCO	Requires a written scheme for the mitigation of impacts on bats to be submitted and approved by the relevant planning authority prior to commencement of the authorised development.
Requirement 33 of DCO	Requires a written scheme for the mitigation of impacts on water voles to be submitted and approved by the relevant planning authority prior to commencement of the authorised development.
Requirement 34 of DCO	Prohibits work to or removal of the pond in the north of the Operations Area until details of ecological enhancements to the pond in the south of the Operations Area have been submitted to and approved by the relevant planning authority and have been carried out in accordance with that approval.
Requirement 35 of DCO	Requires details of ecological mitigation measures in parcels 05/02 and 07/01 to the north-west of the Operations Area to be submitted and approved by the relevant planning authority prior to commencement of Works Nos. 2a (gasification plant) or 5 (railway siding and solid fuel unloading facility).
Requirement 48 of DCO	Requires a written scheme describing how train speeds adjacent to North Killingholme Haven Pits will be limited to 10km/h (or other measures to achieve comparable noise attenuation) to be submitted and approved by the relevant planning authority in consultation with Natural England prior to ant deliveries of solid fuel for the Project by train. Provisions for noise monitoring shall be included within the scheme.
Requirement 49 of DCO	Requires details of construction acoustic hoarding along the northern and western boundaries of the operations area to be submitted and approved by the relevant planning authority prior to commencement.
Requirement 50 of DCO	Requires a written scheme of planting (combined with other measures as appropriate) for the visual attenuation of train movements adjacent to North Killingholme Haven Pits to be submitted and approved by the relevant planning authority in consultation with Natural England prior to commencement of deliveries for the Project by train.
Requirement 51 of DCO	Requires a strategy for controlling noise levels during construction of Work Nos. 6a and 6b adjacent to North Killingholme Haven Pits to be submitted and approved by the relevant planning authority in consultation with Natural England in advance of those works commencing.
Requirement 19 of DML	Requires a scheme for minimising the impacts of the cooling water intake system in the Humber Estuary on the aquatic environment to be submitted and approved in writing by the MMO prior to licensed activities commencing. This shall include measures to minimise entrainment and entrapment of fish, details of the concentrations of biocides, and a process for monitoring and gaining approval from the MMO for any remedial measures that are identified as required during monitoring.

Requirement/Condition	Summary of Requirement/Condition
Requirement 20 of DML	Requires a piling method statement to be submitted and approved by the MMO in consultation with the Environment Agency and Natural England prior to commencement of piling operations.
Requirement 21 of DML	Requires that no percussive piling is carried out between 7 April and 1 June inclusive in any calendar year.
Requirement 22 of DML	Requires that any piling completed in March, September, or October, is not undertaken at low tide.
Requirement 23 of DML	Requires that no percussive piling is carried out before 0600 or after 2200hrs on any day.

As outlined in the Bats section above (Section 5.2), a bat roost was recorded in Building B5 within the Principal Project Area in 2019 (see bat survey report in Appendix 5.2). Mitigation measures in relation to bats were identified in the ES that accompanied the 2013 Application[14]. Under Requirement 32 of the Order, a Bat Mitigation Strategy must be approved by the local planning authority prior to implementation of the authorised development.

Building B5 is likely to be demolished to facilitate the construction and operation of the Project. As a result, a EPS licence will be required from Natural England under the provisions of the Conservation of Habitats and Species Regulations 2017 (or any legislation that supersedes it in future). The potential requirement for an EPS licence is identified under Requirement 32 (Part 4) of the Order. The licence would need to include details of necessary mitigation specific to the type of roost characterised. The roost has been characterised as a day roost of less than five common pipistrelle *Pipistrellus pipistrellus* bats.

Appropriate and proportionate mitigation for a bat roost of this nature is likely to include the provision of alternative places of shelter in the form of bat boxes. These would be erected on retained trees or buildings or be fitted to new buildings as appropriate. Such mitigation is tried and tested, with a long history of successful use across the UK both before and after publication of the ES. Such measures are simple to install, and they are unobtrusive.

Depending on the timing of building demolition, these works may also need to be completed with oversight from an appropriately qualified and licensed ecologist. This will depend on the season demolition occurs and on the results of any pre-construction surveys. Such measures are also considered standard practice as part of mitigation for the loss of bat roosts, and again have been deployed extensively across the UK both before and after the original ES was published.

Any such mitigation would be secured through discharge of existing Requirement 32 ('Bat Mitigation Strategy') of the Order, and through securing an EPS licence from Natural England as identified above prior to demolition of Building B5.

As set out in Section 6.2, the original assessment presented in the ES identified the possibility for low conservation significance roosts to become established in the future. Given this, and the ease of mitigating for the loss of the identified roost, there would be no

[14] C.GEN (2013) North Killingholme Power Project. Environmental Statement - Volume 1. Section 7 – Ecology and Biodiversity – pages 298 – 300.

significant residual effects on bat populations on the Site, or significant implications for the construction, operation, or decommissioning of the Project.

5.6 Impact Assessment

Taking into account the information outlined above, no new or materially different effects to those reported in the ES are predicted on ecology and biodiversity. There are no significant changes to the assessment of effects on designated sites, including Habitats Regulations Assessment (HRA) of European Sites. This includes in relation to updated in-combination effects, which are addressed in Section 10 – Cumulative Assessment. No EPS licences are expected to be required, other than those for which the potential need was identified in the original assessment (bats).

6 LANDSCAPE

6.1 Consultation

Consultation on the potential landscape and visual impacts has been carried out, as detailed in Table 6.1.

Table 6.1 - Consultation relating to LVIA

Date	Consultee	Notes
25th March 2020	Andrew Law, Strategic Development Officer and Andrea Brocklebank, Landscape Officer, North Lincolnshire County Council	Email setting out LVIA approach and request for any updates related to landscape policies, guidance, and baseline changes.
3rd April 2020	Andrew Law, Strategic Development Officer, North Lincolnshire County Council	Email confirming there have been no changes to landscape policy, landscape designations or baseline changes that are likely to affect the proposal. No issues to raise with the approach/assumptions set out in the previous email (25th March 2020).

6.2 Baseline

A desk based review of the baseline within the 15 km radius study area of the Application Site was undertaken in June 2019 and March 2020, with field studies undertaken in June and September 2019.

Viewpoint photographs were retaken in September 2019 to provide a comparison with the 2013 baseline and inform an assessment of the baseline changes. These are provided in Appendix 6.1 along with a commentary on the viewpoint changes.

The main changes to the landscape and visual baseline since the Order was made relate to the demolition of KPS-A in 2017 and the removal of stacks at Killingholme B Power Station ('KPS-B'). These lay in close proximity to the west and south west of the Application Site respectively and as such were a prominent part of the original landscape and visual baseline. It is considered that whilst the demolished structures contributed to the industrial character, it was within a much wider industrial extent that still remains and within which the Project will continue to be located.

There are also other small areas of change within the existing industrial areas in the study area, but these are not readily noticeable in the context of the Application Site and scale of the Project.

There are no other notable changes in baseline character and visual amenity that would have a bearing on the 2013 LVIA findings.

6.3 Policy, Legislation and Guidance

The changes in the 2018 and 2019 National Planning Policy Framework ('NPPF') from the 2012 version do not have a bearing on the approach or findings of the 2013 LVIA.

North Lincolnshire County Council are currently updating their Local Plan, but the adopted 2011 Core Strategy which was referenced in the 2013 LVIA remains valid. On review of the emerging information and local plan evidence there are no new policies or supplementary guidance relevant to landscape and visual issues and the Application Site.

There are no updates to landscape character assessments or landscape designations for the Application Site and Study Area.

The Guidelines for Landscape and Visual Impact Assessment by the Landscape Institute and IEMA were updated in 2013 just after the 2013 LVIA was undertaken. The main change it advocates is a different approach to establishing sensitivity of a receptor, now considering the receptor's susceptibility to change as well as its value. Whilst the approach to the preparation of the LVIA would be slightly different if written today, the latest guidance does not undermine the methodology and approach used in the 2013 LVIA or its findings.

