NORTH LINCOLNSHIRE GREEN ENERGY PARK

Planning Act 2008

Infrastructure Planning (Applications Prescribed Forms and Procedure) Regulations 2009

APFP Reg. 5(2)(a)

Infrastructure (Environmental Impact Assessment) Regulations 2017

North Lincolnshire Green Energy Park

Volume 6

Environmental Statement

6.2.18 Cumulative Effects

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Acronyms and Abbreviations

Name	Description
CEA	Cumulative Effects Assessment
EIA	Environmental Impact Assessment
ES	Environmental Statement
HRA	Habitats Regulations Assessment
LNR	Local Nature Reserve
LWS	Local Wildlife Sites
NLGEP	North Lincolnshire Green Energy Park
NPS	National Policy Statement
PEIR	Preliminary Environmental Information Report
SAC	Special Areas of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
ZoI	Zone of Influence

1. INTRODUCTION

1.1.1.1 This chapter provides an assessment of the potential cumulative effects of the Project. Cumulative effects are defined by the European Commission (Walker and Johnston, 1999) as 'Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project'.

1.1.1.2 Cumulative effects arise when the Project is considered together with effects from other planned projects or developments on the same single resource or receptor.

1.1.1.3 This Environmental Statement (ES) chapter provides details of other planned projects or developments in the vicinity of the Project that may be of relevance to the cumulative effects assessment (CEA) using information that is in the public domain. It also sets out the methodology used for the assessment and presents the results of the assessment for each relevant Environmental Impact Assessment (EIA) topic.

1.1.1.4 Only one other planned project or development has been identified that could have indirect effects, i.e. effects that could arise from the impact of activities not explicitly forming part of the Project and therefore not under the control of the Applicant. In order to operate, the Project will require a connection to the National Grid Electricity Transmission system via the Distribution Network Operator (DNO), which is part of the Project but the connection will be provided by the DNO under its statutory powers and installed at the same time as the District Heat Private Wire Network (DHPWN). The connection will comprise 132 kV cables laid along the same route as the DHPWN that forms part of the Project. Since this will effectively require minimal additional physical works along the route, in addition to those for the Project, indirect effects will not be significant. Additionally, there is negligible potential for cumulative effects with the Project. Cumulative and indirect effects associated with provision of the connection to the national grid are therefore not considered further.

~~1.1.1.4~~1.1.1.5 The Report contains updates to the version (Revision Number 1, APP-066) from May 2022, to take account of further written representations by and engagement with Natural England and other stakeholders as part of the Examination process. The updates take account of revised air dispersion modelling based on a Reasonable Operating Case (ROC), rather than the previous modelling that was based on multiple worst-case scenarios. The ROC is intended to provide an understanding of the likely impacts from air quality to designated sites. Further explanation of the ROC is provided in Appendix A (Appendix 1 of Effects of Air Quality on European, Nationally and Locally Designated Sites) of the revised Chapter 10 - Ecology and Nature Conservation (APP-058).

2. POLICY CONTEXT, LEGISLATION, GUIDANCE AND STANDARDS

2.1.1.1 Schedule 4 paragraph 5 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the Infrastructure EIA Regulations 2017) sets out the information that should be included in an ES and includes ‘A description of the likely significant effects of the development on the environment resulting from, inter alia: (e) the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources’.

2.1.1.2 The need to consider cumulative effects in planning and decision making is also set out in planning policy, in particular the National Policy Statements (NPSs) with the Overarching NPS for Energy (EN-1) stating that ”When considering cumulative effects, the ES should provide information on how the effects of the applicant’s proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence)”

3. CONSULTATION

3.1.1.1 Table 3.1~~Table 1~~ presents an excerpt from the scoping response received from the Planning Inspectorate specific to the Cumulative Effects Assessment (CEA). Table 3.1~~Table 1~~ describes how each response has been or will be addressed by the Project.

Table 3.1~~1~~ Scoping Consultation Responses

PINS ID	Issue	Inspectorate's comments	Response / Action	Reference within this document
4.11.1	Proposed to be scoped out: Cumulative geology/ contamination effects	The Inspectorate agrees that geology and ground contamination related impacts are likely to be limited to the Project's order limits, and therefore this matter is unlikely to result in significant cumulative effects and can be scoped out of the ES.	Noted.	N/A
4.11.2	Cumulative landscape and visual impacts during construction	As the locations and dimensions of construction compounds are not yet known, the Inspectorate deems there to be insufficient evidence provided to support the conclusion that no construction cumulative landscape and visual impacts would occur. Therefore, this matter cannot be scoped out of the ES.	Cumulative construction landscape and visual impacts are addressed in Section 6.9 in Table ~~Table~~ 9.	Section 6
4.11.3	Cumulative effects	The assessment of cumulative surface water effects should assess the potential for surface waters outside of the Project's [i.e. the Proposed Development] order limits to be impacted by changes in drainage regimes and the water table caused by the construction and/ or operation of the Project. The ecological cumulative assessment should also take into account the potential for cumulative noise impacts on ecological receptors.	Cumulative surface water effects in terms of the local hydrological regime are considered in the Flood Risk Assessment (**Document Reference 6.3.3**). For the reasons explained in Table 5.2~~Table 3~~ of this chapter it is not considered that the Project will make a contribution to cumulative effects on the water environment.	Section 5

PINS ID	Issue	Inspectorate's comments	Response / Action	Reference within this document
			Cumulative construction disturbance effects on ecology are considered in Table 8.	
4.11.4	Zone of Influence (ZoI) for cumulative effects	Effort should be made to agree the ZoI for cumulative effects with the relevant statutory consultation bodies.	Generally, the zone of influence for each type of impact was determined by the assessment methodology for a particular topic. Relevant statutory consultation bodies were consulted on the ZoI for the cumulative assessment. In the case of effects on European protected sites and SSSIs a more precautionary approach was taken following consultation with Natural England as explained in Table 5.2~~Table 3~~.	Table 3

4. METHODOLOGY

4.1.1.1 The CEA process follows the approach set out in Advice Note 17, Cumulative Effects Assessment (August 2019). It sets out a four-stage approach to the assessment of cumulative effects:

- Stage 1: identify the zone of influence and establish a long list of 'other existing development and/or approved development';
- Stage 2: identify a shortlist of 'other existing development and/or approved development' for the CEA;
- Stage 3: information gathering as required; and
- Stage 4: assessment.

4.1.1.2 The application of the methodology for each stage is described, together with the findings, in the following sections.

5. CEA STAGES 1 AND 2

5.1 Stage 1: Establishing the long list of 'other existing development and/or approved development'

5.1.1 General Considerations

5.1.1.1 Stage 1 of the CEA methodology involved establishing the Project's Zone of Influence (ZoI) and identifying a long list of other developments for inclusion in the assessment.

5.1.1.2 The assessment applied a proportionate approach in identifying other proposed development that could contribute to impacts on the same receptors as the Project. The basic principles in applying the proportionate approach were as follows.

- All Nationally Significant Infrastructure Projects (NSIPs), Section 36 and Transport and Works Act applications were included for consideration.
- With increasing distance from the Project, the CEA progressively screened out other types of applications based mainly on their scale (as explained below).
- Excepting air quality impacts on protected sites, the search area was determined by the largest distance at which the Project could potentially have impacts, namely 7.5 km radius around the Order Limits for landscape and visual impacts.
- For air quality impacts on SPAs, SACs and SSSIs the search area for other development was a 15 km radius around the emission sources, and then a further 15 km radius around protected sites that fell within the initial 15 km radius, as requested by Natural England during consultation.

5.1.2 Scale of Other Developments

5.1.2.1 Determination of the scale of other development for inclusion in the CEA was informed by the categories used by Communities and Local Government in the collection of planning performance statistics. Spatial scope provides a robust approach to understanding the cumulative effects of minor development and the potentially greater significance of 'minor development' in close proximity to the Project Order Limits. ~~Table 2~~ Table 5.1 sets out the scale and spatial parameters used to identify the long list of other developments for the CEA.

Table 5.12 Planning Categories Scale and Spatial Scopes

Category (Note 1)	Spatial scope
Nationally Significant Infrastructure Project: all applications	0 to15 km (Note 2)
Nationally Significant Infrastructure Project: power generation projects or projects with significant combustion emissions	15 km, plus a further 15 km from each SPA, SAC and SSSI falling within the initial 15 km (Note 2)
Section 36 (including variations) and Section 37 of the Electricity Act: all applications	0 to 15 km (Note 2)
Section 36 (including variations) of the Electricity Act: power generation projects or projects with significant combustion emissions	15 km, plus a further 15 km from each SPA, SAC and SSSI falling within the initial 15 km (Note 2)
Transport Works Act Application: all applications	0 to 15 km (Note 2)
Town and Country Planning Act: 'minor development' (1 to 9 units, less than 0.5 ha for residential and less than 1 ha for non-residential)	0 to 100 m
Town and Country Planning Act: 'major-small development' (10 to 199 units, 0.5 up to 4 ha for residential and 1 up to 2 ha for non-residential)	0 to 1 km
Town and Country Planning Act: 'major-large development' (more than 200 units, greater than 4 ha for residential and 2 ha for non-residential)	0 to 7.5 km
Town and Country Planning Act: combustion projects only that constituted EIA development under the Town and Country Planning (EIA) Regulations 2017 and required HRA to screening stage at least	0 to 15 km, plus a further 15 km from each SPA, SAC and SSSI falling within the initial 15 km (Note 2)
Town and Country Planning Act: for projects which, by virtue of their potential to affect (through disturbance) a European protected site, were screened in to undertake an EIA under the Town and Country Planning (EIA) Regulations 2017	0 to 2 km from Order Limits, plus 2 km from the parts of SPAs, SACs and SSSIs falling within the initial 2 km zone (Note 2)

Note 1: some projects may fall within more than one category.
Note 2: also provides the other developments considered in the 'in-combination assessment', for the HRA.

5.1.2.2 Regarding other development falling under the Town and Country Planning Act 1990, the CEA focused on consented development, development where a consent decision is pending, and pending applications (e.g. for which a screening opinion has been sought.

5.1.2.3 The long list generated by the above process is provided in Appendix B.

5.2 Stage 2: Establishing a shortlist of 'other existing development and/or approved development'

5.2.1.1 During Stage 2, screening was undertaken to generate a shortlist for further assessment at the topic-specific level as set out below.

5.2.2 Temporal Considerations

5.2.2.1 The status of other development in terms of whether its construction could overlap in time with the Project construction phase is relevant in regard to the potential for cumulative construction-related impacts.

5.2.2.2 Where a construction period likely to overlap with the timeframe of 2023 to 2028 was identified within application documentation for other development, the other developments were screened as 'possibly cumulative during construction' and the CEA assessed cumulative construction impacts. The other developments considered were limited to the five years preceding the date of submission of the ES since planning permissions typically expire after a period of three to five years. Consent for some of these developments may have lapsed without development commencing and others may already have completed their construction phase before 2023. Taking a worst-case approach, the CEA assumed there would be overlapping construction phases for all the other developments which had a permission expiry date of 2021 or later so that an assumed two-year construction phase could potentially overlap with the Project's 2023 to 2028 construction timeframe.

5.2.2.3 For some other developments there is also the potential for construction impacts to lead to cumulative effects with operational phase impacts from the Project. However, to avoid an unnecessarily complicated assessment it was assumed that all other developments in the planning system at the time of this CEA will be constructed and operating by 2028.

5.2.2.4 Lastly, taking a worst-case approach, the CEA assumed there will be overlapping operational phases for all the other developments with the operational phase of the Project, even though it is possible that some of these may not proceed.

5.2.3 Technical Considerations

5.2.3.1 Not all the impacts of the Project could lead to cumulative effects with impacts from other developments. Also, for the Project to have cumulative impacts on the same receptor as other developments, the receptor would need to be within a zone of influence for the impact concerned.

5.2.3.2 The topics, impacts and zones of influence detailed in Table 5.2~~Table 3~~ have been identified as having the potential to contribute to cumulative impacts on receptors within the zones of influence for the type of impact under consideration. The zone of influence takes into consideration the areas / receptors likely to be affected by the Project activities and facilities that are directly owned, operated, or managed (including by contractors) and that are a component part of the Project.

5.2.3.3 As the adopted zones of influence are defined by individual topics they vary.

Table 5.23 Project Impacts (and their Zones of Influence) with Potential to Contribute to Cumulative Effects

Topic	Potential Impacts	Zone of Influence
Air quality: construction	Dust generating activities during construction could act cumulatively on receptors with dust generating activities from screened development in very close proximity. Traffic air quality impacts from the Project are considered additively with current and projected road use levels and therefore already addressed in the topic chapter.	Up to 350 m from the Order Limits. N/A
Air quality: operation	During operation, a key consideration will be the potential combined effect of emissions to atmosphere from the Project and other combustion activities (especially thermal power plants) on human receptors.	As determined by dispersion modelling results.
Air quality: operation	During operation, a key consideration will be the potential combined effect of emissions to atmosphere from the Project and other combustion activities (especially thermal power plants) on ecological receptors. Cumulative impacts of road traffic on air quality are automatically considered through the application of traffic growth factors in the Traffic Assessment and therefore already addressed in the topic chapter.	15 km, plus a further 15 km from each SPA, SAC and SSSI falling within the initial 15 km. Other developments considered are those that are likely to include a significant combustion process. 2 km for local wildlife sites. N/A
Climate	The contribution of greenhouse gases emitted by the Project to global climate change is an intrinsic part of the assessment and requires no additional consideration in terms of cumulative effects.	N/A
Noise: construction	Construction noise from the Project could act cumulatively with noise from other developments on nearby receptors.	Up to 1 km from the Order Limits.
Noise: operation	Operational noise from the Project could act cumulatively with noise from other developments on nearby receptors.	Up to 1 km from the Order Limits.
Vibration: construction	Vibration is only likely to have a significant effect within 100 m of particular activities such as driven piling or use of vibratory compactors.	Up to 100 m from the Order Limits.

Topic	Potential Impacts	Zone of Influence
Ground conditions, contamination and hydrogeology	The Planning Inspectorate has agreed (see Table 1) that geology and ground contamination related impacts are likely to be limited to within the order limits, and therefore this matter is unlikely to result in significant cumulative effects and can be scoped out of the ES.	N/A
Water resources: construction	Construction aqueous wastes will be managed within the site and any effluent discharges will be required to meet the requirements of the Environment Agency in accordance with The Water Environment (Water Framework Directive) (England and Wales) Regulations. Potential cumulative effects with other discharges are fully considered under the permitting process.	N/A
Water resources: operation	Surface water will be managed within the site and any effluent discharges will be required to meet the requirements of the Environment Agency in accordance with The Water Environment (Water Framework Directive) (England and Wales) Regulations. Any process effluent discharges not treated on site will be required to meet the requirements of the Environmental Permitting (England and Wales) Regulations 2016. Potential cumulative effects with other discharges are fully considered under these permitting processes.	N/A
Flood risk	Residual flood risk to the Project and from the Project is anticipated to be low and will be entirely managed within the site. The Flood Risk Assessment (Document Reference 6.3.3) has considered other development likely to occur within the wider area and so has inherently considered cumulative flood risk. It is not necessary to consider flood risk further in this chapter.	N/A
Ecology and nature conservation: construction	During construction, potential cumulative disturbance effects could occur with other developments being constructed in close proximity.	A conservative 2 km radius around the Order Limits is considered for construction disturbance to general fauna and local wildlife sites. A larger ZoI is applied for national and European protected suites, comprising up to 2 km from the Order Limits, plus 2 km from the parts of SPAs, SACs and SSSIs falling within the initial 2 km zone.