6.4 Mitigation

No changes to mitigation relating to landscape and visual impacts are required.

6.5 Impact Assessment

Taking into account the information outlined above, no new or materially different effects to those reported in the ES are predicted on landscape and visual impacts.

7 NOISE AND VIBRATION

7.1 Consultation

Consultation on Noise and Vibration has been carried out, as detailed in Table 7.1.

Table 7.1 - Consultation relating to Noise and Vibration

Date	Consultee	Notes
08th April 2020	North Lincolnshire Council	Consultation was undertaken with the Environmental Health Officer at North Lincolnshire Council to seek any feedback on the methodology adopted to support the amendment application. The purpose of the application and a summary of the key findings were described. As part of this consultation we informed that it is our interpretation that no changes are needed to the DCO requirements in relation to noise and vibration.

7.2 Baseline

Additional baseline noise monitoring has been undertaken in June 2019 and March 2020 to enable a comparison with the noise assessment submitted as part of the original ES in March 2013 accompanying the 2013 Application.

The noise monitoring undertaken in 2019/2020 comprised both short-term attended measurements and long-term unattended measurements, taken at a selection of representative residential receptor locations, based on those reported in the ES noise assessment.

Table 7.2 presents a summary of the representative background noise levels measured during the 2019/2020 baseline noise monitoring.

Table 7.2 - Summary of representative background noise levels in 2019/2020

NSR ID	Description	Daytime LA90 dB (0700 to 2300)	Night-time LA90 dB (2300 to 0700)
1	Marsh Lane	35	32
3	Station Road	38	33
5	Swinster Lane	40	34
7	Brick Lane	38	40
8	Haven Pits SSSI Site	46	44

The results of the baseline noise surveys indicate that the noise climate has changed since the Order was made. Noise levels recorded in 2019 and 2020 show generally lower background noise levels compared to those reported in the ES.

Appendix 7.1 provides a baseline noise assessment, outlining the methodology and discussing results of baseline noise levels measured in 2019/2020. Noise monitoring forms and figures presenting the measured levels and locations are included within Appendix 7.1.

7.3 Policy, Legislation and Guidance

A description of current policy, legislation and guidance relating to the development is included within Appendix 7.1. Updates to guidance are noted since the Order was made, the relevant guidance update for noise relates to BS 4142:1997[15], which has been superseded by BS 4142:2014+A1:2019[16].

Some of the key aspects that have changed in the latest BS 4142:2014+A1:2019 are:

- The reference time interval for evaluating the specific sound over an appropriate reference time interval, *T*, is 1-hour during the day and 15-minutes during the night, whereas previously it was 1-hour for daytime and 5-minutes for night-time. Additionally, it is noted that the measurement interval time for background sound levels should comprise measurements of normally not less than 15-minute intervals.

- The latest version comprises several acoustic character corrections determined via objective and subjective methods, which may be applied depending on the nature of the source. These character corrections relate to tonality, impulsivity, intermittency and other sound characteristics, the penalties are generally based on an increasing scale proportionate to the prominence of the acoustic feature. Whereas previously the application of a general 5 dB correction was applied if one or more acoustic features occurs.

- The assessment of impacts method provides new guidance text relating to the indication of an adverse impact, and significance, for the assessed sound; depending upon the margin by which the rating level of the specific sound source exceeds the background sound level and the context in which the sound occurs. Examples are given to illustrate the pertinent factors that may be considered in terms of context. Previously the guidance referred to the 'likelihood of complaints' based on the difference between background sound and rating level, with less opportunity to consider the context.

- Additional guidance such as BS 8233:2014[17] has been published since the Order was made and these are also considered within Appendix 7.1, it provides guidance for acceptable internal noise levels within residential dwellings. Guidelines for internal noise levels have been discussed in relation to the baseline noise monitoring results in Appendix 7.1.

7.4 Mitigation

Mitigation in relation to noise has been implemented in the form of operational noise limits at the boundary of the Site in the ES. In turn, this has been captured in the Order as operational noise limits at the receptor as specified by Requirement 20 'Control of noise during operation'.

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[15] BS 4142:1997 Method for rating industrial noise affecting mixed residential and industrial areas

[16] BS 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound

[17] BS 8233:2014 Guidance on sound insulation and noise reduction for buildings

There is no change proposed to the operational noise limits as a result of the amendments described in this application.

7.5 Impact Assessment

Appendix 7.1 provides discussion in relation to the new baseline noise levels obtained within the 2019/2020 survey. Context has been provided related to the internal noise levels likely to be achieved with the plant in operation.

Noise levels associated with the operation of a generating station as an IGCC plant (referred to as 'Scenario E' within the original ES) has been considered as a worst case. Based on the updated background levels and operation of 'Scenario E', it was found that noise levels would not exceed the background noise level by more than 5 dB at most receptors. Therefore, not exceeding the significance threshold set out in the original ES assessment.

It was found that operational noise levels at sensitive receptor Marsh Lane would exceed the threshold of 5 dB above background, due to the updated background noise levels being lower than the original ES. Adopting guidance presented in BS 4142:2014, this is likely to be an indication of an adverse impact, depending on the context.

An estimate of internal noise levels has been undertaken to consider a reasonable worst-case reduction of noise levels due to a partially open window. This results in an internal noise level of less than 30 dB(A) which is the recommended value for acceptable noise levels within bedrooms, as indicated by BS 8233:2014. This indicates that the operational noise effect would be not significant.

Taking into account the information outlined above, it is considered that no changes are needed to the DCO Requirements in relation to noise as a result of changes to the baseline noise climate.

Taking into account the information outlined above, no new or materially different effects to those reported in the ES are predicted on noise and vibration.

8 TRAFFIC AND TRANSPORT

8.1 Consultation

Consultation on traffic and transport has been carried out with North Lincolnshire Council (NLC), North East Lincolnshire Council (NELC), and Highways England as detailed in Table 8-1.

Table 8.1 - Consultation relating to Traffic and Transport

Date	Consultee	Notes
8th April 2020	North Lincolnshire Council	Transport Scoping Note issued to inform NLC, NELC, and Highways England of the current status of the proposed amendments to C.GEN Killingholme Limited's (C.GEN) project for the construction of a new 470MWe thermal generating station at North Killingholme, North Lincolnshire.
	North East Lincolnshire Council	
	Highways England	
15th April 2020	North East Lincolnshire Council	Inception call to discuss the project and NELC's initial comments on the Transport Scoping Note.
22nd April 2020	Highways England	Inception call to discuss the project with Highways England and their initial comments on the Transport Scoping Note.
22nd April 2020	North Lincolnshire Council	Inception call to discuss the project and NLC initial comments on the Transport Scoping Note.
15th June 2020	Updated Transport Scoping Note	An updated Transport Scoping Note was issued to NLC, NELC and Highways England to update on the approach taken regarding the updated baseline traffic flows, committed highway improvement schemes and the status of committed developments.
18th June 2020	North Lincolnshire Council	Conference call to discuss the content of the Updated Transport Scoping Note and to address any outstanding consultee comments. It was agreed in principle with all parties that the extension of time was considered to be a non material amendment and the existing mitigation could be updated to manage any impacts in the context of the revised baseline.
	North East Lincolnshire Council	
	Highways England	

8.2 Baseline

Development Scenarios

The Traffic and Transport chapter contained in the ES and Core Scenario Transport Assessment ('TA') (ES Appendix 12.1) considered the following development scenarios:

- Scenario A – (Construction of Power Island and Common Facilities only) was estimated for completion in 2016 and was set to generate the lowest number of construction worker trips at 600, no operational staff trips, 150 Heavy Goods Vehicles (HGVs) and 35 Light Goods Vehicles (LGVs).

- Scenario B – this was the operational phase as an CCGT Plant with an opening year of 2016. It was estimated that there would have been 20 shift workers and 15 office workers within this scenario. The arrival and departure profiles of both worker types differ owing to the shift timings.

- Scenario C – (Construction of Power Island with the Gasification Plant and Common Facilities) was scheduled for completion in 2016 and included the highest number of construction worker trips at 1,600 which was anticipated to generate 500 HGVs, 120 LGVs and no operational staff trips.

- Scenario D – (Operation of Generating Station as CCGT Plant with subsequent construction of the Gasification Plant) was scheduled for completion in 2019 and was anticipated to generate 1,000 construction worker trips, 35 operational staff trips, 250 HGVs and 85 LGVs.

- Scenario E – this was the operational phase as an IGCC Plant with an opening year of 2019. It was estimated that there would have been 100 shift workers and 40 office workers within this scenario. The arrival and departure profiles of worker types differ owing to the shift timings.

The development scenarios and traffic generated by the Project is predicted to be in accordance with the previous assessment considered as part of the Application. However, the peak construction years will be later than originally anticipated.

DCO Study Area

The study area agreed with NLC, NELC, and Highways England extends to include the following junctions:

1. A180/A160 Interchange (Junction 1);

2. A160 Humber Road / Habrough Road Roundabout (Junction 2);

3. A160 Humber Road / Eastfield Road (Junction 3);

4. A160 Humber Road / A1173 Manby Road Roundabout (Junction 4);

5. A1173 / Kings Road Roundabout (Junction 5);

6. A1173 / Kiln Lane Roundabout (Junction 6);

7. A180 / A1173 Grade Separated Junction (Junction 7);

8. Chase Hill Road / Rosper Road Junction (Junction 8); and

9. Chase Hill Road / Eastfield Road Junction (Junction 9).

The study area includes all the junctions assessed as part of the Order. The changes to the baseline traffic conditions and development trips are considered in the following sections.

Predicted Trip Generation

Background

The ES and TA considered the vehicle trip generation associated with each of the assessment scenarios. The parameters used to derive the number of vehicle trips associated with each development scenario comprised the following:

- Number of construction workers;
- Number of operational workers;
- Number of HGVs; and
- Number of LGVs.

The following sections analyse the predicted trip generation associated with the operational (Scenario B and E) and construction (A, C and D) scenarios.

Operational Scenarios (B and E)

A summary of the two operations related development scenarios (B and E) and their respective daily trip generations are outlined below:

- Scenario B – this was the operational phase as a CCGT Plant with an opening year of 2016. It was estimated that there would have been 20 shift workers and 15 office workers within this scenario. The arrival and departure profiles of both worker types differ owing to the shift timings.
- Scenario E – this was the operational phase as an IGCC Plant with an opening year of 2019. It was estimated that there would have been 100 shift workers and 40 office workers within this scenario. The arrival and departure profiles of worker types differ owing to the shift timings.

Table 8-2 outlines the estimated staffing numbers for Scenario B and E.

Table 8.2 - Estimated Staffing Numbers

Scenario	B	E
Peak Construction Year	2016	2019
Shift Workers (Person trips)	20	100
Office Workers (Person trips)	15	40

It was anticipated that the shift patterns in the operational scenarios would be 06:00 – 14:00 and 14:00 – 22:00, therefore the arrival and departure profiles lay outside the peak hours peak hours of 07:00 - 08:00 and 16:00 - 17:00.

Office workers were expected to arrive between 08:00 and 10:00 and depart between 17:00 and 19:00, which also lie outside the peak hour periods. Therefore, none of the operational traffic is to be generated on the local road network during the peak periods. However, as a sensitivity test the assessment considered a scenario which allows office workers to arrive and depart based on the existing flow profile in the area. Table 8-3 shows the estimated arrival and departure profile for office workers arriving and departing during the AM (06:00 – 10:00) and PM (16:00 – 20:00) peak periods.

Table 8.3 - Estimated Trip Arrival and Departure Profile for Office Workers

Scenario	B		E	
Time	**Arrival**	**Departure**	**Arrival**	**Departure**
AM (0600 – 10:00)				
06:00 – 07:00	3	0	8	0
07:00 -08:00	6	0	15	0
08:00 – 09:00	4	0	10	0
09:00 – 10:00	2	0	6	0
PM (16:00 – 20:00)				
16:00 -17:00	0	6	0	15
17:00 -18:00	0	5	0	13
18:00 -19:00	0	3	0	8
19:00 – 20:00	0	2	0	4

Based on the measures within the Interim Construction Worker and Operational Worker Travel Plan (ES Appendix 12.1) and the existing traffic flow profile in the area, the Core Scenario Transport Assessment demonstrated that if office workers were to arrive across a four-hour period, the impacts would be negligible. Based on the low numbers of additional trips no further assessment of the operational scenarios were considered.

Construction Scenarios (A, C, and D)

A summary of the three construction related development scenarios (A, C, D) and their respective daily trip generations are outlined below:

- Scenario A – (Construction of Power Island and Common Facilities only) was estimated for 2016 and was set to generate the lowest number of construction worker trips at 600, no operational staff trips, 150 HGVs and 35 LGVs.

- Scenario C – (Construction of Power Island with the Gasification Plant and Common Facilities) was scheduled for completion in 2016 and included the highest number of construction worker trips at 1,600 which was anticipated to generate 500 HGVs, 120 LGVs and no operational staff trips.

- Scenario D – (Operation of Generating Station as CCGT Plant with subsequent construction of the Gasification Plant) was scheduled for completion in 2019 and was anticipated to generate 1,000 construction worker trips, 35 operational staff trips, 250 HGVs and 85 LGVs.

Estimations of the daily trip generations for each construction scenario assessed within the Core Scenario Transport Assessment are shown in Table 8-4.

Table 8.4 - Daily Trip Generation

Scenario	A	C	D
Peak Construction Year	**2016**	**2016**	**2019**
Construction Workers (Person trips)	600	1,600	1,000
Operational Staff (Person Trips)	0	0	35
HGVs	150	500	350
LGVs	35	120	85

It was anticipated that the typical working day would commence at 07:00 and to end at 19:00, whereby all personnel on site will work a 9-hour period within this timeframe. Therefore, all construction worker-related trips were estimated to arrive between 06:00 and 10:00 and depart the site between 16:00 and 20:00.

Based on the daily trip generations and occupancy assumptions within the TA, Table 8-5 outlines the peak hour trip generation for each construction scenario.

Table 8.5 - Peak Hour Trip Generation

Trip Generation		**Scenario:**	**A & D**	**C**	**D**
		Year:	**2016**	**2016**	**2019**
AM Peak	Arrive	Cars - Construction Workers	115	307	192
		Cars- Operational Staff	0	0	4
		HGVs	13	42	29
		LGVs	3	10	7
		Total	**131**	**359**	**232**
	Depart	Cars - Construction Workers:	0	0	0
		Cars - Operational Staff	0	0	4
		HGVs	0	0	0
		LGVs	0	0	0
		Total	**0**	**0**	**4**
PM Peak	Arrive	Cars - Construction Workers:	0	0	0
		Cars - Operational Staff	0	0	4
		HGVs	13	42	29
		LGVs	3	10	7
		Total	**16**	**52**	**36**
	Depart	Cars - Construction Workers:	111	297	186
		Cars - Operational Staff	0	0	4
		HGVs	13	42	29
		LGVs	3	10	7
		Total	**127**	**349**	**326**

The predicted trip generation was used in the assessment of the development impacts on local and strategic road network within the identified study area.

The construction scenarios were modelled for the junctions within the study area and demonstrated that all junctions were forecast to operate within the theoretical RFC and queue length capacity thresholds without the requirement for additional highway mitigation. The ES and TA concluded that the traffic generated by construction activities of each of the three development scenarios (A, C and D) could be accommodated on the road network and would be manageable at the peak of construction without the requirement for any additional junction improvements.

Baseline Traffic Conditions

The baseline for traffic transport assessed in the ES in relation to the operation of the highway network and it concluded that the increase in traffic could be accommodated on the highway network during the peak construction years of 2016 and 2019, allowing for growth in traffic and taking into consideration planned capacity enhancements to the highway network including upgrading the A180/A160 corridor.