Topic	Potential Impacts	Zone of Influence
Ecology and nature conservation: operation	During operation, the key consideration will be the potential combined effect of emissions to atmosphere (from the Project and other combustion processes) and subsequent pollutant and acid deposition on designated sites. Some activities associated with operation could contribute to cumulative effects with other developments in close proximity.	15 km, plus a further 15 km from each SPA, SAC and SSSI falling within the initial 15 km. Other developments considered are those that are likely to include a significant combustion process. 2 km for local wildlife sites. Up to 2 km from the Order Limits, plus 2 km from the parts of SPAs, SACs and SSSIs falling within the initial 2 km zone.
Landscape and visual Amenity: construction	Some limited and temporary activities may contribute to cumulative landscape and visual impacts along with impacts from other developments.	Zone of visual influence determined by modelling and professional judgement informed by site visit: up to a 7.5 km radius from the Order Limits.
Landscape and visual Amenity: operation	During operation other developments may contribute to cumulative landscape and visual impacts with the Project in terms of potential for inter-visibility.	Zone of visual influence determined by modelling and professional judgement informed by site visit: up to a 7.5 km radius from the Order Limits.
Traffic and transport: construction and operation	Cumulative traffic effects are assessed as a matter of course in the Traffic and Transport Assessment by including cumulative schemes and considering future growth of traffic flows due to general increase in road use by residents and businesses. No further assessment is therefore required in this chapter.	N/A
Socio-economic aspects	The Project will be set against a background of a variety of economic development activity and in a regional context will have small economic and employment benefits. However, with the exception of Keadby 3, it is not considered necessary for the purposes of the EIA to assess such cumulative positive impacts. Potential negative effects on people and human health and wellbeing are considered in the context of other topics (e.g. noise, air quality, traffic, and health).	Local Impact Area up to Regional as defined in Chapter 14 (**Document Reference 6.2.14**) N/A

Topic	Potential Impacts	Zone of Influence
Archaeology and cultural heritage: construction	Construction effects on buried archaeology, should any occur, would be limited to within the Order Limits therefore there is no scope for cumulative effects with other developments.	N/A
Archaeology and cultural heritage: operation	The Project and other developments could potentially affect the setting of the same scheduled monuments.	Limited to the effect on the setting on scheduled monuments, 2.5 km.
Waste: construction and operation	Cumulative effects are considered as an inherent part of the Waste assessment. The potential effects on the capacity of local waste management infrastructure take into account the likely ongoing demands on such infrastructure from other developments and activities. No further assessment is therefore required in this chapter.	N/A
Public health	Potential cumulative effects on public health are considered in two ways: under other relevant topics (e.g. air quality, noise etc); and the health impact assessment considers the combined effects of various factors that together could affect health (e.g. noise plus air quality). No further assessment is therefore required in this chapter.	N/A

5.2.3.4 The possible cumulative effects of major accidents and disasters have been integrally considered in Chapter 16: Major Accidents and Hazards of the ES (**Document Reference 6.2.16**). Such potential effects are effectively controlled through other legislation through the Health and Safety Executive (HSE). It should be noted that if a pre-construction safety report is required by the HSE then this would address the possible consequences of (and the necessary controls for) a so-called 'domino effect': a major incident at the Project having knock-on effects at a neighbouring COMAH (Control Of Major Accident Hazards) facility or vice versa.

5.2.3.5 The other developments identified and shortlisted at Stages 1 and 2 of the CEA are presented in Table 5.3~~Table 4~~, with details of their current status. The shortlist was derived from a review of 125 applications and consents (i.e. the 'long list', see Appendix B) identified in Stage 1 (see Section 4.2.1). Other developments were progressively screened out or in from the long list based firstly on temporal considerations and secondly on technical considerations (as explained in Section 4.2.2). Some other developments were also immediately screened out by virtue of their very small scale and very low potential to have cumulative effects with the Project (for example, household extensions, individual buildings).

5.2.3.6 Table 5.3~~Table 4~~ therefore only includes other developments that were screened in on a temporal overlap basis and those that were considered to be of sufficient scale for further consideration in terms of the ZoIs for different types of impact and further consideration of the scale of the other development in regard to the impact under consideration (for example another development could be physically large, such as a housing estate, but not intrinsically noisy).

5.2.3.7 Additionally, to the other developments listed in Table 4, National Grid Ventures (NGV) published its 'Humber Low Carbon Pipelines – Route Corridor Report' in September 2021. The Project is on the Planning Inspectorate programme of projects with an application expected in Quarter 3 of 2022. The aforementioned report provides a map with route corridor options, one of which (out of three alternatives crossing the River Trent) is just to the north of the Order Limits. Further route options show the pipeline passing to the south of the new access road. At this stage it can be assumed that construction of the NGV Humber Low Carbon Pipelines development could overlap in time with construction of the Project. If the closest pipeline route option were to be selected, there would be the potential for cumulative construction effects on some receptors. For a development of this nature (i.e. a buried pipeline with occasional above ground installations), the scope for construction cumulative impacts is relatively limited to noise, dust, traffic, and disturbance to ecological populations (albeit including the nearby parts of the Humber protected sites). The other two corridor options for crossing the River Trent are likely to be too distant to lead to cumulative effects with the Project. In operation there is no scope for the Project to have any significant cumulative effects with the NGV Humber Low Carbon Pipelines development, since the latter will comprise buried pipelines with minimal surface infrastructure. In terms of assessing cumulative effects with NGV

Humber Low Carbon Pipelines development there is insufficient information available to make a meaningful assessment. However, it is reasonable to assume that where there is actual scope for both the Project and the NGV Humber Low Carbon Pipelines development to contribute to cumulative effects, there will be ample opportunity for mitigating such effects through such matters as: coordinating on the timing of activities and access routes; and through implementing any additional controls that might be required on noise and dust emissions. Requirements for such coordination (if any is required) would most appropriately be addressed via the NGV Humber Low Carbon Pipelines DCO process.

Table 5.34 Short list of other developments for consideration in Stages 3 and 4 of the CEA

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
84	PA/2015/0628	Hybrid application for full planning permission for new road and footpaths, informal areas of open space, parklands, play areas and new wildlife habitats, attenuation ponds, recreational lakes, and wetlands community; and outline planning permission with all matters reserved for non-residential institutions (Use Classes D1 and D2), leisure facilities (Use Classes A1 and A3) and storage (Use Class B8).	within 100m	1	Construction	Ecology	Yes	Yes
						Noise	Yes	Yes
						Visual	Yes	Yes
					Operation	Heritage	Yes	Yes
						Noise	No	No
						Visual	Yes	Yes
85	PA/2015/0396	Outline planning permission for the development of up to 2500 new homes including a village centre (Use Classes A1, A2, A3, A4, A5, B1 and D1), a health care facility (Use Class D1), community facilities (Use Class D1), a 3 form of entry primary school (Use Class D1), new roads and footpaths, informal areas of open space, play spaces and new wildlife habitats, water bodies and wetlands with all	within 100m	1	Construction	Ecology	Yes	Yes
						Noise	Yes	Yes
						Vibration	Yes	Yes
						Visual	Yes	Yes
					Operation	Heritage	Yes	Yes
						Noise	No	No
						Visual	Yes	Yes

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
		matters reserved for subsequent approval.						
86	PA/2015/0627	Planning permission for highway works to deliver the new terminating junction to the M181 motorway (due to the de-trunked section of the highway to the north and south of the terminating junction) and the development of the eastern and western sections of the east west link road connecting to the B1450 Burringham Road.	within 100m	1	Construction	Ecology	Yes	Yes
						Noise	Yes	Yes
						Vibration	Yes	Yes
						Visual	Yes	Yes
					Operation	Heritage	Yes	Yes
						Noise	No	No
						Visual	Yes	Yes
95	PA/2016/1819	Planning permission for the erection of 2 overhead cranes supported on steel trestles with access stairs and concrete roadway on existing steel storage area.	within 100m	1	Operation	Heritage	No	No
						Noise	No	No
						Visual	No	No
21(2)	PA/2019/1461	Planning permission to site an array of ground mounted photovoltaic solar collectors including associated infrastructure.	within 100m	1	Construction	Ecology	Yes	Yes
						Noise	No	No
						Vibration	No	No
						Visual	No	No
					Operation	Heritage	No	No

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
						Noise	No	No
						Visual	No	No
71(5)	PA/2020/1166	Planning permission to install an amended drainage scheme.	within 100m	1	Construction	Ecology	No	No
						Noise	No	No
						Vibration	No	No
						Visual	No	No
83	PA/2020/2049	Planning permission for the construction of 163 two, three and four bedroomed, 2 storey traditional residential homes with associated garages and access infrastructure.	within 100m	1	Construction	Ecology	Yes	Yes
						Noise	Yes	Yes
						Vibration	Yes	Yes
						Visual	No	No
					Operation	Heritage	No	No
						Noise	No	No
						Visual	No	No
205	15/30250/CONDET	Submission of details as required by condition 20 (turbine foundations) of planning reference 04/00505/STPLFE.	Within 7.5km	1	Construction	Visual	Yes	Yes
					Operation	Visual	Yes	Yes
221	PA/2018/1608	Outline planning permission for residential development with appearance, landscaping, layout and	Within 7.5km	1	Construction	Visual	No	No

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
		scale reserved for subsequent approval (additional documents).						
225	PA/2018/1245	Planning permission for an extension to existing silica sand extraction operations, together with the construction of a new access to Brigg Road, associated works and planting, and progressive restoration to a landscaped lake and land suitable for nature conservation and agriculture (Re-submission of MIN/2016/1823).	Within 7.5km	1	Construction	Visual	No	No
					Operation	Visual	No	No
231	PA/2018/1849	Planning permission to erect new workshop, erect an extension to existing workshop, demolish existing single storey office block, refurbish two storey office block (including a new external access door and works to roof) and change the location of main site access from existing point to another existing access point with associated infrastructure amendments.	Within 7.5km	1	Construction	Visual	No	No
10 (2)	PA/2018/1388	Planning permission to re-develop existing football stadium to deliver 11,000 capacity football stadium (Use	within 100m	1	Construction	Ecology	Yes	Yes
						Noise	Yes	Yes
						Visual	Yes	Yes

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
		Class D2); cafe/bar (Use Class A3/4); commercial space (mixed use); club shop (Use Class A1); site access, car parking and associated infrastructure.			Operation	Heritage	No	No
						Noise	No	No
						Visual	Yes	Yes
11 (2)	PA/2018/1389	Outline application for the erection of one hundred and sixty apartments with associated works and some matters reserved.	within 2km	1	Construction	Ecology	Yes	Yes
						Noise	Yes	Yes
						Visual	Yes	Yes
					Operation	Heritage	No	No
						Noise	No	No
						Visual	Yes	Yes
13 (3)	PA/2018/1725	Planning permission for works required to develop a gas-powered standby generation plant, including associated works.	within 100m	1	Construction	Ecology	No	No
						Noise	Yes	Yes
						Vibration	Yes	Yes
						Visual	Yes	Yes
					Operation	Heritage	Yes	Yes
						Noise	Yes	Yes
						Visual	Yes	Yes
16 (4)	PA/2018/2140	Planning permission for the installation of a renewable led energy scheme comprising ground mounted photovoltaic solar arrays and battery-	within 1km	1	Construction	Ecology	Yes	Yes
						Noise	No	No
						Visual	No	No

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
		based electricity storage containers together with substations; transformer stations; access; internal access track.						
17 (2)	PA/2018/2186	Outline planning permission for 36 dwellings including new access road and adoptable sewage pumping station (appearance, landscaping, layout and scale reserved for subsequent approval).	within 1km	1	Construction	Ecology	Yes	Yes
						Noise	No	No
						Visual	No	No
					Operation	Heritage	No	No
						Noise	No	No
						Visual	No	No
180	PA/2021/1069	Planning permission to carry out a flood mitigation scheme including the creation of five surface water storage areas and associated works.	within 2km	1	Construction	Ecology	Yes	Yes
						Visual	No	No
					Operation	Heritage	No	No
						Visual	No	No
193	PA/2021/672	Outline planning permission to erect 302 dwellings, to include remediation of the site and means of access as a matter not reserved for subsequent consideration.	within 1km	1	Construction	Ecology	Yes	Yes
						Noise	Yes	Yes
						Visual	Yes	Yes
					Operation	Heritage	No	No
						Noise	No	No
						Visual	Yes	Yes
200	PA/2021/1069			1		Ecology	Yes	Yes

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
		Planning permission to carry out a flood mitigation scheme including the creation of five surface water storage areas and associated works.	within 2km		Construction	Visual	No	No
					Operation	Heritage	No	No
						Visual	No	No
4 (1)	PA/2017/1386	Planning permission for highway works to deliver a new terminating junction to the M181 motorway comprising a new at-grade roundabout to access the B1450 Burringham Road from the M181, new B1450 side roads and realignment of the existing B1450, two new.	within 100m	1	Construction	Ecology	Yes	Yes
						Noise	Yes	Yes
						Vibration	Yes	Yes
						Visual	Yes	Yes
					Operation	Heritage	Yes	Yes
						Noise	No	No
						Visual	Yes	Yes
206	PA/2021/441	Planning permission for the installation of ground mounted solar PV arrays and associated infrastructure.	Within 7.5km	1	Construction	Visual	No	No
					Operation	Visual	No	No
215	PA/2021/1359	Planning permission to construct a 10MW solar farm with associated access, landscaping, and infrastructure (additional supporting document).	Within 7.5km	1	Construction	Visual	No	No
					Operation	Visual	No	No
222	PA/2019/1782	Outline planning permission for up to 200 dwellings with appearance,	Within 7.5km	1	Construction	Visual	Yes	Yes

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
		landscaping, layout and scale reserved for subsequent consideration.			Operation	Visual	No	No
49 (1)	PA/2017/1977	Planning permission for the construction of a Flood Defence Scheme comprising of sheet piling along the right bank of the River Trent; the placing of scour protection along the right bank of the River Trent; localised property protection within a managed.	within 2km	1	Construction	Ecology	Yes	Yes
						Visual	No	No
					Operation	Heritage	No	No
						Visual	No	No
65 (5)	PA/2018/999	Planning permission to erect twenty-two affordable homes, alterations to the existing adopted highway, new access points off West Street and Gurnell Street, car parking and boundary treatments.	within 1km	1	Construction	Ecology	No	No
						Noise	No	No
						Visual	No	No
8 (4)	PA/2018/1060	Planning permission to erect a precast concrete manufacturing facility along with external storage areas and associated infrastructure.	within 1km	1	Construction	Ecology	Yes	Yes
						Noise	Yes	Yes
						Visual	Yes	Yes
					Operation	Heritage	Yes	Yes
						Noise	Yes	Yes