It is now anticipated that construction will commence in Q1 2022 with the peak construction year occurring between 18 and 36 months following commencement of works at the site. Following discussions with the highway authority it has been agreed to assess the impacts in 2025 and 2028.

It is therefore acknowledged that the baseline environment will have changed since the initial assessment set out in the ES with respect to background traffic growth, committed highway schemes, and committed development. However, all other aspects associated with the Project remain unchanged in therefore the estimated level of trip generation is assessed in the Order.

The changes to the baseline traffic conditions are described in detail in the attached Transport Statement including confirmation of the study area, background growth, review of committed highway schemes, and review of committed developments. The changes to the baseline traffic conditions have been discussed and agreed with the highway authorities for assessing the impacts of extending the time to implement the DCO and are set out in detail in Appendix 8.1.

8.3 Policy, Legislation and Guidance

A review has been undertaken to determine changes in national policy relating to transport since the Order was made:

- National Policy Statement EN-1 (July 2011) - No amendments have been published since the Order was made that would have a material impact on the Project;

- NPPF (July 2018 and February 2019) – Supersedes NPPF 2012 – No amendments or updates have been published that would have a material impact on the Project;

- Guidance on Transport Assessments (March 2007) - Withdrawn in October 2014 and superseded by Planning Practice Guidance (PPG) – Travel Plans, Transport Assessments and Statements (March 2014). No material impact to assessment.

- DfT Circular 02/2007 Planning and the Strategic Road Network – Superseded by the DfT's Circular 02/2013 Strategic Road Network and the Delivery of Sustainable Development. No amendments or updates have been published that would have a material impact on the Project;

A review has been also undertaken to determine changes in local policy relating to transport since the Order was made:

- North Lincolnshire Council Core Strategy was adopted in 2011. North Lincolnshire County Council are currently updating their Local Plan, but the adopted 2011 Core Strategy which was referenced in the 2013 ES remains valid. No amendments or updates have been published that would lead to a material change to the assessment.

- North Lincolnshire Local Plan 'Preferred Options' (February 2020) – The North Lincolnshire Local Plan will replace the North Lincolnshire Council Core Strategy and the Housing and Employment Land Allocations Development Plan Documents (DPDs) when formally adopted. The Local Plan is at the Preferred Options Stage and the emerging polices are not considered to have a material change to the assessment.

- North Lincolnshire Council – The 2013 Application made reference to A Guide to Travel Planning (2006). New guidance notes for the Preparation and Implementation of Development Travel Plans (2018) have been published. The Interim Construction Worker and Operational Worker Travel Plan would be updated to reflect the latest guidance and best practice as part of the monitoring review process;

- North Lincolnshire Council Interim Planning Guidance South Humber Gateway Contributions (April 2011) – No longer relevant.

- North Lincolnshire Local Transport Plan (2011-2026) - No amendments have been published.

Overall it is considered that the changes to national and local policy, legislation, and guidance documents that have occurred since the Order was made do not affect the assessment of the transport impacts.

8.4 Mitigation

As part of the original Order it was accepted physical mitigation was not required to mitigate the impacts of the Project; however, the Order included details of how the elements of the authorised development to be constructed would be managed through:

(i) the CEMP;

(ii) a travel plan for construction workers and a travel plan for operational workers which has been submitted to and approved by the relevant planning authority;

(iii) a management plan for construction traffic addressing construction traffic, HGV movements and abnormal loads which has been submitted to and approved by the relevant planning authority; and

(iv) a management plan for operational transport which has been submitted to and approved by the relevant planning authority;

This controls represented by these documents remain valid and it has been agreed the Travel Plan and Management Plan's would need to be updated to reflect latest best practice and local conditions prior to construction commencing should the extension of time be granted. It has been discussed that this could include consideration of the following measures:

- Route Choice (Workers) - agreements for staff currently all employee trips turn left at Eastfield - use information to encourage split between routes East Halton Road / Humber Road / Eastfield Road

- Offset Shift patterns (Workers) – The trip generation is based on the total number of trips proportioned by total volume of traffic on the road network between 06:00 – 10:00 and 16:00 – 20:00, with the peak coinciding with the network peak hour. It is considered that trips could be offset so staff arrive and depart before or after the AM and PM peak hour as discussed earlier in this report.

- Construction Vehicles – Import of construction materials and export of waste material. Greater emphasis could be placed on encouraging trips in the inter peak period when traffic volumes are significantly lower. This would include the use of laydown areas within the Project site.

- Sustainable Travel Measures - Implementation of sustainable measures to reduce the number of vehicle trips, this could include a range of initiatives and could be monitored.

It is considered there is sufficient flexibility to amend the documents to the satisfaction of the relevant highway authority to ensure the traffic and transport impacts remain valid.

8.5 Impact Assessment

The traffic generated by the scheme is predicted to be in accordance with the previous estimates assessed as part of the Order, but the peak construction year will be delayed from 2016/19 to 2025/28. The Transport Statement contained within Appendix 8.1 has considered the impacts of this delay in the construction programme and reviewed the baseline traffic conditions with reference to a variety of traffic sources.

In summary the assessment has indicated that the temporary increase in traffic flows associated with the peak construction year will be a maximum of 15% of the total volume of traffic through any one junction during the AM and PM peak hour, ranging between 2% and 15% across the study area.

The link flows have been compared with those within the Highways England Traffic Flows Forecasting report which showed the assessment flows were generally within Highways England High Growth scenario. It is also noted that the increase in traffic flows associated with background growth and committed development on a network with increased capacity will result in the development traffic being a smaller proportion of the overall traffic volumes thereby diluting the environmental impacts of the Project.

It is considered that this increase in the context of the temporary nature of the traffic impact, and the anticipated longer-term growth on the network as indicated by the Highways England Traffic Forecast Growth Report, is acceptable and has been agreed with NLC, NELC, and Highways England.

It has been agreed with NLC, NELC, and Highways England that the changes to the baseline are not expected to have a material impact on prevailing traffic conditions on the local road network and the embedded mitigation previously approved as part of the Order can be updated to manage the traffic impacts during the construction programme. The Order requires the control measures to be approved prior to construction.

It is considered that the embedded mitigation can be updated with amended measures/monitoring to satisfy the highway authorities that the impacts could be managed to acceptable levels. It is anticipated this will include demand management measures to reduce the impact during the peak hours by utilising the available highway capacity on the shoulder of the peak hour, particularly during the AM peak hour. As agreed with highway officers of NLC, NELC and Highways England it is considered proportionate and reasonable to rely on the embedded mitigation and subsequent updates.

Taking into account the information outlined above, no new or materially different effects to those reported in the ES are predicted on traffic and transport.

8.6 Conclusions

As agreed with the highway authorities although the baseline has changed it is considered that significance of the impact have not materially changed since the granting of the DCO and the mitigation is sufficiently flexible to mitigate any impacts. As such, no updates to the Environmental Statement are required as the impacts of the proposed changes are considered to be non-material.

9 FLOOD RISK

9.1 Consultation

Consultation on Flood Risk has been carried out, as detailed in Table 9-1.

Table 9.1 - Consultation relating to Flood Risk

Date	Consultee	Notes
29th April 2020	Environment Agency	The Environment Agency were contacted in April 2020 and asked to confirm if there have been any updates / changes since the 2013 Flood Risk Assessment was completed. The following questions were raised with the Environment Agency. 1. Have there been any updates to the hydraulic model for both fluvial and tidal flood risks? 2. Have there been updates to the breach analysis? 3. Have there have been any works to amend/improve flood defences in the North Killingholme area? 4. Is there any updated modelling (for fluvial, tidal or breach) and if this has included updated climate change allowances released in 2016? 5. Are there are any planned updates in the pipeline, including updates following the (assumed to be imminent) UKCP19 updates.
12th May 2020	Environment Agency	The Environment Agency confirmed the following key points. Refer to Appendix 9.1 for the letter. 1. **Tidal:** The Environment Agency are working on an update to the Humber Water Levels and this will be released later in 2020. **Fluvial**: No fluvial updates that will impact the site. 2. Allowances for sea level rise due to climate change were updated in December 2019 based on the UKCP18 projections. 3. The breach analysis and coastal hazard mapping has not been updated since 2013. 4. Phase 2 works have not commenced yet. 5. Refer to the responses for questions 1 and 2. 6. Updated coastal hazard mapping could potentially start in 2020 subject to funding. The results of the data would be available in 1-2 years.

9.2 Baseline

The fluvial and tidal sections of March 2013 Flood Risk Assessment (FRA) have been reviewed. It was assumed that there would be no changes to other sources of flooding those being surface water, groundwater and reservoir flooding and therefore these sources have not been reviewed. The fluvial and tidal assessments have been reviewed to determine whether the risk of flooding from these sources would need to be updated due to changes in the climate change guidance.

The 2013 FRA was informed by the flood mapping and information on the existing flood defences obtained from the Environment Agency (EA) and North Lincolnshire Council. The EA has been re-consulted in April 2020 to check the following:

- If updated hydraulic modelling for both fluvial and tidal flood risks have been completed by the EA since the original FRA was prepared;
- If updated breach analysis has been undertaken since the original FRA was completed;
- If they have been any works to amend/improve flood defences in the North Killingholme area.

The EA confirmed that there have been no changes to the fluvial or tidal hydraulic modelling that would impact the site since the 2013 FRA was completed. The EA advised that no works to amend or improve the existing flood defences have been carried out since 2013. However, the allowances for sea level rise due to climate change (based on the UKCP18 projections) were updated in December 2019 and these should be considered for breach scenarios. The May 2020 letter from the EA is provided in Appendix 9.1. Considering the above information, the risk of tidal flooding, the risk of overtopping and hazard mapping assessed in the 2013 FRA are considered valid. The changes to the breach scenario are outlined below.

Breach Scenario

A review was carried out to determine if the updated 2019 climate change allowance for sea level rise has a significant impact on the breach scenario levels estimated in the 2013 FRA. Considering the design life of the plant to be 30 years, the increase in risk of breach on overtopping Sections 21 and 20 was calculated for up to year 2050.

The wave height climate change guidance has not been updated since the 2013 FRA was produced. The wave heights calculated as part of the 2013 FRA, therefore, are considered valid and have been used in the 2020 review of sea level rise.

The 2006 wave height, still water levels and still water level with wave height were extracted from Appendix B of the 2013 FRA. This information was originally extracted from the EA's Overtopping Report (2010)[18]. The 2019 climate change allowance for sea level rise[19] was added to the 2006 flood levels to calculate the flood levels up to year 2050. The comparison of the 2013 results with the 2020 results of the exercise show an increase of maximum 0.02m sea level rise during a breach overtopping within Sections 21 and 20 for up to and including year 2050. The increase is insignificant; therefore the conclusions of the FRA and the Environment Impact Assessment completed in the 2013 FRA are still valid. The calculations based on the 2019 climate change allowance for sea level rise are shown in Appendix 9.2.

9.3 Policy, Legislation and Guidance

There have been no changes to the National Policy Statement for Energy (EN-01) since its publication date of July 2011.

The changes in the 2018 and 2019 National Planning Policy Framework ('NPPF') from the 2012 version do not have a bearing on the approach or findings of the 2013 FRA.

North Lincolnshire County Council are currently updating their Local Plan, but the adopted 2011 Core Strategy which was referenced in the 2013 FRA remains valid.

The SuDS and Flood risk Guidance document was published by North Lincolnshire Council in April 2017. The purpose of the guidance document is to provide developers and designers with guidance on SuDS that are expected to be submitted with planning applications to North Lincolnshire Council. It

[18] Northern Area Tidal Modelling Volume 3: Overtopping Flood Mapping, December 2010, Environment Agency.

[19] https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances accessed June 2020.

is based on the 2016 SuDS Manual and in conjunction with NPPF. The guidance does not change the proposed surface water drainage strategy in the 2013 FRA which includes the re-use of water within the plant.

The North and North East Lincolnshire Strategic Flood Risk Assessment has not been updated since 2011.

9.4 Mitigation

No changes to mitigation relating to Flood Risk impacts are required.

9.5 Impact Assessment

Taking into account the information outlined above, no new or materially different effects to those reported in the ES are predicted on flood risk.

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10 CUMULATIVE IMPACTS

10.1 Introduction

This chapter reports the changes since the 2013 Application of the assessment of likely cumulative effects. A review of existing effects will be conducted and where different or new effects occur as a result of the Proposed Scheme these will be documented.

The chapter describes the cumulative assessment methodology, baseline conditions (e.g. the short list of other projects to be considered cumulatively with the Proposed Scheme), the baseline conditions and an assessment of likely significant effects for each key discipline.

This chapter is supported by Figure 10.1, which shows "other developments" considered within the cumulative assessment.

The 2013 application ES was prepared in accordance with the EIA Regulations 2011 and best practice guidance. The following types of cumulative effects were assessed within the 2013 Application:

- Type 1 (in-combination) – These are combined effects of different types of impact from the Project on a single receptor. For example: noise, dust and visual impacts resulting from construction and operation of the development.

- Type 2 (cumulative) - These are impacts from other planned developments considered together with the Project which individually may be insignificant, but when considered together could form a significant cumulative impact. For example: cumulative traffic impacts from two or more proposed developments.

Type 1 (in-combination) Effects

No changes to the consented parameters of the Project are proposed and no new receptors have been identified. Type 1 effects stated within the 2013 Application are, therefore, still valid and no changes are expected to the significance of environmental effects described in the ES. Thus, type 1 are not considered further within this report.

Type 2 (cumulative) Effects

The Type 2 effects are associated with the approval or construction of other developments. Since the 2013 Application a number of developments have been constructed, withdrawn or refused and are therefore no longer relevant to the assessment and new developments have come to fruition that may present type 2 effects with the Project. Developments that were considered in the cumulative assessment in the ES but have now been constructed are now considered in the updated baseline sections of this report where relevant.

The following section outlines how the Type 2 effects have been reviewed and the process for identifying new developments that may present effects.

10.2 Methodology

'Other developments' previously assessed for Type 2 effects as part of the 2013 Application

The methodology for assessment of Type 2 effects within this Chapter is twofold. Initially, the 'other developments' that were presented within the 2013 Application ES have been

reviewed to identify whether these developments are still relevant and may still present cumulative effects with the Proposed Scheme. **Table 9.1** presents the 'other developments' with a column identifying the current status of these and whether they require inclusion. Should they still be deemed relevant for inclusion, they are considered in further detail within the Assessment section of this Chapter.

New 'other developments' that require assessment for Type 2 effects

The second part of the assessment identifies any new developments that have come forward since the 2013 Application that may present Type 2 effects.

For consistency, the approach for assessing new 'other developments' will follow the same process as the 2013 Application. The approach to Type 2 effects contained within the 2013 Application broadly followed the Planning Inspectorate Advice Note 17[20] 'Cumulative effects assessment relevant to nationally significant infrastructure projects' (updated in August 2019) which sets out a four-stage approach to assessment of cumulative effects:

- Stage 1: identify the Zone of Influence and identify long list of "other developments";
- Stage 2: identify short list of "other developments" for cumulative assessment;
- Stage 3: information gathering for "other developments"; and
- Stage 4: assessment.

A review of planning applications submitted to North Lincolnshire Council, North East Lincolnshire Council and the Planning Inspectorate as part of the National Infrastructure Planning since the 2013 Application was conducted to identify potential projects that could give rise to Type 2 effects with the Proposed Scheme.

Applicable projects for consideration of Type 2 effects have been determined using the following criteria:

- Projects that are under construction;
- Permitted application(s) not yet implemented;
- Submitted application(s) not yet determined;
- All refusals subject to appeal procedures not yet determined; and
- Projects identified in the relevant development plan (and emerging development plans).