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
						Visual	Yes	Yes
29 (4)	PA/2019/830	Planning permission to vary condition 5 of planning permission PA/2011/1050 namely to allow for the unloading of trains beyond the approved operating hours.	within 2km	1	Operation	Heritage	No	No
						Visual	No	No
160	PA/2015/1371	Planning permission to erect four warehouses B1/B2/B8 with trade counter, associated external works, perimeter fencing, lighting columns and landscaping.	Within 100 m	1	Operation	Heritage	No	No
						Noise	No	No
						Visual	No	No
240	WD/2015/1184	Planning permission to erect a waste transfer station building with ancillary office, weighbridge, sprinkler tank, pump house and diesel tank, and relocate North Lincolnshire Council's transport services with ancillary mess facilities building, office building and covered parking bays, together with re-surfacing of hard-standing and re-configuration of the main vehicular entrance.	Within 7.5 km	1	Operation	Heritage	No	No
						Visual	No	No
189	PA/2021/503	Planning permission for the installation of a new 25m high Swann Type A	Within 100 m	1	Operation	Heritage	No	No
						Noise	No	No

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
		telecommunications monopole mast to support the existing 3 no. antenna and an additional 3 no. apertures including ancillary ground-level apparatus including cable management and control equipment to be housed in the existing equipment cabinets.				Visual	No	No
192	PA/2021/1173	Outline planning permission to erect 28 x storage units.	Within 100 m	1	Operation	Heritage	No	No
						Noise	No	No
						Visual	No	No
S1	Section 36 Consent Variation	Keadby II Power Station Project. 910MW Combined gas fired generating station (CCGT).	Within 7.5 km	1	Construction	Visual	Yes	Yes
					Operation	Visual	Yes	Yes
						Heritage	Yes	Yes
						Air quality	Yes	Yes
						Ecology (from air quality)	Yes	Yes
N2	EN010114 (Planning Inspectorate Reference)	Keadby 3 Low Carbon Gas Power Station Project. A combined cycle gas turbine (CCGT) power station, comprising a CCGT unit with a	Within 7.5 km	1	Construction	Visual	Yes	Yes
					Operation	Visual	Yes	Yes
						Heritage	Yes	Yes

ID	Application Reference	Description of Other Development	Location in relation to Order Limits	Tier	Overlap in temporal scope	Within ZoI for named topic	Scale and nature of development could potentially have a significant effect?	Take into Stages 3 and 4?
		capacity of up to 910 megawatts (MW) electrical output (gross), carbon capture and compression plant, a CO_2 export pipeline connection, and associated development.				Air quality	Yes	Yes
						Ecology (from air quality)	Yes	Yes

6. CEA STAGES 3 AND 4

6.1.1.1 Based on the outcome of Stages 1 and 2 of the CEA a number of other developments were taken forward for further consideration in Stages 3 and 4 of the CEA. The number of other developments considered in each topic varied depending on the size of the topic ZoIs and the likely nature of the impacts from the other developments (for example, a housing development being constructed could be considered to have potential cumulative noise effects with the Project's construction, but to have no likely significant cumulative noise effects during operation of the housing development).

6.1.1.2 To the extent necessary, further information on the short-listed developments was collected and considered in making the EIA topic assessments. Each topic applied its standard assessment criteria in undertaking the CEA and the mitigation measures already committed to by the Project were inherently considered. In considering the likely effects of other developments the CEA assumed that they would all be required to meet regulatory requirements and a standard of good industry practice. Each topic also considered whether the cumulative effect of the Project plus other development would lead to a different (i.e. greater) level of significance than that for the Project alone.

6.1.1.3 The following sections provide some topic-specific context and are followed by topic-specific tables that present the results of the CEA. Topic specific tables are not presented for air quality effects on people and air quality effects on ecology as these topics required a level of coverage that is more appropriately presented in text format. Similar considerations apply to the discussion of cumulative socio-economic effects.

6.2 Air Quality – Construction Dust

6.2.1.1 The potential ZoI for unmitigated dust impacts from the Project is up to 350 m from the Order Limits. Figure 1 in Appendix A shows the other developments within the ZoI around the Order Limits that could theoretically have cumulative effects on sensitive receptors with the Project. A cumulative dust effect could only occur to a sensitive receptor if dust-raising activities occurred within the Order Limits concurrently with dust-raising activity from another development, a receptor was within 350 m and downwind, and neither activity employed dust control mitigation.

6.2.1.2 As detailed in Chapter 5 Air Quality and in the outline Dust Management Plan (refer to CoCP, Annex 7, **Document Reference 6.3.7**) the Project will employ dust control measures of proven effectiveness at all times when there is a potential for dust impacts at receptors. It is reasonable to assume that other developments will be required through discharging their planning conditions to do the same. On this basis there will be no significant cumulative effects from construction dust.

6.3 Air Quality – Impacts from Operational Emissions

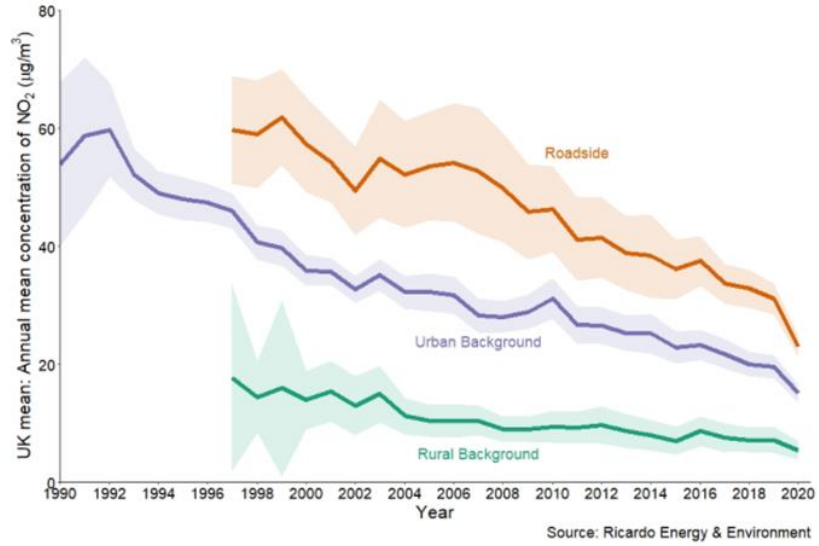
6.3.1 Baseline Trends

6.3.1.1 Modern air quality regulation really began in earnest in the 1950s in response to the widespread pollution episodes (smogs) that afflicted UK cities. More recently regulation has been driven further by the need to improve urban air quality for the protection of health and the need to protect ecology, e.g. from acid rain events linked to UK emissions.

6.3.1.2 These regulatory drivers, alongside social, health and climate change pressures, have seen substantial reductions in emissions in the UK. The use of coal for power generation has all but disappeared; renewable electricity has further reduced the use of coal, gas, and oil for power; emissions from road vehicles have continuously decreased; and industrial emissions have decreased substantially in line with ever more stringent emissions regulations.

6.3.1.3 In the case of cumulative effects, the principal pollutants of interest are nitrogen dioxide (NO_2), sulphur dioxide (SO_2) and ammonia (NH_3), all of which are pollutants in their own right as well as all contributing to acid deposition. Figure A shows the trend in ambient concentrations of NO_2 in the UK 1990 to 2020. This highlights the magnitude of the change, noting that rural NO_2 has reduced by more than half in this period (Office of National Statistics Concentrations of nitrogen dioxide).

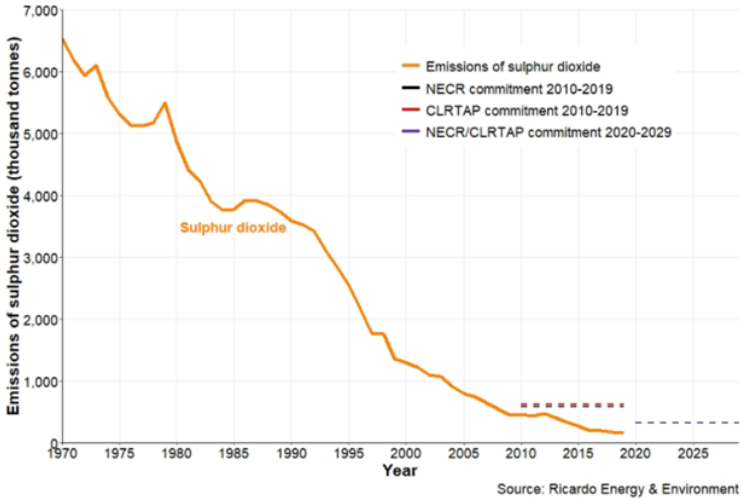
Figure A Trends in Annual mean concentration of NO_2 in the UK 1990 to 2020



6.3.1.4 NO_2 emissions, and by definition their contribution to acid and nitrogen deposition, will continue to reduce in the future. The UK remains committed to the European Union's Best Available Techniques Reference Notes (Bref Notes), which will continue to drive down emissions. Vehicle emissions will continue on a downward trajectory, and this will accelerate with the increasing uptake of electric vehicles.

6.3.1.5 The trend in SO_2 emissions has been even more pronounced than NO_2, with a 97% reduction between 1970 and 2020. The wind down of coal fired power generation, the replacement of domestic coal with gas and electricity, road fuel desulphurisation and the increased regulation of industrial SO_2 emissions has drastically reduced emissions. This is illustrated in Figure B (source: Office of National Statistics Emissions of air pollutants in the UK – Sulphur dioxide (SO_2).

Figure B Trends in Annual Emissions of SO_2 in the UK: 1970 to 2019



6.3.1.6 SO_2 emissions, and their contribution to acid deposition, will also continue to reduce. Clearly the trend will be less than previously due to the huge gains made in emissions reductions over the last fifty years, but improvements, for example driven through the Bref process and uptake of zero carbon technologies will continue.

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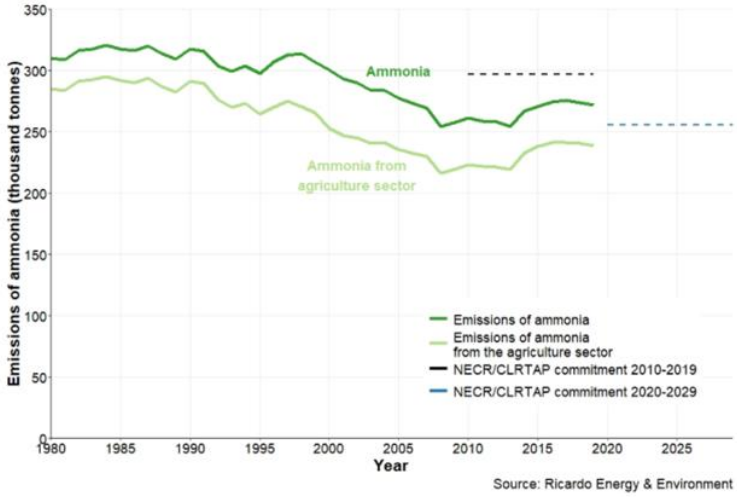
6.3.1.7 The trend in emissions of ammonia to air are far less pronounced compared to NO_2 and SO_2. The trends in ammonia emissions are shown in Figure C.

Figure C Trends in Annual Emissions of ammonia in the UK: 1980 to 2019



6.3.1.8 By far the greatest source of ammonia emissions is agriculture with greater than 80% of emissions from this sector. The trend at the moment is, if anything, towards higher emissions. However, the agricultural sector has been paid scant attention in terms of the emissions to air with little meaningful regulation of emissions. Agricultural emissions are specifically picked up as a key topic in the UK Government's 2019 Air Quality Strategy. The strategy sets out national policy to address ammonia emissions from agriculture with the specific intention of driving these downwards.

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6.3.2 Effects on People

6.3.2.1 In terms of cumulative impacts, the only pollutant emissions that could cause a possible cumulative effect are associated with the operations of Keadby 2 and Keadby 3; the relevant emissions are NO_2, ammonia and amines.

6.3.2.2 In the UK ambient air quality is regulated through Local Air Quality Management (LAQM) for the UKs statutory air quality standards. LAQM states that at locations where ambient air quality standards are either exceeded or at significant risk of being exceeded an Air Quality Management Area (AQMA) should be declared. The vast majority of AQMAs in the UK are associated with NO_2. However, there are no AQMAs for NO_2 in the Project study area indicating that the NO_2 air quality standards are not at risk of being exceeded.

6.3.2.3 For NO_2 the predicted environmental concentration (PEC: the predicted contribution of the Project plus the baseline) is no more than 30% of either

the 1 hour or annual mean standard. This reflects the low baseline in the vicinity of the Project, and this also leaves a very substantial 'headroom' for the contribution of Keadby 2 and Keadby 3, neither of which would have been approved with impacts that would occupy the entirety of the headroom available. Furthermore, the points of maximum impact of Keadby 2 and Keadby 3 are not coincidental with the highest impacts of the Project further reducing cumulative impacts.

6.3.2.4 The air quality standards for the protection of human health for ammonia are much less stringent than those for ecology. As such there is a substantial headroom between the baseline and the air quality standard. Furthermore, the impacts of ammonia from the Project and Keadby 2 and Keadby 3 are collectively substantially well below the air quality standard and there is negligible risk of the cumulative impacts approaching the air quality standard.

6.4 Noise - Construction

6.4.1.1 A conservative assumption has been made that unmitigated construction noise impacts could be experienced up to 1 km from the Order Limits. Figure 2 in Appendix A shows the other developments within 1 km from the Order Limits that could have concurrent construction activity with the Project and are of sufficient scale to potentially contribute to cumulative effects with the Project. It should be noted that some of the other developments are applications relating to the same location and therefore represented by a single point on the figure as follows: 10(2) and 11(2); and 86 and 85. Table 5 presents the CEA for construction noise.

6.4.1.2 In all instances there is no change in the significance of the cumulative effect from that for the Project alone, or the cumulative effect is of minor significance with the Project making a negligible/minor contribution to the cumulative impact.

6.5 Vibration – Construction

6.5.1.1 Vibration is only likely to have a significant effect within 100 m of particular activities such as driven piling or use of vibratory compactors. A conservative assumption has been made that such activities could take place right up to the boundaries of the Order Limits. Figure 3 in Appendix A shows the other developments within 100 m from the Order Limits that could have concurrent construction activity with the Project and are of sufficient scale to potentially contribute to cumulative effects with the Project. It should be noted that some of the other developments are applications relating to the same location and therefore represented by a single point on the figure as follows: 86 and 85. Table 6 presents the CEA for vibration.

6.5.1.2 In all instances there is no change in the significance of the cumulative effect from that for the Project alone, or the cumulative effect is of minor significance with the Project making a negligible/minor contribution to the cumulative impact.

6.6 Noise – Operation

6.6.1.1 A conservative assumption has been made that unmitigated operational noise impacts could be experienced up to 1 km from the Order Limits. Figure 4 in Appendix A shows the other developments within 1 km from the Order Limits that could operate concurrently with the Project and are of sufficient scale to potentially contribute to cumulative effects with the Project. Table 7 presents the CEA for operational noise.

6.6.1.2 In all instances there is no change in the level of significance of the cumulative effect from that for the Project alone.

6.7 Ecology – Construction Disturbance

6.7.1.1 A conservative assumption has been made that unmitigated construction impacts could be experienced by sensitive ecological receptors up to 2 km from the Order Limits. Figure 5 in Appendix A shows the other developments within 2 km from the Order Limits that could be constructed concurrently with the Project and are of sufficient scale to potentially contribute to cumulative effects with the Project. It should be noted that some of the other developments are applications relating to the same location and therefore represented by a single point on the figure as follows: 10(2) and 11(2); 200 and 180; and 86 and 85. Table 8 presents the CEA for construction disturbance effects on ecology.

6.7.1.2 In all instances there is no change in the level of significance of the cumulative effect from that for the Project alone.