Each of the projects identified have then be evaluated to determine whether the following criteria are met:

- Is there a concurrent construction or operational phase with the Proposed Scheme?
- Is the project within a relevant geographical boundary to the Proposed Scheme?

[20] The Planning Inspectorate (2019). Cumulative Effects Assessment. Available online at: https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf. Last accessed 27/05/2020.

- Is there potential that the Proposed Scheme shares common sensitive receptors with the project(s)?

Results have been filtered in order to find suitable 'other developments' based on the following:

- Application decision, including decision pending, approved / granted (with or without conditions), reserved matters application and decisions appealed but undetermined;

- Applications that are of a suitable equivalent (i.e. applications for residential development of 10 or more homes; industrial, commercial or retail based applications over 500sqm; and significant infrastructure based applications; and

- Common receptors, only those applications with identifiable common receptors.

For the 2013 Application, the initial screening exercise (stage 1 of the cumulative effects assessment) was undertaken to identify potential "other developments" within a 15km radius to create an initial long list for consideration. In addition, although the above criteria have been used to help screen applications, in line with Planning Inspectorate Advice Note 17 and the size of the project, the applications considered have been reduced further to remain proportionate with the size of the project.

All available documentation submitted in support of the projects has been reviewed to identify programmes, sensitive receptors and relevant effects to determine the projects that should be considered further.

10.3 Baseline

Type 1 Effects

As outlined in Section 9.1, no physical changes have been proposed to the consented Proposed Scheme and no new receptors identified there for Type 1 effects are not considered further within the assessment.

Type 2 Effects

'Other developments' previously assessed for Type 2 effects as part of the 2013 Application

Table 9.1 presents the 'other developments' assessed as part of the 2013 Application. A column is provided at the end of the table which forms an update of the status of these applications and if they are still considered relevant to the assessment. For applications still deemed relevant an assessment is provided below as to their potential impacts.

Table 10.1 'Other developments' considered within the 2013 Application

Name	Description	Planning Stage	Update	Included in current Assessment
Heron Renewable Energy Plant, Drax	290 MW dedicated biomass-fired renewable energy plant on a site at the south west edge of the Port of Immingham. The renewable energy plant will consume approximately 1.4 million tonnes of biomass per year, with the biomass fuel being transferred to the site via conveyors from off-loading facilities provided by the Port of Immingham.	Decided – dropped by Developer	Drax dropped plans for 300MW dedicated biomass plant in Immingham to focus on converting its coal plant in 2012.[21]	No
Reality Energy Centre, Real Ventures	Construction of 49MW Biomass Combined Heat and Power Facility - the Reality Energy Centre (Immingham) - comprising plant and equipment (boiler, fuel store, turbine, air cooled condensers, utilities, 77m high flue and high level conveyor from dock) and supporting buildings (workshop, office space), to include the demolition of existing buildings on site.	Decided – approved with conditions	Planning permission expired.	No
Able Marine Energy Park, Able UK	The nationally significant infrastructure project is a quay of solid construction on the south bank of the River Humber together with an ecological compensation scheme comprising both temporary and permanent habitat creation on the opposite bank. Associated development includes dredging and land reclamation, onshore facilities for the manufacture, assembly and storage of marine energy installation components. Ancillary matters include compulsory purchase of land, harbour regulation and the diversion of two footpaths.	Decided – approved.	Under construction. This development was consented by PINS in 2014, with Able UK seeking a variation to their marine licence in 2017. A bespoke port facility including heavy duty deep water quays to facilitate the renewable sector specialising in offshore wind. The facility has the flexibility of being open 24 hours / 7 days a week.	Yes
Able Logistics Park, Able UK	The site comprises of 497.5 ha with planning permission for warehousing (1,700,000m2), external storage and transportation.	Decided – approved.	Under construction.	Yes
URSA Glass – Wool Production	Glass wool insulation product manufacturing plant, including storage, landscaping, and access.	Application withdrawn	This development was granted planning permission in 2008 for a glass wool manufacturing facility. The planning permission expired in 2011 and the application was made to extend the time limit. URSA withdrew this planning application in 2012.	No
A160 Highways Improvements Highways Agency	The A160 is approximately 3 miles (5.2 km) long and runs from the A180 (north west of Habrough) to the eastern edge of the Philips66 Humber Oil Refinery. It includes sections of both single and dual carriageway and is located approximately 3 km south of the Operations Area at its closest point. The Highways Agency proposes to undertake improvements along the A160 in order to: Improve access to the Port of Immingham; Relieve congestion and improve journey times on the A160; and • Improve safety for both road users and local residents. • Initially, eight improvement options were developed which would allow the A160 to be upgraded to a dual carriageway standard throughout. Each of the eight options proposed alternative layouts for the main junctions along the A160.	Completed	Upgrade 5km of the A160, the works were completed Spring 2017. The objective of the works were to improve access to the Port of Immingham, relieve congestion of the A160 and improve safety to road users and residents.	Yes (see Section 8: Traffic and Transport)

[21] https://utilityweek.co.uk/drax-drops-plans-for-dedicated-biomass-plant-and-raises-163190-million-to-convert-from-coal/ (accessed 28/05/2019).

Smart Wind – Hornsea Offshore Wind Farm (Zone 4) Projects 1 and 2	Hornsea 1 is expected to be the world's biggest offshore wind farm and is forecast to be finished by Q1 2020 generating up to 1,218MW of electricity .	Decided – approved.	Under construction. Expected to be constructed by 2020. Expected to be fully operational by 2022.	Yes
Smart Wind – Hornsea Offshore Wind Farm (Zone 4) Projects 3 and 4	Development of the Hornsea Project Three offshore wind farm with an approximate capacity of up to 2,400MW off the coast of Norfolk. This is within the area known as Zone 4, under the Round 3 offshore wind licensing arrangements established by The Crown Estate	In planning	Decision on application expected 31st December 2020.	Yes

New 'other developments' that require assessment for type -2 cumulative effects

Table 10.2 below presents the 'other developments' that have come forward since the 2013 Application, meet the criteria described in the methodology section and are proportionate to the Proposed Scheme.

Table 10.2 'Other developments' to be assessed in this Chapter

Name	Planning App. Number	Description	Planning Stage
North Beck Energy Centre	DM/0026/18/FUL	Erect an Energy Recovery Facility with an electricity export capacity of up to 49.5MW and associated infrastructure including a stack to 90m high, parking areas, hard and soft landscaping, access road, weighbridge facility and drainage infrastructure.	Decided - Approved Conditions and Signing of S106
VPI Immingham OCGT	PA/SCO/2018/3	Construction, operation and maintenance of a new gas-fired power station with an output capacity of 299MW, on land adjacent to the Combined Heat and Power Plant on Rosper Road, South Killingholme.	In planning (Examination closed on 8th February 2020)
Land at the east end of Lancaster Approach	PA/2018/1703	Planning permission sought for change of use of lane to erect a workshop, office accommodation, fencing, and a lorry park.	Decided - Approved
Altalto Jet Fuel	DM/0664/19/FUL	Development of a sustainable transport fuels facility, including various stacks up to 80m high, creation of new accesses, installation of pipe lines, rail link, associated infrastructure and ancillary works (Environmental Statement Addendum April 2020).	Awaiting Decision
South Humber Bank Energy Centre	DM/1070/18/FUL	Construction of an energy from waste facility of up to 49.9MWe 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.	Decided – Approved with Conditions
Queens Road Estate, Immingham	DM/1027/13/OUT	Proposed Outline development of site E1/3 in the NELC local plan for general industry (B2) storage and distribution (B8) and minor office development, research and development, light industry (B1) with associated access & landscaping.	Decided – Approved with Conditions
Highfield Residential (525 houses)	DM/0728/18/OUT	Outline planning application for the development of up to 525 residential dwellings together with an extra care facility for the elderly with up to 80 units with access to be considered	Awaiting decision
Peter Ward Homes residential	DM/1175/17/FUL	Residential development for 145 dwellings with associated parking, landscaping and emergency vehicular access only onto Mill Lane. (amended plans and documents January 2019)	Decided - Approved Conditions and Signing of S106
Immingham Rail Freight	DM/0628/18/FUL	Partially demolish existing building and erect 20MWE waste to energy power generation facility, 65m stack and associated plant, machinery, parking and external works	Decided – Approved with Conditions
Vireol Plc Energy Park	DM/0195/17/FUL	Erection of industrial building and adjoined two storey office/control room to create power plant (18MW Energy From Waste) including construction of associated access, hardsurfacing, erection of 55m chimney stack and installation of necessary plant and machinery.	Decided – Approved with Conditions
Kia	DM/0214/15/FUL AND dm/0147/16/FUL	Reconfiguration and extension of existing commercial buildings, clearance of existing site office and gatehouse and erection of new buildings, change of use of agricultural land to external vehicle storage (approximately 16.34 hectares) and associated resurfacing, creation of a new access onto North Moss Lane, new boundary treatments, engineering works and other associated works. Engineering works and use of land for external car parking, internal site access works, boundary works, and other associated works.	Decided - Approved Conditions and Signing of S106
Link Road	DM/0094/18/FUL	Construction and modifications of a single carriageway highway link with shared cycle & footway from Moody Lane/Woad Lane junction (to the south east) to Hobson Way Roundabout (to the north west) with associated works including drainage works, street lighting, fencing and landscaping.	Decided -Approved with Conditions
Stallingborough	DM/0105/18/FUL	Hybrid application seeking outline consent with access, landscaping and scale to be considered for the development of a 62ha Business Park comprising up to	Decided - Approved with