6.7.1.3 The assessment also considered the possibility of cumulative effects with other developments located up to 2 km from the parts of SPAs, SACs and SSSIs falling within the initial 2 km zone. No new developments with the potential for disturbance effects on birds were identified within this extended 2 km zone. Only one development was identified close to the River Trent, which was a flood defence scheme which could cause disturbance during construction. However, this development is situated over 4 km south of the stretch of the River Trent which will be affected by disturbance from the Project, and also almost 1 km outside of the Ramsar boundary. At this distance, cumulative effects are considered unlikely.

6.8 Ecology – Operation

6.8.1.1 For operational emissions to air, two projects were identified that had the potential for cumulative effects with the Project: Keadby 2 Power Station Project and Keadby 3 Low Carbon Gas Power Station Project (Figure 6 in Appendix A).

6.8.1.2 Several other developments recently approved were also identified but screened out of the cumulative effects assessment for the reasons explained as follows.

- Eggborough (within 15 km of protected sites that are within 15 km of the Project) is a CCGT to replace a former coal fired generation station of similar size operating until 2018 and assumed to have been contributing to the baseline measurements made in recent years. This

development has been screened out as effectively displacing the emissions of a previous similar-sized emitter.

- West Burton (within 15 km of protected sites that are within 15 km of the Project) is a 299 MW gas-fired plant which will replace a much larger coal-fired plant scheduled to operate until September 2022. This development has been screened out as effectively displacing the emissions of a larger-sized emitter.
- Drax repower (within 15 km of protected sites that are within 15 km of the Project) is replacing the remaining two coal-fired units with gas turbines[1]. This development has been screened out as effectively displacing the emissions of a previous similar-sized emitter.
- Based on a review of Planning Applications for the Energy Recovery Facility at Doncaster (see BH EnergyGap LLP, 2020)[2] and the Energy Centre in Hull (Energy Works (Hull) Ltd, 2011)[3] it was apparent that each development had assessed its air quality effects to a distance of 10 km from their respective locations. It is reasonable to assume that no air quality impacts were predicted beyond these distances. The Energy Recovery Facility at Doncaster and the Energy Centre in Hull are approximately 13.3 km and 13.9 km away respectively from any parts of protected sites that are within 15 km of the Project. On this basis these other developments were screened out of the cumulative effects assessment.

6.8.1.3 The potential cumulative effects with the Keadby 2 and 3 projects are considered further below.

Project Overview: Keadby 2 and Keadby 3

6.8.1.4 The Keadby 2 Project is a CCGT which was approved under Section 36 of the Electricity Act, currently nearing completion of construction. It received its Environmental Permit to operate in November 2020. Information to support the assessment of cumulative effects is drawn from one of the permit application documents: Keadby Power Station - Environmental Permit Variation Application, Air Quality Impact Assessment and Habitat Regulations Assessment, 29 November 2019 (SSE, 2019)[4].

6.8.1.5 The Keadby 3 Carbon Capture Power Station Project is an NSIP for which the DCO application was accepted in June 2021. In its ES, Keadby 3 assessed air quality effects on protected sites (SSE, 2021a)[5] for the project

[1] Currently it appears that the Drax Repower project in the form of gas turbines will not proceed and a likely scenario is the existing coal-fired generation will be replace by biomass. Whatever the outcome, in emission terms it will still be a case of effectively displacing the emissions of a previous similar-sized emitter

[2] BH EnergyGap LLP (2020) Sandall Stones Road, Doncaster – Environmental Statement Volume 1 Chapter 5 Air Quality

[3] Energy Works (Hull) Ltd (2011) Environmental Statement - Air Quality and Odour and Environmental Statement Addendum for an Energy Works on three adjacent parcels of land in Hull (Application 11/00615/CM)

[4] SSE (2019) Keadby Power Station - Environmental Permit Variation Application, Air Quality Impact Assessment and Habitat Regulations Assessment, 29 November 2019

[5] SSE (2021a) The Keadby 3 Low Carbon Gas Power Station Project, Document Ref: 6.3, Environmental Statement Volume II - Appendix 8B: Air Quality - Operational Phase

alone and cumulatively with other developments (SSE, 2021b)[6]. In doing so it considered Keadby 2 as part of the baseline and did this by modelling Keadby 2 emissions and adding them to the current baseline. The assessment of Keadby 3 concluded that the Project could potentially have cumulative effects with Keadby 3 but since the Project was at an early stage in the application process insufficient data were available to make an assessment and that the onus would therefore fall on the Project to assess cumulative effects with Keadby 3.

6.8.1.6 Based on a review of the information provided in the Keadby 2 Environmental Permit application (SSE, 2019) and the Keadby 3 ES (SSE, 2021a) the following conclusions on cumulative effects can be made for the pollutants of interest, namely NOx, ammonia (NH_3), nutrient nitrogen deposition and acid deposition.

6.8.1.7 For the original assessment, ~~I~~it should be noted that the assessments of all three sets of emissions must be considered worst case for several reasons, including: (a) the values referred to are generally the highest that occur anywhere within a protected site and will not be coincident for all three projects; (b) predictions are usually from the worst-case year for meteorological data input to the dispersion model; and (c) predictions are based on worst-case operating hours scenarios.

6.8.1.8

The predicted cumulative levels and loads on some designated sites could not be screened out through the approach above. In many cases, this was due to a number of overlying worst-case assumptions around for example, the use of emission limits, modal split of traffic, comparison with the minimum range value of the critical load. As a result, a Reasonable Operating Case (ROC) was drawn up and the screening assessment revisited.

6.8.1.8 This revised cumulative assessment takes into account the updated air dispersion modelling of the ROC for the Project and also for Keadby 2 focuses on the more likely operating scenario of 4000 hrs as modelled at the permit application stage.

~~6.8.1.6~~

Emissions of NO_x (annual average and 24 hours) - European Sites[7]

6.8.1.9 For annual average NOx, the Keadby 2 and 3 assessments predict contributions at the Humber Estuary SAC~~,~~ ~~SSSI~~ and ~~and~~ Ramsar site ~~-~~of 1.3% (4,000 hrs instead of 2.9% with 8760 hrs) ~~2.9%~~ and 1.6% of the critical level respectively. The Project also makes a contribution of 3.03~~6.8~~% (ROC) of the critical level at these sites. Overall, the updated cumulative PC contribution is 5.93% (ROC and 4000 hours model) of the

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[6] SSE (2021b) The Keadby 3 Low Carbon Gas Power Station Project, Document Ref: 5.12, Habitats Regulations Assessment Screening Report

[7] European sites was the term used previously to include the special protection areas: SAC, SPA and Ramsar sites. The SAC and SPA sites are now referred to as the National Network of sites.

critical level. For the Humber Estuary SPA, the Keadby 2 and 3 assessments predict contributions of 0.~~6~~3% (4000 hours) -and 0.4% respectively, and the Project contributes 0.89~~1.0~~% (ROC) of the critical level. Overall, the updated cumulative PC contribution is 1.59% (ROC and 4000 hours model) of the critical level. It should be noted that these contributions will not coincide at the same locations within these protected sites. More importantly there is substantial headroom before the cumulative predicted environmental concentration (i.e. baseline, plus Keadby 2, Keadby 3 and the Project) meets and / or exceeds 70% the critical level (i.e. the threshold guideline used to indicate a need for further assessment, if it is exceeded). T~~.~~he cumulative PEC% of the CL is 60% for the Humber Estuary SAC / Ramsar (NOx PC annual average of 1.44, Baseline (max) of 16.6 µg/m3) and 53% for the Humber Estuary SPA (NOx PC annual average of 0.43, Baseline (max) of 15.6 µg/m3).

6.8.1.10 Contributions of annual NOx were substantially lower than 1% of the critical level at Thorne Moor SAC / Thorne & Hatfield Moors SPA based on the previous version of the HRA report (with contributions of 0.1%, 0.2% and 0.2% of the critical level predicted for the Project, Keadby 2 and Keadby 3[8] respectively).

~~6.8.1.7 Other than the Humber Estuary SSSI, Risby Warren is the SSSI worst affected by cumulative emissions from all three developments.~~

6.8.1.11 ~~It should be noted that these contributions will not coincide at the same locations within these protected sites. More importantly there is substantial headroom before the cumulative predicted environmental concentration (i.e. baseline, plus Keadby 2, Keadby 3 and the Project) meets and / or exceeds 70% the critical level (i.e. the threshold guideline used to indicate a need for further assessment, if it is exceeded).~~ Therefore, no cumulative effects are predicted from Annual Average NOx concentrations.

6.8.1.12 ~~Regarding s~~Short-term NOx concentrations ~~these~~ cannot, for reasons of meteorological conditions, simultaneously affect the same protected site (or part thereof) and so are not considered further.

Table 6.1 Cumulative Emissions of NOx (Annual) -European Sites

European Site	Emission Source	PC as % of Critical Level
Humber Estuary SAC, Ramsar	Project Alone: *Multiple Worst Cases (Original Assessment)*	6.8%
	Project Alone: *Reasonable Operating Case*	3.03%
	Keadby 2	1.3% (4,000 hrs instead of 2.9% with 8760 hrs)
	Keadby 3	1.6%
	Total	**5.93%**

[8] The NO_x contribution for Keadby 3 refers to Thorne Moor SAC only as contributions for Thorne & Hatfield Moors SPA were not presented.

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European Site	Emission Source	PC as % of Critical Level
Humber Estuary SPA	Project Alone: *Multiple Worst Cases (Original Assessment)*	1.0%
	Project Alone: *Reasonable Operating Case*	0.89%
	Keadby 2	0.3% (4,000 hrs instead of 0.6% with 8760 hrs)
	Keadby 3	0.4%
	Total	**1.59%**
Thorne Moor SAC	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.1%
	Keadby 2	0.2% (8760 hrs)
	Keadby 3	0.2%
	Total	**0.5%**
Thorne & Hatfield Moors SPA	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.1%
	Keadby 2	0.2% (8760 hrs)
	Keadby 3	0.2%
	Total	**0.5%**

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Emissions of NO_x (annual average and 24 hours) - National Sites

6.8.1.13 For annual average NOx, the Keadby 2 and 3 assessments predict contributions at the Humber Estuary SSSI of 1.3% (4,000 hrs instead of 2.9% with 8760 hrs) and 1.6% of the critical level respectively. The Project also makes a contribution of 3.03% (ROC) of the critical level at these sites. Overall, the updated cumulative PC contribution is 5.93% (ROC and 4000 hours model) of the critical level. The cumulative PEC% of the CL is 57% for the Humber Estuary SSSI (NOx PC annual average of 1.43, Baseline (max) of 15.6 µg/m3) and therefore within the 70% threshold.

6.8.1.14 The annual average NOx at Risby Warren SSSI for the Project alone was predicted to be 0.78% (ROC) of the critical level. The Keadby 2 and 3 assessments predict contributions at the Risby Warren SSSI of 0.2% based on 4000 hours (0.5% at 8760 hours) and 0.3% of the critical level respectively. Overall, the updated cumulative PC contribution is 1.28% (ROC and 4000 hours model) of the critical level. The cumulative PEC% of the CL is 51% for the Risby Warren SSSI (NOx PC annual average of 0.39, Baseline (max) of 14.83 µg/m3) and therefore within the 70% threshold.

6.8.1.15 Cumulative NO_x emissions were not predicted to exceed the 1% threshold at the other SSSIs and therefore are not discussed further. The ROC and 4000 hours model has been applied to the Keadby 2 data where relevant.

Table 6.2 Cumulative Emissions of NOx (Annual) - National Sites

Designated Site	Emission Source	PC as % of Critical Level
Humber Estuary SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	6.8%
	Project Alone: *Reasonable Operating Case*	3.03%
	Keadby 2	1.3% (4,000 hrs instead of 2.9% with 8760 hrs)
	Keadby 3	1.6%
	Total	**5.93%**
Risby Warren SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.9%
	Project Alone: *Reasonable Operating Case*	0.78%
	Keadby 2	0.2% (4000 hrs instead of 0.5% with 8760 hrs)
	Keadby 3	0.3%
	Total	**1.28%**
Messingham Sand Quarry SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.4%
	Keadby 2	0.3% (8760 hrs)
	Keadby 3	0.2%
	Total	**0.9%**
Broughton Alder Wood SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.3%
	Keadby 2	0.3% (8760 hrs)
	Keadby 3	0.3%
	Total	**0.9%**
Broughton Far Wood SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.3%
	Keadby 2	0.3% (8760 hrs)
	Keadby 3	0.3%
	Total	**0.9%**
Messingham Heath SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.3%

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Designated Site	Emission Source	PC as % of Critical Level
	Keadby 2	0.2% (4000 hrs instead of 0.5% with 8760 hrs)
	Keadby 3	0.2%
	Total	**0.7%**
Crowle Borrow Pits SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.2%
	Keadby 2	0.3% (8760 hrs)
	Keadby 3	0.3%
	Total	**0.8%**
Eastoft Meadow SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.2%
	Keadby 2	0.2% (8760 hrs)
	Keadby 3	0.3%
	Total	**0.7%**
Manton and Twigmoor SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.2%
	Keadby 2	0.3% (8760 hrs)
	Keadby 3	0.2%
	Total	**0.7%**
Scotton and Laughton Forest Ponds SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.2%
	Keadby 2	0.3% (8760 hrs)
	Keadby 3	0.2%
	Total	**0.7%**
Thorne, Crowle and Goole Moors SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.1%
	Keadby 2	0.2% (8760 hrs)
	Keadby 3	Not Assessed
	Total	**0.3%**
Tuetoes Hills SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.2%
	Keadby 2	0.3% (8760 hrs)
	Keadby 3	0.3%

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Designated Site	Emission Source	PC as % of Critical Level
	Total	**0.8%**
Belshaw SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.1%
	Keadby 2	0.3% (8760 hrs)
	Keadby 3	0.2%
	Total	**0.6%**
Epworth Turbary SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.1%
	Keadby 2	0.2% (8760 hrs)
	Keadby 3	0.1%
	Total	**0.4%**

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Ammonia - European Sites

6.8.1.16 Cumulative ammonia levels from all three developments are predicted to exceed the 1% threshold at Humber Estuary SAC, Ramsar ~~(see Table 6.3)~~ (see Table 6.3).

~~6.8.1.9 Keadby 2 and 3 assessments predict contributions of ammonia of 3.2% and 0.5% respectively of the critical level at Humber Estuary SAC, SSSI and Ramsar site. The Project is predicted to make a contribution of 1.6% of the critical level at Humber Estuary SAC and Ramsar site. For the Humber Estuary SPA, the Keadby 2 and 3 assessments predict contributions of 0.6% and 0.1% respectively, and the Project is predicted to make a contribution of 0.7% of the critical level.~~

6.8.1.17 Based on the 4000 hours operating case the Keadby 2 assessment predicts a PC of ammonia of 1.5% (4000 hrs) of the critical level at Humber Estuary SAC / Ramsar site, compared with 3.2% for the 8760 hours case. Keadby 3 predicts a PC of 0.5% and the Project 0.65% (ROC) instead of 1.6% (previous modelling). Overall, the updated in-combination PC contribution is 2.65% (1.5 + 0.5 + 0.65) of the critical level. Cumulatively (with Keadby 2 and Keadby 3), levels >1% of the CL remain at the Humber Estuary SAC / Ramsar. It is likely that loads for Keadby 2 will be around or less than 1% of the CL where they overlap with Project (based on a likely operating scenario for that project). Adverse effects are not envisaged, however, as effects are expected to be largely on reedbed habitat, which although part of the Atlantic salt meadows habitat, is known to be more resilient to the effects of ammonia and nitrogen. The reedbed may on occasions be inundation by nutrient laden tidal water. Effects are not expected to undermine the conservation objectives of the SAC / Ramsar.

6.8.1.18 For the Humber Estuary SPA, the Keadby 2 and 3 assessments predict PCs of 0.3% (4000 hrs) instead of 0.6% (8760 hrs) and 0.1% of the critical level respectively, and the Project makes a PC of 0.28% (ROC) instead of

0.7% (previous modelling). Overall, the updated in-combination PC contribution is 0.68% (0.3 + 0.1 +0.28) of the critical level and not considered further as within the 1% threshold.

6.8.1.19 At Thorne Moor SAC, ammonia PCs from the Project, Keadby 2 and Keadby 3 are predicted as 0.08% (ROC) instead of 0.2% (previous modelling), 0.3% (4000 hrs) instead of 0.7% (8760 hrs) and 0.2% of the critical level respectively. Overall, the updated in-combination PC contribution is 0.58% (0.08 + 0.3 +0.2) of the critical level and not considered further as within the 1% threshold.

6.8.1.20 ~~At Thorne Moor SAC, ammonia contributions from the Project, Keadby 2 and Keadby 3 are predicted as 0.2%, 0.7% and 0.2% of the critical level respectively.~~Thorne & Hatfield Moors SPA has similar Project PC at 0.03% (ROC) instead of 0.07% (previous modelling) and 0.3% (4000 hrs) instead of 0.6% (8760 hrs) for Keadby 2. The Keadby 3 report provided no relevant data on ammonia, although based on comparisons at other sites it is likely that levels at Keadby 3 would be much lower than from Keadby 2. Overall, the updated in-combination PC contribution is 0.33% for the Project and Keadby 2 (0.03 + 0.3) of the critical level and it is unlikely that any contribution from Keadby 3 would cause the combined PCs to exceed 1%.

~~6.8.1.10 Thorne & Hatfield Moors SPA has similar contributions at 0.1% of the critical level for the Project and 0.6% of the critical level for Keadby 2 (no data for Keadby 3). Other than the Humber Estuary SSSI, Risby Warren is the SSSI worst affected by cumulative emissions from all three developments, although other SSSIs may be affected to lesser degrees by the cumulative emissions.~~

6.8.1.21 Cumulatively with those from Keadby 2 and 3, there is no ~~a~~ need for further assessment of the effects of ammonia at European sites ~~on the Humber Estuary SAC, SSSI, SPA and Ramsar sites, Thorne Moor SAC, Thorne & Hatfield Moors SPA and Risby Warren SSSI~~.

Table 6.3 Cumulative Emissions of Ammonia - European Sites

European Site	Emission Source	PC as % of Critical Level
Humber Estuary SAC, Ramsar	Project Alone: *Multiple Worst Cases (Original Assessment)*	1.6%
	Project Alone: *Reasonable Operating Case*	0.65%
	Keadby 2	1.5% (4000 hrs instead of 3.2% with 8760 hrs)
	Keadby 3	0.5%
	Total	**2.65%**
Humber Estuary SPA	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.7%
	Project Alone: *Reasonable Operating Case*	0.28%

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European Site	Emission Source	PC as % of Critical Level
	Keadby 2	0.3% (4000 hrs instead of 0.6% with 8760 hrs)
	Keadby 3	0.1%
	Total	**0.68%**
Thorne Moor SAC	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.2%
	Project Alone: *Reasonable Operating Case*	0.08%
	Keadby 2	0.3% (4000 hrs instead of 0.7% with 8760 hrs)
	Keadby 3	0.2%
	Total	**0.58%**
Thorne & Hatfield Moors SPA	Project Alone: *Multiple Worst Cases (Original Assessment)*	0.1%
	Project Alone: *Reasonable Operating Case*	0.07%
	Keadby 2	0.3% (4000 hrs instead of 0.6% with 8760 hrs)
	Keadby 3	Not Assessed
	Total	**0.33%**

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Ammonia - National Sites

6.8.1.22 Cumulative ammonia levels from all three developments are predicted to exceed the 1% threshold at Risby Warren SSSI, Humber Estuary SSSI, Messingham Sand Quarry SSSI and Messingham Heath SSSI. Cumulative ammonia emissions were not predicted to exceed the 1% threshold at the other SSSIs and therefore are not discussed further (see Table 6.4).

6.8.1.23 At Risby Warren SSSI, ammonia PCs from the Project, Keadby 2 and Keadby 3 are predicted as 0.73% (ROC) instead of 1.82% (previous modelling), 0.7% (4000 hrs) instead of 1.5% (8760 hrs) and 0.3% of the critical level respectively. Overall, the updated cumulative PC contribution is 1.73% of the critical level and therefore requires further assessment.

6.8.1.24 Based on the 4000 hours operating case, Keadby 2 assessment predicts a PC of ammonia of 1.5% (4000 hrs) of the critical level at Humber Estuary SSSI, compared with 3.2% for the 8760 hours case. Keadby 3 predicts a PC of 0.5% and the Project 0.65% (ROC) instead of 1.6% (previous modelling). Overall, the updated cumulative PC contribution is 2.65% (1.5 + 0.5 + 0.65) of the critical level. As discussed in paragraph 06.8.1.8, it is likely that loads for Keadby 2 will be around or less than 1% of the CL where they overlap with Project (based on a likely operating scenario for that project). Adverse effects are not envisaged, however, as effects are

expected to be largely on reedbed habitat, which although part of the Atlantic salt meadows habitat, is known to be more resilient to the effects of ammonia and nitrogen. The reedbed may on occasions be inundation by nutrient laden tidal water. Effects are not expected to undermine the conservation objectives of the SSSI.

6.8.1.25 Based on the 4000 hours operating case, Keadby 2 assessment predicts a PC of ammonia of 0.5% (4000 hrs) of the critical level at Messingham Sand Quarry SSSI, compared with 1.0% for the 8760 hours case. Keadby 3 predicts a PC of 0.2% and the Project 0.34% (ROC) instead of 0.8% (previous modelling). Overall, the updated cumulative PC contribution is 1.04% of the critical level. Given that the Keadby 3 data are likely to have applied the worst-case assumptions, it has been assumed that the cumulative levels are likely to be <1% and hence no likely significant effect has been concluded.

6.8.1.26 Based on the 4000 hours operating case Keadby 2 assessment predicts a PC of ammonia of 0.8% (4000 hrs) of the critical level at Messingham Heath SSSI, compared with 1.6% for the 8760 hours case. Keadby 3 predicts a PC of 0.2% and the Project 0.3% (ROC). Overall, the updated ~~in-combination~~cumulative PC contribution is 1.3% of the critical level. Cumulatively, it is likely that the ammonia levels will remain just above 1% of the CL (1.3%), however, given the Keadby 3 data are likely to have applied the worst-case assumptions and as the habitat still supports ~~taking into account the current Unfavourable - Recovering condition of the main habitats and the continued presence of~~ lichens (which are highly sensitive to air emissions)~~.~~, significant effects are not predicted.

~~Based on the 4000 hours operating case Keadby 2 assessment predicts a PC of ammonia of 0.8% (4000 hrs) of the critical level at Messingham Heath SSSI, compared with 1.6% for the 8760 hours case. Keadby 3 predicts a PC of 0.2% and the Project 0.3% (ROC). Overall the updated in-combination PC contribution is 1.3% of the critical level. Cumulatively, it is likely that the ammonia levels will remain just above 1% of the CL (1.3%), however, given the Keadby 3 data are likely to have applied the worst-case assumptions and taking into account the current Unfavourable - Recovering condition of the main habitats and the continued presence of lichens, significant effects are not predicted.~~

6.8.1.27 Cumulatively with those of Keadby 2 and 3, there is a need for further assessment of the effects of ammonia at Risby Warren SSSI.

Table 6.4 Cumulative Emissions of Ammonia - National Sites

Designated Site	Emission Source	PC as % of Critical Level
Risby Warren SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	1.8%
	Project Alone: *Reasonable Operating Case*	0.73%
	Keadby 2	0.7% (4000 hrs instead of 1.5% with 8760 hrs)
	Keadby 3	0.3%

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Designated Site	Emission Source	PC as % of Critical Level
	Total	**1.73%**
Humber Estuary SSSI	Project Alone: *Multiple Worst Cases (Original Assessment)*	1.6%
	Project Alone: *Reasonable Operating Case*	0.65%
	Keadby 2	1.5% (4000 hrs instead of 3.2% with 8760 hrs)
	Keadby 3	0.5%
	Total	**2.65%**
Messingham Sand Quarry SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.8%
	Project Alone: *Reasonable Operating Case*	0.34%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.2%
	Total	**1.04%**
Messingham Heath SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.7%
	Project Alone: *Reasonable Operating Case*	0.3%
	Keadby 2	0.8% (4000 hrs instead of 1.6% with 8760 hrs)
	Keadby 3	0.2%
	Total	**1.3%**
Broughton Far Wood SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.6%
	Project Alone: *Reasonable Operating Case*	0.25%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.1%
	Total	**0.85%**
Manton and Twigmoor SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.5%

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Designated Site	Emission Source	PC as % of Critical Level
	Project Alone: *Reasonable Operating Case*	0.2%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.2%
	Total	**0.9%**
Scotton and Laughton Forest Ponds SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.5%
	Project Alone: *Reasonable Operating Case*	0.18%
	Keadby 2	0.5% (4000 hrs instead of 1.1% with 8760 hrs)
	Keadby 3	0.2%
	Total	**0.88%**
Tuetoes Hills SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.5%
	Project Alone: *Reasonable Operating Case*	0.19%
	Keadby 2	0.5% (4000 hrs instead of 1.1% with 8760 hrs)
	Keadby 3	0.3%
	Total	**0.99%**
Crowle Borrow Pits SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.4%
	Project Alone: *Reasonable Operating Case*	0.15%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.1%
	Total	**0.75%**
Broughton Alder Wood SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.2%
	Project Alone: *Reasonable Operating Case*	0.07%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.1%

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Designated Site	Emission Source	PC as % of Critical Level
	Total	**0.67%**
Epworth Turbary SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.2%
	Project Alone: *Reasonable Operating Case*	0.08%
	Keadby 2	0.7% (8760 hrs)
	Keadby 3	0.1%
	Total	**0.88%**
Thorne, Crowle and Goole Moors SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.2%
	Keadby 2	0.7%
	Keadby 3	Not assessed
	Total	**0.9%**
Belshaw SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.1%
	Keadby 2	0.3%
	Keadby 3	0.1%
	Total	**0.5%**
Eastoft Meadow SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.1%
	Keadby 2	0.3%
	Keadby 3	0.1%
	Total	**0.5%**

~~Designated Site~~	~~Emission Source~~	~~PC as % of Critical Level~~
~~Risby Warren SSSI~~	~~Project Alone: *Multiple Worst Cases (Original Assessment)*~~	~~1.8%~~
	~~Project Alone: *Reasonable Operating Case*~~	~~0.73%~~
	~~Keadby 2~~	~~0.7% (4000 hrs instead of 1.5% with 8760 hrs)~~
	~~Keadby 3~~	~~0.3%~~
	~~**Total**~~	~~**1.73%**~~
~~Humber Estuary SSSI~~	~~Project Alone: *Multiple Worst Cases (Original Assessment)*~~	~~1.6%~~
	~~Project Alone: *Reasonable Operating Case*~~	~~0.65%~~

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Designated Site	Emission Source	PC as % of Critical Level
	Keadby 2	1.5% (4000 hrs instead of 3.2% with 8760 hrs)
	Keadby 3	0.5%
	Total	**2.65%**
Messingham Sand Quarry SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.8%
	Project Alone: *Reasonable Operating Case*	0.34%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.2%
	Total	**1.04%**
Messingham Heath SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.7%
	Project Alone: *Reasonable Operating Case*	0.3%
	Keadby 2	0.8% (4000 hrs instead of 1.6% with 8760 hrs)
	Keadby 3	0.2%
	Total	**1.3%**
Broughton Far Wood SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.6%
	Project Alone: *Reasonable Operating Case*	0.25%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.1%
	Total	**0.85%**
Manton and Twigmoor SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.5%
	Project Alone: *Reasonable Operating Case*	0.2%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.2%
	Total	**0.9%**
Scotton and Laughton Forest Ponds SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.5%
	Project Alone: *Reasonable Operating Case*	0.18%

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Designated Site	Emission Source	PC as % of Critical Level
	Keadby 2	0.5% (4000 hrs instead of 1.1% with 8760 hrs)
	Keadby 3	0.2%
	Total	**0.88%**
Tuetoes Hills SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.5%
	Project Alone: *Reasonable Operating Case*	0.19%
	Keadby 2	0.5% (4000 hrs instead of 1.1% with 8760 hrs)
	Keadby 3	0.3%
	Total	**0.99%**
Crowle Borrow Pits SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.4%
	Project Alone: *Reasonable Operating Case*	0.15%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.1%
	Total	**0.75%**
Broughton Alder Wood SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.2%
	Project Alone: *Reasonable Operating Case*	0.07%
	Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
	Keadby 3	0.1%
	Total	**0.67%**
Epworth Turbary SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.2%
	Project Alone: *Reasonable Operating Case*	0.08%
	Keadby 2	0.7% (8760 hrs)
	Keadby 3	0.1%
	Total	**0.88%**
Thorne, Crowle and Goole Moors SSSI	Project Alone: Multiple Worst Cases (Original Assessment)	0.2%
	Keadby 2	0.7%
	Keadby 3	Not assessed
	Total	**0.9%**

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~~Designated Site~~	~~Emission Source~~	~~PC as % of Critical Level~~
~~Belshaw SSSI~~	~~Project Alone: Multiple Worst Cases (Original Assessment)~~	~~0.1%~~
	~~Keadby 2~~	~~0.3%~~
	~~Keadby 3~~	~~0.1%~~
	~~**Total**~~	~~**0.5%**~~
~~Eastoft Meadow SSSI~~	~~Project Alone: Multiple Worst Cases (Original Assessment)~~	~~0.1%~~
	~~Keadby 2~~	~~0.3%~~
	~~Keadby 3~~	~~0.1%~~
	~~**Total**~~	~~**0.5%**~~

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Nitrogen Deposition - European Sites

6.8.1.28 Cumulative nitrogen deposition from all three developments is predicted to exceed the 1% threshold at Humber Estuary SAC / Ramsar site and SPA (see Table 6.5). Cumulative nitrogen deposition was not predicted to exceed the 1% threshold at the other sites and therefore are not discussed further.

6.8.1.29 At the Humber Estuary SAC and Ramsar site, nitrogen deposition PCs from the Project were predicted as 0.96% (ROC) instead of 2.3% (previous modelling) against the minimum end of the CL range, (0.64% against the maximum end of the Critical Load). The Keadby 2 assessment predicts a PC of 1.3% (minimum) to 0.89% (maximum) (4000 hours model) of the critical load, with Keadby 3 predicting 0.7%. Overall, the updated in-combination PC contribution is 2.96% (min) – 2.23% (max) (0.96 + 1.3 + 0.7 (min) / 0.64 + 0.89 + 0.7 (max)) of the critical load. In-combination (with Keadby 2 and Keadby 3), levels >1% of the CL remain at the Humber Estuary SAC/Ramsar. It is likely that loads for K2 will be around or less than 1% of the CL where they overlap with Project (based on a likely operating scenario for that project). Adverse effects are not envisaged, however, as effects are expected to be largely on reedbed habitat, which although part of the Atlantic salt meadows habitat, is known to be more resilient to the effects of nitrogen. The reedbed may on occasions be inundation by nutrient laden tidal water. Effects are not expected to undermine the conservation objectives of the SAC/Ramsar.