Interchange -		120,176 sq.m for B1 (Business), B2 (General Industrial) and B8 (Storage and Distribution), associated infrastructure and internal highways. Full application for the creation of a new roundabout, new access roads, associated highway works, substations, pumping stations, drainage and landscaping. (Amended FRA and Drainage Strategy July 2018).	Conditions
Station Road Habrough residential	DM/0950/15/OUT	Outline application for a residential development of up to 118 dwellings, with access to be considered.	Decided - Approved Conditions and Signing of S106
Arbor Forest Products	PA/2020/175	Retrospective planning permission for a biomass boiler, loading plant and enclosure.	Yet to be determined
Site Of Former The Railway Inn	PA/2020/50	Outline planning permission to erect up to 45 dwellings with appearance, landscaping, layout and scale reserved for subsequent consideration.	Yet to be determined

10.4 Impact Assessment

Introduction

Construction

Table 16.8 of the 2013 Application ES summarises the likely Type 2 effects which could be encountered during construction. Table 16.8 also summarises the proposed mitigation and determines the significance of the likely Type 2 effects. It is reasonable to assume and for the purposes of consistency, that the cumulative effects that could be encountered during construction outlined in Table 16.8 are still applicable to the Proposed Scheme, and therefore the mitigation proposed is still required.

Operation

Table 16.9 of the 2013 Application ES summarises the likely Type 2 effects which could be encountered during operation. The effects were assessed as being likely to impact nearby residential properties, adjacent community users and land owners.

'Other developments' previously assessed for Type 2 effects as part of the 2013 Application

As presented in **Table 9.1** 'Other developments' considered within the 2013 Application, a number of developments have been identified to still be relevant to the Proposed Scheme and could potentially result in cumulative impacts during the construction and operation of the Proposed Scheme. These developments are as follows:

- Able Marine Energy Park, Able UK;
- Able Logistics Park, Able UK;
- Smart Wind – Hornsea Offshore Wind Farm (Zone 4) Projects 1 and 2; and
- Smart Wind – Hornsea Offshore Wind Farm (Zone 4) Projects 3 and 4.

Section 16.8 of the 2013 Application ES assesses the potential Type 2 effects associated with the other developments presented above. Following review of this information it is unlikely there would be any new or different significant effects than those presented within the 2013 application.

New 'other developments' that require assessment for Type 2 cumulative effects

As presented in **Table 10.2** 'Other developments' to be assessed in this Chapter, a number of new developments have come forwards since the 2013 Application.

Table 10.3 presents a topic specific review of these 'other developments' relevant to the Proposed Scheme to identify the likelihood of significant effects during construction and operation of the Proposed Scheme.

Table 10.3 - Appraisal of Cumulative Effects with 'Other Developments'

Environmental Topic	Project Stage (Construction / Operation)	Appraisal / Evaluation
Air Quality	Construction / Operation	It is expected that following approval of the 2013 application, the Proposed Scheme will already be considered as part of the future baseline in these 'new developments'. However, the level of spatial detail in that consideration is not readily apparent from the relevant air quality impact assessments and, as such, a review of the list of 'other developments', has been undertaken and the following conclusions reached: The potential for significant cumulative effects during construction works is very low due to the distance between the respective development sites, the likely offsetting of significant works in time and limited potential for overlap of construction traffic routes prior to general dispersal of traffic on the wider road network. The potential for significant cumulative effects relating to development traffic was found to be minimal and therefore not-significant. This is due to the generally good roadside air quality in the vicinity of the plant. The potential for significant cumulative effects relating to human health was found to minimal and therefore not significant. This is due to there being sufficient headroom available between existing air quality and the air quality standards for the protection of health to ensure that the risk of exceedance of standards is low. The following facilities each have a maximum impact on sites designated for nature conservation that is potentially significant in relation to nitrogen and acid deposition*: North Beck Energy Centre, Altalto Jet Fuel, Immingham Rail Freight, Vireol Plc Energy Park, VPI Immingham, South Humber Bank Energy Centre.* The maximum impacts of these facilities do not, however, overlap with the maximum impacts from the Project with the prevailing wind dispersing pollution to the north-east of the sites and the sites being situated along a north-west/south-east axis parallel to the Humber estuary. Moreover, a review of the modelled impacts for the facilities demonstrates that: • Where the impact of these facilities exceeds 1% of the critical load, the impacts of the Project are <0.1% of the critical load and the critical load is not exceeded, • At the point of maximum impact of the Project, the impacts of these facilities are, individually, <<0.1%, the in-combination impact is <1%, and the critical load is not exceeded, and • Where the critical load for any habitats within the study area are exceeded, the individual impacts of all facilities, including the Project, are <0.1% and the in-combination impact is <1%. As such, no significant cumulative effects are anticipated from the Project and the relevant 'new developments' on air quality during either construction or operation. This applies to both human and ecological receptors.
Ecology and Biodiversity	Construction / Operation	It is expected that following approval of the 2013 application, the Proposed Scheme will already be considered as part of the future baseline in these 'new developments'. Furthermore, no changes are expected to the significance of ecology and biodiversity effects described in the 2013 Application ES, whilst no significant ecology and biodiversity effects were identified from any of these 'new developments' at a project level. An assessment of cumulative air quality impacts on ecological receptors is presented in the row above. This demonstrates that the risk of significant in-combination effects on ecological receptors is negligible. In-combination air quality impacts are predicted to be less than 1% of the critical load for relevant habitat types, under all scenarios. The closest of the 'new' developments identified is the VPI Immingham OCGT project, approximately 2km south of the Proposed Scheme. Given the distances involved and the mitigation measures to be employed by the Proposed Scheme, novel in-combination disturbance impacts on SPA bird species are not predicted to arise. The only other impact pathway identified where in-combination impacts could be relevant relates to any cooling water requirements for other energy projects. This was explored in the HRA for the original application in relation to existing cooling water discharges and associated 'thermal plumes' of heated discharge water. Significant in-combination effects with other thermal plumes (including Able Marine Energy Park) >500m were not predicted in the Secretary of State's HRA, due to each plume having only minor localised effects and the distances involved[22]. Any cooling water infrastructure associated with the 'new' projects would be located 2km or more from the Proposed Scheme. As such, no significant cumulative effects are anticipated from the relevant 'new developments' on ecology and biodiversity during either construction or operation.

[22] Department of Energy and Climate Change (2014). RECORD OF THE HABITATS REGULATIONS ASSESSMENT UNDERTAKEN UNDER REGULATION 61 OF THE CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010 (AS AMENDED) FOR AN APPLICATION UNDER THE PLANNING ACT 2008 (AS AMENDED). Project Title: North Killingholme Power Project

Environmental Topic	Project Stage (Construction / Operation)	Appraisal / Evaluation
Landscape	Construction / Operation	It is expected that following approval of the 2013 application, the Proposed Scheme will already be considered as part of the future baseline in these 'new developments'. Furthermore, no changes are expected to the significance of landscape effects described in the 2013 Application ES, whilst no significant landscape effects were identified from any of these 'new developments' at a project level. As such, no significant cumulative effects are anticipated from the relevant 'new developments' on landscape during either construction or operation.
Water	Construction / Operation	It is expected that following approval of the 2013 application, the Proposed Scheme will already be considered as part of the future baseline in these 'new developments'. Furthermore, no changes are expected to the significance of water effects described in the 2013 Application ES, whilst no significant water effects were identified from any of these 'new developments' at a project level. As such, no significant cumulative effects are anticipated from the relevant 'new developments' on water during either construction or operation.
Noise and Vibration	Construction / Operation	It is expected that following approval of the 2013 application, the Proposed Scheme will already be considered as part of the future baseline in these 'new developments'. Furthermore, no changes are expected to the significance of noise and vibration effects described in the 2013 Application ES, whilst no significant noise and vibration effects were identified from any of these 'new developments' at a project level. As such, no significant cumulative effects are anticipated from the relevant 'new developments' on noise and vibration during either construction or operation.
Traffic and Transport	Construction / Operation	The assessment of cumulative effects of the relevant 'new developments' and the Proposed Scheme on traffic and transport has been covered in full within Chapter 8: Traffic and Transport of this Environmental Report.

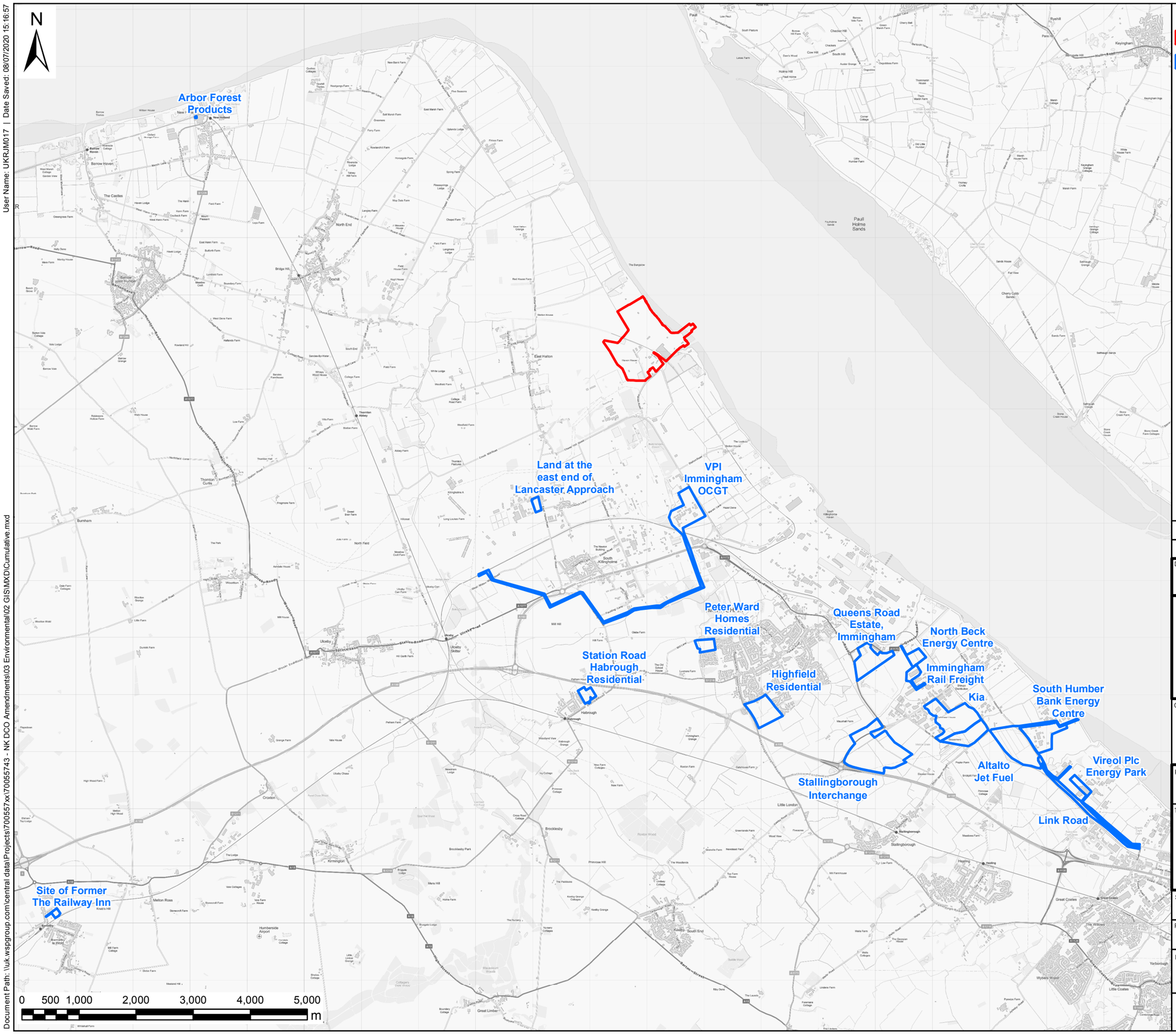
10.5 Summary

Taking into account the information outlined above, no new or materially different cumulative effects to those reported in the ES are predicted.

11 CONCLUSION

This report has considered the potential for the proposed amendments to the Order to require an updated ES, HRA or a new or additional EPS licence.

Following a screening exercise, an assessment of potential changes to likely significant effects was carried out. This included consultation with key stakeholders. All issues raised by stakeholders have been addressed. The assessment concluded that the proposed amendments to the Order result in no new, or materially different, likely significant effects on the environment. Accordingly, an updated Environmental Statement will not be required to support the application. There are no significant changes to the assessment of effects on designated sites, including Habitats Regulations Assessment (HRA) of European Sites. This includes in relation to updated in-combination effects, which are addressed in Section 10 – Cumulative Assessment. No EPS licences are expected to be required, other than those for which the potential need was identified in the original assessment (bats).



Key

- Principal Project Area
- Other Developments

REV	DATE	BY	DESCRIPTION	CHK	APP
A	08/07/2020	RM	FIRST DRAFT	CT	CT

DRAWING STATUS: DRAFT

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CLIENT: C.GEN

PROJECT: North Killingholme DCO Amendments

TITLE: Cumulative Schemes

SCALE @ A3:	CHECKED:	APPROVED:
65,000 @ A3	CT	CT

PROJECT No:	DESIGNED:	DRAWN:	DATE:
70055743	RM	RM	20/05/2019

DRAWING No: Figure 10.1 REV: A

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APPENDICES

4.1 – Air Quality Monitoring

4.2 – Air Quality Modelling

5.1 – Preliminary Ecological Appraisal

5.2 – Bat Survey Report

5.3 – Great Crested Newt eDNA Summary Report

5.4 – Reptile Survey Report

5.5 – Breeding Bird and Waterbird Survey Report

5.6 – Winter Bird Survey Report

5.7 – Otter and Water Vole Survey Report

5.8 – Natural England Discretionary Advice Service Response

5.9 – Natural England Correspondence

5.10 – LPA Consultation Response

5.11 – MMO Consultation Response

5.12 – HNP Consultation Response

5.13 – LWT Consultation Response

5.14 – RSPB Consultation Response

6.1 – LVIA Viewpoint Review

7.1 – Baseline Noise Assessment

8.1 – Transport Statement

9.1 – EA Response Letter

9.2 – Climate Change Calculations