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6.8.1.30 For the Humber Estuary SPA, Keadby 2 predicts PC contributions of 0.35% to 0.17% (4000 hours model) of the critical load, Keadby 3 predicting 0.2%, and the Project predicts contributions of 0.35 – 0.47% (minimum depending on interest feature) to 0.24% (maximum). Overall, the updated in-combination PC contribution is 0.9 – 1.02% (min) – 0.61% (max) (0.35 + 0.2 + 0.35 / 0.35 + 0.2 +0.47 (min) / 0.17 + 0.2 + 0.24 (max)) of the critical load. Given that the Keadby 3 data are likely to have applied the worst-

case assumptions, it has been assumed that the cumulative levels are likely to be <1% and hence no likely significant effect has been concluded.

6.8.1.31 At Thorne Moor SAC, PCs as a percentage of the critical load are predicted as 0.13% (min) - 0.07% (max) (Project ROC), 0.37% (min) - 0.18% (max) (Keadby 2 4000 hrs), and 0.2% (Keadby 3). Overall, the updated in-combination PC contribution is 0.7% (min) – 0.45% (max)

6.8.1.32 PC contributions at Thorne & Hatfield Moors SPA as a percentage of the critical load are 0.07% (min) – 0.03% (max) (Project ROC) and 0.18% (min) – 0.09% (max) (Keadby 2 4000 hrs). No data were available for Keadby 3. Overall, the updated in-combination PC contribution is 0.25% (min) – 0.12% (max) of the critical level for the Project and Keadby 2 and it is unlikely that any contribution from Keadby 3 would cause the combined PCs to exceed 1%.

~~6.8.1.12 The Keadby 2 assessment predicts a contribution of nutrient nitrogen of 2.0 to 2.9% of the critical load at Humber Estuary SAC and Ramsar site, and Keadby 3 assessment predicts a contribution of 0.7%. The Project is predicted to make a contribution of 2.3% of the critical load at Humber Estuary SAC and Ramsar site. For the Humber Estuary SPA, Keadby 2 predicts contributions of 0.4 – 0.8% of the critical load, Keadby 3 predicts a contribution of 0.2%, and the Project predicts contributions of 0.7 – 0.9% of the critical load.~~

~~6.8.1.13 At Thorne Moor SAC, nitrogen deposition from the Project, Keadby 2 and Keadby 3 are predicted as 0.3%, 0.8% and 0.2% of the critical load respectively. At Thorne & Hatfield Moors SPA, contributions are 0.3% of the critical load for the Project and 0.4% of the critical load for Keadby 2 (no data for Keadby 3). Other than the Humber Estuary SSSI, Risby Warren is the SSSI worst affected by cumulative emissions from all three developments, although other SSSIs may be affected to lesser degrees by the cumulative emissions.~~

6.8.1.33 Cumulatively with those of Keadby 2 and 3, there is not a need for further assessment of the effects of nitrogen deposition on ~~the Humber Estuary SAC, SPA and Ramsar site~~European Sites.~~, Thorne Moor SAC, Thorne & Hatfield Moors SPA and Risby Warren SSSI.~~

Table 6.5 Cumulative Emissions of Nitrogen Deposition- European Sites

European Site	Qualifying Interest Feature	Emission Source	PC as % of CL	
			Min	Max
Humber Estuary SAC, Ramsar	Atlantic salt meadows Estuaries	Multiple Worst Cases (Original Assessment)	2.3%	1.5%
		Reasonable Operating Case	0.96%	0.64%
		Keadby 2	1.3% (4000 hours)	0.89% (4000 hours)
		Keadby 3	0.7%	-
		Total	**2.96%**	**2.23%**
Humber Estuary SPA	Rich fens	*Reasonable* Operating Case	0.47%	0.24
		Keadby 2	0.35 (4000 hours)	0.17 (4000 hours)
		Keadby 3	0.2%	-
		Total	**1.02%**	**0.61%**
Thorne Moor SAC	Degraded raised bogs still capable of natural regeneration	*Reasonable* Operating Case	0.13%	0.07%
		Keadby 2	0.37% (4000 hours)	0.18% (4000 hours)
		Keadby 3	0.2%	-
		Total	**0.7%**	**0.45%**
Thorne & Hatfield Moors SPA	Dwarf shrub heath supporting European nightjar	*Reasonable* Operating Case	0.07%	0.03%
		Keadby 2	0.18% (4000 hours)	0.09% (4000 hours)

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European Site	Qualifying Interest Feature	Emission Source	PC as % of CL	
			Min	Max
		Keadby 3	Not assessed	-
		Total	0.25%	0.12%

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Nitrogen Deposition - National Sites

6.8.1.34 Cumulative nitrogen deposition from all three developments is predicted to exceed the 1% threshold at Humber Estuary SSSI, Risby Warren SSSI, Messingham Heath SSSI and Crowle Borrow Pits SSSI (see Table 6.6). Cumulative nitrogen deposition was not predicted to exceed the 1% threshold at the other SSSIs and therefore are not discussed further for these sites.

6.8.1.35 At Humber Estuary SSSI, nitrogen deposition from the Project, predicted as percentages of the CLs of 0.63% for saltmarsh and neutral grassland and 0.84% for fen, marsh and swamp[9]. against the minimum end of the CL range, (0.42% against the maximum end of the Critical Load for both habitats). The Keadby 2 assessment predicts a PC of 1.3% (minimum) to 0.89% (maximum) (4000 hours model) of the critical load, with Keadby 3 predicting 0.7%. Overall, the updated cumulative PC contribution, based on the fen, marsh and swamp habitat, is 2.84% of the minimum critical level and 2.01% of the max CL. Cumulatively, levels >1% are predicted, however, the effects are likely to be on similar areas of reedbed which, as described in paragraph 6.8.1.296.8.1.32, although part of the Atlantic salt meadows habitat, is known to be more resilient to the effects of nitrogen. The reedbed may on occasions be inundation by nutrient laden tidal water. Effects are not expected to undermine the conservation objectives of the SSSI.

6.8.1.36 At Risby Warren SSSI, nitrogen deposition PCs from the Project, predicted as 0.77% (ROC) instead of 1.5% (previous modelling) against the minimum end of the CL range, however less than the 1% Critical Load (0.41%(ROC)) if assessed against the maximum end of the Critical Load range. Nitrogen deposition from Keadby 2 predicted against the 4000 modelled operating hours was 0.5% against the minimum CL (0.27% (max)) and Keadby 3 at 0.3% of the critical level. Overall, the updated cumulative PC contribution is 1.57% of the minimum critical level however 0.98% of the max CL and further assessment is required.

6.8.1.37 At Messingham Heath SSSI, nitrogen deposition PCs from the Project, predicted as 0.28% (ROC) against the minimum end of the CL range (0.18% max). Nitrogen deposition from Keadby 2 predicted against the 4000 modelled operating hours was 0.6% against the minimum CL (0.3% (max)) and Keadby 3 at 0.2% of the critical level. Overall, the updated cumulative PC contribution is 1.08% of the minimum critical level however 0.65% of the max CL. Given that the cumulative contribution is marginally above the 1% threshold at the CL min (1.08%) and well within the 1% threshold against the max CL (0.65%), and given that the Keadby 3 data are likely to have applied the worst-case assumptions and as the habitat still supports lichens (which are highly sensitive to air emissions), significant effects are not predicted.

[9] These percentages are lower than those quoted for the Humber Estuary SAC in the HRA (Revision 2), as they reflect further refinement in the assessment that was undertaken when considering the effects of the ROC for the Humber Estuary SSSI. It is likely that such percentages would be achieved at the Humber Estuary SAC too.

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6.8.1.38 At Crowle Borrow Pits SSSI, nitrogen deposition PCs from the Project, predicted as 0.13% (ROC) against the minimum end of the CL range (0.06% max). Nitrogen deposition from Keadby 2 predicted against the 4000 modelled operating hours was 0.5% against the minimum CL (0.23% (max)) and Keadby 3 at 0.5% of the critical level. Overall, the updated cumulative PC contribution is 1.13% of the minimum critical level however 0.79% of the max CL. Given that the cumulative contribution is marginally above the 1% threshold at the CL min (1.13%) and within the 1% threshold against the max CL (0.79%), and that the Keadby 3 data are likely to have applied the worst-case assumptions, significant effects are not predicted.

6.8.1.39 Cumulatively with those of Keadby 2 and 3, there is a need for further assessment of the effects of nitrogen deposition on Risby Warren SSSI.

Table 6.6 Cumulative Emissions of Nitrogen Deposition - National Sites

Designated Site	Qualifying Interest Feature	Emission Source	PC as % of Critical Load	
			Min	Max
Humber Estuary SSSI	Fen, marsh and swamp (*Phragmites australis* swamp and reed-beds) -	Multiple Worst Cases (Original Assessment)	3.0%	1.52%
		Reasonable Operating Case	0.84%	0.42%
		Keadby 2	1.3%	0.89%
		Keadby 3	0.7	-
		Total	**2.84%**	**2.01% (inc. Keadby 3 CL min)**
Risby Warren SSSI	Acid grassland	Multiple Worst Cases (Original Assessment)	1.5%	0.8%
		Reasonable Operating Case	0.77%	0.41%
		Keadby 2	0.5% (4000 hrs instead of 1.1% with 8760 hrs)	0.27% (4000 hrs instead of 0.6% with 8760 hrs)
		Keadby 3	0.3%	-
		Total	**1.57%**	**0.98% (inc. Keadby 3 CL min)**
Messingham Heath SSSI	Acid grassland	Multiple Worst Cases (Original Assessment)	0.6%	-
		Reasonable Operating Case	0.28%	0.15%

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Designated Site	Qualifying Interest Feature	Emission Source	PC as % of Critical Load	
			Min	Max
		Keadby 2	0.6% (4000 hrs instead of 1.2% with 8760 hrs)	0.3% (4000 hrs instead of 0.7% with 8760 hrs)
		Keadby 3	0.2%	-
		Total	**1.08%**	**0.65% (inc. Keadby 3 CL min)**
Messingham Sand Quarry SSSI	Broadleaved woodland	Multiple Worst Cases (Original Assessment)	0.6%	-
		Reasonable Operating Case	0.28%	-
		Keadby 2	0.4% (4000 hrs instead of 1.0% with 8760 hrs)	-
		Keadby 3	0.2%	-
		Total	**0.84%**	-
Manton and Twigmoor SSSI	Acid grassland	Multiple Worst Cases (Original Assessment)	0.4%	-
		Reasonable Operating Case	0.22%	-
		Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)	-
		Keadby 3	0.2%	-
		Total	**0.92%**	-
Tuetoes Hills SSSI	Dune and acid grassland	Multiple Worst Cases	0.4%	-

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Designated Site	Qualifying Interest Feature	Emission Source	PC as % of Critical Load	
			Min	Max
		(Original Assessment)		
		Reasonable Operating Case	0.2%	-
		Keadby 2	0.4% (4000 hrs instead of 0.9% with 8760 hrs)	-
		Keadby 3	0.3%	-
		Total	**0.9%**	-
Broughton Far Wood SSSI	Broadleaved woodland	Multiple Worst Cases (Original Assessment)	0.3%	-
		Reasonable Operating Case	0.14%	-
		Keadby 2	0.3% (4000 hrs instead of 0.7% with 8760 hrs)	-
		Keadby 3	0.3%	-
		Total	**0.74%**	-
Epworth Turbary SSSI	Bogs	Multiple Worst Cases (Original Assessment)	0.3%	-
		Reasonable Operating Case	0.13%	-
		Keadby 2	0.4% (4000 hrs instead of 0.9% with 8760 hrs)	-
		Keadby 3	0.2%	-
		Total	**0.73%**	-

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Designated Site	Qualifying Interest Feature	Emission Source	PC as % of Critical Load	
			Min	Max
Scotton and Laughton Forest Ponds SSSI	Fen, marsh and swamp	Multiple Worst Cases (Original Assessment)	0.3%	-
		Reasonable Operating Case	0.15%	-
		Keadby 2	0.5% (4000 hrs instead of 1.1% with 8760 hrs)	-
		Keadby 3	0.2%	-
		Total	**0.85%**	-
Thorne, Crowle and Goole Moors SSSI	Bogs	Multiple Worst Cases (Original Assessment)	0.3%	-
		Reasonable Operating Case	0.13%	-
		Keadby 2	0.8% (8760 hrs)	-
		Keadby 3	Not Assessed	-
		Total	**0.93%**	-
Crowle Borrow Pits SSSI	Broadleaved woodland	Multiple Worst Cases (Original Assessment)	0.2%	-
		Reasonable Operating Case	0.13%	0.06%
		Keadby 2	0.5% (4000 hrs instead of 1.1% with 8760 hrs)	0.23% (4000 hrs instead of 0.5% with 8760 hrs)
		Keadby 3	0.5%	-

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Designated Site	Qualifying Interest Feature	Emission Source	PC as % of Critical Load	
			Min	Max
		Total	1.13%	0.79% (inc. Keadby 3 CL min)
Belshaw SSSI	Neutral grassland supporting greater yellow-rattle	Multiple Worst Cases (Original Assessment)	0.1%	-
		Keadby 2	0.3% (8760 hrs)	-
		Keadby 3	Not Assessed	-
		Total	0.4%	-
Eastoft Meadow SSSI	Neutral grassland	Multiple Worst Cases (Original Assessment)	0.1%	-
		Keadby 2	0.2% (8760 hrs)	-
		Keadby 3	0.2%	-
		Total	0.5%	-

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Acid Deposition - European Sites

6.8.1.40 Thorne Moor SAC is the only European site which is sensitive to the effects of acid deposition. PCs as a percentage of the critical load from the Project (ROC), Keadby 2 (4000 hrs) and Keadby 3 are predicted as 0.23%, 0.28% and 0.2% respectively. ~~In combination t~~The combined emissions from the Project, Keadby 2 and Keadby 3 are predicted to be 0.71%, and are screened out as they are well below 1% of the critical load threshold.

~~Thorne Moor SAC is the only European site which is sensitive to the effects of acid deposition. PCs as a percentage of the critical load from the Project (ROC), Keadby 2 (4000 hrs) and Keadby 3 are predicted as 0.23%, 0.28% and 0.2% respectively. In combination the combined emissions from the Project, Keadby 2 and Keadby 3 are predicted to be 0.71%, and are screened out as they are well below 1% of the critical load threshold.Individually the Project, Keadby 2 and Keadby 3 predict that the effects on acid deposition were insignificant at Thorne Moor SAC (the only European site which is sensitive to the effects of acid deposition in this assessment). Keadby 3 predicted no appreciable contribution of acid deposition on Thorne Moor SAC (0.0% of the critical load). However, cumulatively the combined emissions from the Project and Keadby 2 may equal or exceed the 1% of the critical load threshold, with contributions of 0.4% and 0.6% of the critical load respectively. Further consideration is given in the following section to acid deposition based on the above and the already high background levels of acid deposition at Thorne Moor SAC.~~

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~~Risby Warren and Messingham Heath are the SSSIs worst affected by cumulative emissions from all three developments, although other SSSIs may be affected to lesser degrees by the cumulative emissions.~~

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Acid Deposition - National Sites

6.8.1.41 Cumulative acid deposition from all three developments is predicted to exceed the 1% threshold at Risby Warren SSSI, Messingham Heath SSSI and Scotton and Laughton Forest Ponds SSSI (see Table 6.7~~Table 6.8~~). Cumulative acid deposition was not predicted to exceed the 1% threshold at the other SSSIs and therefore is not discussed further for these sites.

6.8.1.42 At Risby Warren SSSI, acid deposition PCs from the Project, predicted as 1.5% (ROC) instead of 3% (previous modelling) against the minimum end of the CL range, however less than the 1% Critical Load (0.23%(ROC)) if assessed against the maximum end of the Critical Load range. Acid deposition from Keadby 2 was predicted to be 0.4% (based on the 4000 hour model (0.8% based on the 8760 hours model) against the minimum CL and Keadby 3 at 0% of the critical level. Overall, the updated cumulative PC contribution is 1.9% of the minimum critical level however 0.63% of the max CL. Discussions with Natural England confirmed that the site must be assessed against the CL (min) due to the sensitivity of the qualifying features, their extensive loss and its Unfavourable-Declining Status across most of the site. Therefore, further consideration was given to deposited acid loads at Risby Warren SSSI.

6.8.1.43 At Messingham Heath SSSI, acid deposition PCs from the Project, predicted as 0.64% (ROC) instead of 1.1% (previous modelling) against the minimum and maximum CL and the majority of the site is noted to lie in the 0.55% - 0.6% range. Acid deposition from Keadby 2 was predicted to be 0.6% (4000 hours model) against the minimum and maximum CL and Keadby 3 at 0% of the critical level. Overall, the updated cumulative PC contribution is 1.24% of the critical level (ROC and 4000 hours model). It is likely that the cumulative acid deposition load at Messingham Heath SSSI will remain just above 1% of the CL (1.24%), however, as the habitat still supports lichens (which are highly sensitive to air emissions), significant effects are not predicted.

6.8.1.44 At Scotton and Laughton Forest Ponds SSSI, acid deposition PCs from the Project, predicted as 0.51% (ROC) against the minimum end of the CL range. Acid deposition from Keadby 2 predicted against the 4000 modelled operating hours was 0.5% against the minimum CL and Keadby 3 at 0.0% of the critical level. Overall, the updated cumulative PC contribution is marginally over the 1% threshold at 1.01%. Given that the threshold is marginally exceeded against the minimum critical loads, significant effects are not predicted.

6.8.1.45 Cumulatively with those of Keadby 2 and 3, there is a need for further assessment of the effects of acid deposition on the Risby Warren SSSI.

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Table 6.78 Cumulative Emissions of Acid Deposition - National Sites

SSSI	Qualifying Interest Feature	Emission Source	PC as % of Critical Load (Min)
Risby Warren SSSI	Acid grassland	Multiple Worst Cases (Original Assessment)	2.7%
		Reasonable Operating Case	1.5%
		Keadby 2	0.4% (4000 hrs instead of 0.8% with 8760 hrs)
		Keadby 3	0.0%
		Total	**1.9%**
Messingham Heath SSSI	Acid grassland	Multiple Worst Cases (Original Assessment)	1.1%
		Reasonable Operating Case	0.64%
		Keadby 2	0.6% (4000 hrs instead of 1.2% with 8760 hrs)
		Keadby 3	0.0%
		Total	**1.24%**
Manton And Twigmoor SSSI	Acid grassland and Fen, Marsh and Swamp	Multiple Worst Cases (Original Assessment)	0.9%
		Reasonable Operating Case	0.51
		Keadby 2	0.4% (4000 hrs instead of 0.8% with 8760 hrs)

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SSSI	Qualifying Interest Feature	Emission Source	PC as % of Critical Load (Min)
		Keadby 3	0.0%
		Total	**0.91%**
Scotton And Laughton Forest Ponds SSSI	Fen, marsh and swamp	Multiple Worst Cases (Original Assessment)	0.9%
		Reasonable Operating Case	0.51%
		Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
		Keadby 3	0.0%
		Total	**1.01%**
Tuetoes Hills SSSI	Acid grassland	Multiple Worst Cases (Original Assessment)	0.8%
		Reasonable Operating Case	0.4%
		Keadby 2	0.4% (4000 hrs instead of 0.9% with 8760 hrs)
		Keadby 3	0.0%
		Total	**0.8%**
Messingham Sand Quarry Sssi	Broadleaved woodland	Multiple Worst Cases (Original Assessment)	0.7%
		Reasonable Operating Case	0.4%

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SSSI	Qualifying Interest Feature	Emission Source	PC as % of Critical Load (Min)
		Keadby 2	0.2% (4000 hrs instead of 0.6% with 8760 hrs)
		Keadby 3	0.0%
		Total	**0.6%**
Broughton Far Wood Sssi	Broadleaved woodland	Multiple Worst Cases (Original Assessment)	0.6%
		Reasonable Operating Case	0.3%
		Keadby 2	0.32% (4000 hrs instead of 0.7% with 8760 hrs)
		Keadby 3	0.0%
		Total	**0.62%**
Epworth Turbary Sssi	Bogs	Multiple Worst Cases (Original Assessment)	0.4%
		Reasonable Operating Case	0.2%
		Keadby 2	0.7%
		Keadby 3	0.0%
		Total	**0.9%**
Thorne, Crowle And Goole Moors Sssi	Bogs	Multiple Worst Cases (Original Assessment)	0.4%
		Keadby 2	Not assessed

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SSSI	Qualifying Interest Feature	Emission Source	PC as % of Critical Load (Min)
		Keadby 3	Not assessed
		Total	N/A
Belshaw Sssi	Neutral grassland supporting greater yellow-rattle	Multiple Worst Cases (Original Assessment)	0.1%
		Keadby 2	0.0%
		Keadby 3	Not assessed
		Total	**0.1%**
Crowle Borrow Pits Sssi	Broadleaved woodland	Multiple Worst Cases (Original Assessment)	0.1%
		Keadby 2	0.3%
		Keadby 3	0.0%
		Total	**0.4%**
Eastoft Meadow Sssi	Neutral Grassland	Multiple Worst Cases (Original Assessment)	0.1%
		Keadby 2	0.1%
		Keadby 3	0.0%
		Total	**0.2%**

~~SSSI~~	~~Qualifying Interest Feature~~	~~Emission Source~~	~~Pc As % Of Critical Load (Min)~~
~~Risby Warren SSSI~~	~~Acid grassland~~	~~Multiple Worst Cases~~	~~2.7%~~

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		(Original Assessment)	
		Reasonable Operating Case	1.5%
		Keadby 2	0.4% (4000 hrs instead of 0.8% with 8760 hrs)
		Keadby 3	0.0%
		Total	**1.9%**
Messingham Heath Sssi	Acid grassland	Multiple Worst Cases (Original Assessment)	1.1%
		Reasonable Operating Case	0.64%
		Keadby 2	0.6% (4000 hrs instead of 1.2% with 8760 hrs)
		Keadby 3	0.0%
		Total	**1.24%**
Manton And Twigmoor Sssi	Acid grassland and Fen, Marsh and Swamp	Multiple Worst Cases (Original Assessment)	0.9%
		Reasonable Operating Case	0.51
		Keadby 2	0.4% (4000 hrs instead of 0.8% with 8760 hrs)
		Keadby 3	0.0%
		Total	**0.91%**
Scotton And Laughton Forest Ponds Sssi	Fen, marsh and swamp	Multiple Worst Cases (Original Assessment)	0.9%

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		Reasonable Operating Case	0.51%
		Keadby 2	0.5% (4000 hrs instead of 1.0% with 8760 hrs)
		Keadby 3	0.0%
		Total	**1.01%**
Tuetoes Hills Sssi	Acid grassland	Multiple Worst Cases (Original Assessment)	0.8%
		Reasonable Operating Case	0.4%
		Keadby 2	0.4% (4000 hrs instead of 0.9% with 8760 hrs)
		Keadby 3	0.0%
		Total	**0.8%**
Messingham Sand Quarry Sssi	Broadleaved woodland	Multiple Worst Cases (Original Assessment)	0.7%
		Reasonable Operating Case	0.4%
		Keadby 2	0.2% (4000 hrs instead of 0.6% with 8760 hrs)
		Keadby 3	0.0%
		Total	**0.6%**
Broughton Far Wood Sssi	Broadleaved woodland	Multiple Worst Cases (Original Assessment)	0.6%
		Reasonable	0.3%

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		Operating Case	
		Keadby 2	0.32% (4000 hrs instead of 0.7% with 8760 hrs)
		Keadby 3	0.0%
		Total	**0.62%**
Epworth Turbary Sssi	Bogs	Multiple Worst Cases (Original Assessment)	0.4%
		Reasonable Operating Case	0.2%
		Keadby 2	0.7%
		Keadby 3	0.0%
		Total	**0.9%**
Thorne, Crowle And Goole Moors Sssi	Bogs	Multiple Worst Cases (Original Assessment)	0.4%
		Keadby 2	Not assessed
		Keadby 3	Not assessed
		Total	N/A
Belshaw Sssi	Neutral grassland supporting greater yellow-rattle	Multiple Worst Cases (Original Assessment)	0.1%
		Keadby 2	0.0%
		Keadby 3	Not assessed
		Total	**0.1%**
Crowle Borrow Pits Sssi	Broadleaved woodland	Multiple Worst Cases	0.1%

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		~~(Original Assessment)~~	
		~~Keadby 2~~	~~0.3%~~
		~~Keadby 3~~	~~0.0%~~
		~~**Total**~~	~~**0.4%**~~
~~Eastoft Meadow Sssi~~	~~Neutral Grassland~~	~~Multiple Worst Cases (Original Assessment)~~	~~0.1%~~
		~~Keadby 2~~	~~0.1%~~
		~~Keadby 3~~	~~0.0%~~
		~~**Total**~~	~~**0.2%**~~

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~~6.8.1.15~~

Discussion

6.8.1.46 The findings of the revised modelling assessment show that the potential for cumulative likely significant effects on the following sites could not be excluded at Risby Warren SSSI only for ammonia, nitrogen deposition and acid deposition.

6.8.1.47 Given the unfavourable condition of the Risby Warren SSSI and the loss of key habitats already caused by historical air pollution, the focus of conservation objectives for the site is on restoration of the habitats. Hence any exceedance of the minimum critical level / critical load thresholds will undermine these conservation objectives. ~~the Applicant and~~ Natural England has advised that habitat management measures are ongoing at the site. NLGEP Ltd ~~rema~~are~~in~~ in discussion with NE abo~~to seek compens~~ut mitigation / compensat~~a~~tion options.

6.8.1.48 Cumulative effects from other pollutants on other designated sites have been screened out.

~~6.8.1.16 **Given the unfavourable condition of the Risby Warren SSSI and the loss of key habitats already caused by historical air pollution, the Applicant and NE remain in discussion to seek compensation options.**~~**Given the unfavourable condition of the Risby Warren SSSI and the loss of key habitats already caused by historical air pollution, the Applicant and NE remain in discussion to seek compensation options.**~~**As there is potential for the operational phases of the Keadby 2 and 3 projects to coincide with that of the Project, the potential for likely significant cumulative effects on protected sites is considered further in this section.**~~

~~6.8.1.17 **As described above, several protected sites affected by significant or insignificant contributions by Keadby 2, Keadby 3 and the Project, also have predicted environmental concentrations that exceed their critical levels for ammonia and/or their critical loads for nutrient nitrogen and acid deposition. As a result, any further exposure to atmospheric concentrations of ammonia or to deposition of nutrient nitrogen and acid could have significant cumulative effects. This is particularly the case for Risby Warren for example which is located very close to the steel production complex at Scunthorpe with the site**~~

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condition already affected by emissions (see Appendix A to Chapter 10, Document Reference 6.2.10).

6.8.1.18 It is important therefore to consider the wider context, particularly in terms of future trends given the Project will not begin to emit until 2028.

6.8.1.19 The wider context as presented in Section 6.23.1 on cumulative effects of air quality on people is therefore also relevant for ecology.

Conclusions on Cumulative Effects on Protected Sites

6.8.1.20 Clearly UK emissions, and their contribution to acid and nitrogen deposition, will be dominant at the designated sites close to the Project. However, transboundary pollution also contributes to the overall pollution burden, and acid and nitrogen deposition in the UK. Emissions from the European Union dominate transboundary emissions of NOx/NO_2, SO_2 and NH_3. Similar to the UK, there have been substantial reductions in emissions and airborne concentrations of pollutants across the EU. These improvements have been driven by the same drivers as exist in the UK and will also continue in the future.

6.8.1.21 In addition to the wider baseline it is also worth considering the likely changes to emissions and ambient concentrations in closer proximity to the Project. There are new emission sources in the form of Keadby 2 and Keadby 3 gas fired power plants a few kilometres to the southwest. However, there are several notable emission reductions, for example the Keadby 1 gas fired power station that has been taken completely off-line. It had emissions limits at least twice that of the new Keadby plants. The fleet of coal fired power plants that once dominated the Trent valley are all defunct now or very soon will be, Drax has moved to biomass with lower emissions of SO_2 in particular and Scunthorpe steelworks is required to meet Best Available Techniques (BAT) through the Bref process (see Section 6.3.1), further reducing emissions. The regional vehicle and transportation emissions continue to reduce, mirroring the national trend.

6.8.1.22 When the international, national, and local factors are all combined, a clear trend emerges that emissions and ambient concentrations have reduced hugely over the last 50 years and will continue to decrease. Whilst there have been 'big wins' in industry in the last 50 years, the downward trend will continue with the further uptake of BAT at industrial sites and further improvements in traffic and uptake of electrical vehicles. The Low Carbon economy may also further

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~~accelerate emissions reductions as industries move towards low and zero carbon technologies, further removing combustion sources.~~

~~6.8.1.23~~ ~~When taken in this wider context, it is clear that the continued improvement in baseline air quality and deposition described above in a local context, is important in assessing whether there are likely to be any adverse effects on protected site integrity from cumulative effects when the Project commences operation in 2028. The effects of the Project alone are predicted not to have adverse effects on the site integrity of various protected sites (see Document Reference 6.2.10, Appendix A). Whilst Keadby 2 and 3 power plants are both much larger emitters than the Project, it is clear that the new emissions from them will be offset by a combination of the closure of Keadby 1, the changes to the other facilities described and other continuing improvements to the background levels and loads. Hence adverse effects on the integrity of these protected sites are not predicted as a result of emissions to air and the associated acid and nitrogen deposition cumulatively with other developments.~~

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6.9 Visual Impact - Construction

6.9.1.1 A conservative assumption has been made that unmitigated construction impacts could be experienced by sensitive visual receptors up to 7.5 km from the Order Limits. Figure 7 in Appendix A shows the other developments within 7.5 km from the Order Limits that could be constructed concurrently with the Project and are of sufficient scale to potentially contribute to cumulative effects with the Project. It should be noted that some of the other developments are applications relating to the same location and therefore represented by a single point on the figure as follows: 10(2) and 11(2); and 86 and 85. Table 9 presents the CEA for construction visual impacts.

6.9.1.2 Generally, there is either no cumulative effect or there is no change in the level of significance from that for the Project alone. There is one exception where the cumulative effect is of minor significance, representing a small change in level of significance and temporarily affecting users of one public footpath.

6.10 Visual Impact - Operation

6.10.1.1 An assumption has been made that operational visual impacts could be experienced by sensitive visual receptors up to 7.5 km from the Order Limits. Figure 8 in Appendix A shows the other developments within 7.5 km from the Order Limits that could operate concurrently with the Project and are of sufficient scale to potentially contribute to cumulative effects with the Project. It should be noted that some of the other developments are applications relating to the same location and therefore represented by a single point on the figure as follows: 10(2) and 11(2); and 86 and 85. Table 10 presents the CEA for operational visual impacts.

6.10.1.2 Generally there is either no cumulative effect or there is no change in the level of significance from that for the Project alone. There is one exception

where the cumulative effect is of minor significance, representing a small change in level of significance and affecting users of one public footpath during brief periods of usage of the footpath.

6.11 Cultural Heritage Setting - Operation

6.11.1.1 An assumption has been made that operational impacts on the setting of cultural heritage assets could be experienced by receptors up to 2.5 km from the Order Limits. Figure 9 in Appendix A shows the other developments within 2.5 km from the Order Limits that could operate concurrently with the Project and are of sufficient scale to potentially contribute to cumulative effects with the Project. It should be noted that some of the other developments are applications relating to the same location and therefore represented by a single point on the figure as follows: 10(2) and 11(2); and 86 and 85. Although just outside the buffer, Keadby 2 and Keadby 3 are included to reflect the scale of these developments. Table 8 presents the CEA for impacts on the setting of heritage assets.

6.11.1.2 The assessment concluded that there is either no cumulative effect or there is no change in the level of significance from that for the Project alone.

6.12 Socioeconomic Characteristics - Construction

6.12.1.1 Of the identified other developments, it is considered that only Keadby 3 is of sufficient scale and proximity to potentially have cumulative economic effects with the Project.

6.12.1.2 No cumulative developments have been identified that would lead to cumulative community or land use impacts during either construction or operation.

6.12.1.3 The construction programme for Keadby 3 is likely to overlap with that of the Project for a period of up to four years. Taken cumulatively the net effects of Keadby 3 and the Project on construction employment and economic activity will be a positive significant effect.

6.12.1.4 The combined demand for construction workers for Keadby 3 and the Project over a four-year period may increase the pressure on the availability of construction employees within the local labour market, defined by the Local Impact Area (LIA) and Wider Impact Area (WIA), leading to a greater reliance on the regional (Yorkshire and Humber) level pool of labour.

6.12.1.5 As a result, the rate of leakage i.e. the benefits likely to go outside the LIA/WIA will increase above the medium rate of 25% assumed in the economic assessment of the Project (see Chapter 14, **Document Reference 6.2.14**). This will reduce the employment and economic benefits directly attributable to the Project within the LIA/WIA, but these would transfer to the regional level.

~~6.12.1.6~~ It is considered that there would not be a significant adverse residual cumulative effect associated with construction employment and economic activity leakage of benefits outside the LIA/WIA to the regional level. Over

and above that already proposed, no further mitigation measures are required.

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Table 6.895 Assessment of Cumulative Effects: Noise Construction Phase

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
83	1	PA/2020/2049	Planning permission for the construction of 163 two, three and four bedroomed, 2 storey traditional residential homes with associated garages and access infrastructure	The development to which the planning permission relates would be constructed alongside the Northern DHPWN Land, between the nearest residential receptors and the Northern DHPWN. The nearest receptors are unlikely to be affected significantly by the relatively minor DHPWN works which will be short term and further from the receptors. The overlap, if any, is likely to be a small part of the overall works. The potential for cumulative effects is therefore limited and any significant effects are likely to be as a result of the proposed residential development.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on noise sensitive receptors. See also CoCP (**Document Reference 6.3.7**).	*Minor significance (the Project has negligible/minor contribution to the cumulative impact)*
84 85 86 4(1)	1	PA/2015/0628 PA/2015/0396 PA/2015/0627 PA/2017/1386	Lincolnshire Lakes development including business park, up to 2500 houses with village centre, school, open space and new M181 junction and associated highway works	The Lincolnshire Lakes development would be constructed alongside the Southern DHPWN Land. Receptors during construction of the Project will be limited to housing which is already adjacent to the M181 and adjacent roads, who are of low sensitivity and are unlikely to be affected	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on noise sensitive receptors. See also CoCP (**Document Reference 6.3.7**).	*Minor significance (the Project has negligible/minor contribution to the cumulative impact)*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				significantly by the DHPWN works which will be short term. The Lincolnshire Lakes project as a whole is likely to take several years to complete, and the overlap in construction works, if any, is likely to be a small part of the overall works. The potential for cumulative effects is therefore limited and any significant effects are likely to be as a result of the Lincolnshire Lakes project.		
10(2) 11(2)	1	PA/2018/1388 PA/2018/1389	Redevelopment of football stadium to deliver an enlarged stadium and development of 160 apartments	The stadium and housing developments to which the planning permissions relates would be constructed alongside the Southern DHPWN Land, between the nearest residential receptors and the Southern DHPWN. The nearest receptors (including receptor 10 Bolsover Road) are unlikely to be affected significantly by the relatively minor DHPWN works which will be short term and further from the receptors. The overlap, if any, is likely to be a small part of the overall works. The potential for cumulative effects is therefore limited and any	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on noise sensitive receptors. See also CoCP (**Document Reference 6.3.7**).	*Minor significance (the Project has negligible/minor contribution to the cumulative impact)*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				significant effects are likely to be as a result of the proposed stadium and housing development.		
13(3)	1	PA/2018/1725	Planning permission for works required to develop a gas-powered standby generation plant, including associated works	This development is located several hundred metres from the nearest receptor which is potentially affected by noise from the Project, and construction noise from this type of facility would be expected to be controlled to acceptable levels, and relatively short term. Therefore, cumulative noise effects are not expected overall as a result of the construction noise from both projects.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on noise sensitive receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance*
193	1	PA/2021/672	Outline planning permission to erect 302 dwellings	Would be separated from the receptors on Normanby Road that are affected by the Northern DHPWN works by intervening buildings. No cumulative noise effects are expected.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on noise sensitive receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance*
8(4)	1	PA/2018/1060	Planning permission to erect a precast concrete manufacturing	This development is located several hundred metres from the nearest receptor which is	Works will be undertaken in line with the CEMP which will	*No change in level of significance*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
			facility along with external storage areas and associated infrastructure	potentially affected by noise from the Project. Therefore, cumulative noise effects are not expected overall as a result of the construction noise from both projects.	include good practice measures to reduce impacts on noise sensitive receptors. See also CoCP (**Document Reference 6.3.7**).	

Table 6.~~9106~~ Assessment of Cumulative Effects: Vibration Construction Phase

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ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
83	1	PA/2020/2049	Planning permission for the construction of 163 two, three and four bedroomed, 2 storey traditional residential homes with associated garages and access infrastructure	The development to which the planning permission relates would be constructed alongside the Northern DHPWN Land, between the nearest residential receptors and the Northern DHPWN. The nearest receptors are unlikely to be affected significantly by the relatively minor DHPWN works which will be short term and further from the receptors. The overlap, if any, is likely to be a small part of the overall works. The potential for cumulative effects is therefore limited and any significant effects are likely to be as	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on vibration sensitive receptors. See also CoCP (**Document Reference 6.3.7**).	*Minor significance (the Project has negligible/minor contribution to the cumulative impact)*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				a result of the proposed residential development.		
85 86 4(1)	1	PA/2015/0628 PA/2015/0396 PA/2015/0627 PA/2017/1386	Lincolnshire Lakes development including business park, up to 2500 houses with village centre, school, open space and new M181 junction and associated highway works	The Lincolnshire Lakes development would be constructed alongside the Southern DHPWN Land. Receptors during construction of the Project will be limited to housing, which is unlikely to be affected significantly by the Southern DHPWN works which will be short term. The Lincolnshire Lakes project as a whole is likely to take many years to complete, and the overlap in construction works, if any, is likely to be a small part of the overall works. The potential for cumulative effects is therefore limited and any significant effects are likely to be as a result of the Lincolnshire Lakes project.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on vibration sensitive receptors. See also CoCP (**Document Reference 6.3.7**).	*Minor significance (the Project has negligible/minor contribution to the cumulative impact)*
13(3)	1	PA/2018/1725	Planning permission for works required to develop a gas-powered standby generation plant, including associated works	This development is located several hundred metres from the nearest receptor which is potentially affected by noise from the Project, and construction vibration from this type of facility would be expected to be insignificant and relatively short term. Therefore, cumulative	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on vibration sensitive receptors.	*No change in level of significance*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				vibration effects are not expected overall as a result of the construction noise from both projects.	See also CoCP (**Document Reference 6.3.7**).	

Table 6.10117 Assessment of Cumulative Effects: Noise Operation Phase

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ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
13(3)	1	PA/2018/1725	Planning permission for works required to develop a gas-powered standby generation plant, including associated works	This development is located several hundred metres from the nearest receptor which is potentially affected by noise from the Project and operational noise from this type of facility would be expected to be controlled to acceptable levels, and to operate intermittently. Therefore, cumulative noise effects are not expected overall as a result of the operational noise from both projects.	A noise management plan will be formulated in order to keep delivery noise (e.g. use of tonal reversing alarms, doors opening/closing etc.) to an acceptable minimum. See also OEMP (**Document Reference 6.3.8**).	*No change in level of significance*
8(4)	1	PA/2018/1060	Planning permission to erect a precast concrete manufacturing facility along with external storage areas and associated infrastructure	This development is located several hundred metres from the nearest receptor which is potentially affected by noise from the Project, and operational noise from this type of facility would be expected to be controlled to acceptable levels.	A noise management plan will be formulated in order to keep delivery noise (e.g. use of tonal reversing alarms, doors opening/closing etc.) to an acceptable minimum.	*No change in level of significance*

				Therefore, cumulative noise effects are not expected overall as a result of the operational noise from both projects.	See also OEMP (**Document Reference 6.3.8**).	

Table 6.11128 Assessment of Cumulative Effects: Ecology Construction Phase

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ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
8(4)	1	PA/2018/1060	Planning permission to erect a precast concrete manufacturing facility along with external storage areas and associated infrastructure	The facility would be constructed on an area of vacant land at Normanby Enterprise Park, around 1.5 km west of the Energy Park Land and approximately 25 m south of the Railway Reinstatement Land. Receptors during construction of the Project comprise great crested newts, ground nesting birds and a nearby tree supporting roosting bats. Of these, there is potential for cumulative effects to arise from impacts to great crested newts, due to loss of terrestrial and aquatic habitat supporting the medium sized meta-population of newts in the area. Both projects will acquire a licence for great crested newts and the mitigation strategy for the manufacturing facility details habitat creation and enhancement targeting great crested newts, within the site,	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*Minor significance (no change from Project alone)*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				as well as off-site habitat creation within nearby Local Nature Reserves.		
10(2) 11(2)	1	PA/2018/1388 PA/2018/1389	Redevelopment of football stadium to deliver an enlarged stadium and development of 160 apartments	The stadium and housing developments would be constructed alongside the Southern DHPWN Land, to the east of the M181. Receptors identified during the construction of the Project include nesting birds associated with the existing stadium building, roosting bats and non-native invasive species. The potential for the Project to contribute to cumulative effects is considered very low risk.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance*
16 (4)	1	PA/2018/2140	Planning permission for the installation of a renewable led energy scheme comprising ground mounted photovoltaic solar arrays and battery-based electricity storage containers together with substations; transformer stations; access; and internal access track.	The energy scheme would be constructed at Conesby Farm, to the south-west of Dragonby Sidings. Ecological receptors that may be affected by the two projects include birds, great crested newts and reptiles. Further survey identified low numbers of wintering birds and a small number of individual snipe and lapwing associated with the Humber Estuary SPA/SSSI. The solar scheme has been redesigned to limit impacts to biodiversity and no further survey or Appropriate Assessment is considered necessary with respect	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*Minor significance (no change from Project alone)*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				to protected species. Cumulative effects are therefore considered minimal.		
17 (2)	1	PA/2018/2186	Outline planning permission for 36 dwellings including new access road and adoptable sewage pumping station (appearance, landscaping, layout and scale reserved for subsequent approval).	The housing development would be constructed to the east of the M181 and the Southern DHPWN Land. Ecological receptors associated with the proposed scheme comprise reptiles, water vole, corn spurrey, broadleaved woodland and lowland dry acidic grassland. Impacts to these receptors arising from the Project are not considered to be significant and affect isolated populations and habitat areas. Cumulative effects are therefore considered negligible.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance*
21(2)	1	PA/2019/1461	Planning permission to site an array of ground mounted photovoltaic solar collectors including associated infrastructure.	The energy scheme would be constructed at an existing factory and amenity grassland, to the south of Phoenix Parkway and the Northern DHPWN Land, west of Atkinson's Warren. Receptors during construction of the Project comprise commuting/foraging bats and tree/scrub nesting birds. However, areas of habitat loss are limited to a small number of trees and amenity grassland, therefore no cumulative effects are anticipated.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
49 (1)	1	PA/2017/1977	Planning permission for the construction of a Flood Defence Scheme comprising of sheet piling along the right bank of the River Trent; the placing of scour protection along the right bank of the River Trent; localised property protection within a managed overflow area at land to the north of the M180 bridge; the raising of existing earth embankments and flood walls; and associated construction works.	The Flood defence scheme would be constructed along the River Trent, south of the Energy Park Land. Ecological receptors shared with the Project include breeding birds, water vole and otter. Disturbance and loss of habitat may result in cumulative effects to local populations of these species. However, residual effects for otter and birds are concluded to be not significant within the Flood Defence EIA and impacts to water voles are dependent on flooding and mink predation. Water voles within the Energy Park Land are located away from construction areas, therefore reducing the significance of cumulative effects.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*Minor significance (no change from Project alone)*
83	1	PA/2020/2049	Planning permission for the construction of 163 two, three and four bedroomed, 2 storey traditional residential homes with associated garages and access infrastructure	The housing development would be constructed over rank grassland and scrub to the south of Phoenix Parkway and the Northern DHPWN Land, adjacent to Atkinson's Warren. Ecological receptors with the potential for cumulative effects include breeding birds, common amphibians, foraging bats and hedgehog. However, the Northern DHPWN works are low impact and	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				short-term in nature and will not overlap significantly with the housing development.		
84 85 86 4(1)	1	PA/2015/0628 PA/2015/0396 PA/2015/0627 PA/2017/1386	Lincolnshire Lakes development including business park, up to 2500 houses with village centre, school, open space and new M181 junction and associated highway works	The Lincolnshire Lakes development would be constructed alongside the Southern DHPWN Land. Receptors during construction of the Project include bats, water voles and breeding birds, as well as qualifying species of the Humber Estuary SPA and SSSI. Cumulative effects may arise, however the Southern DHPWN works are low impact, short-term in nature and unlikely to overlap significantly with the housing development.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance*
180 200	1	PA/2021/1069	Planning permission to carry out a flood mitigation scheme including the creation of five surface water storage areas and associated works.	The flood mitigation scheme would be constructed to the east of the M181 and the Southern DHPWN Land. Ecological receptors associated with this scheme include acid grassland, scrub, great crested newts and common lizard. However construction will impact less valuable habitats and deliver new wetland, with an overall benefit for biodiversity. Cumulative effects are therefore considered minor beneficial.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
193	1	PA/2021/672	Development of 302 homes	The housing development would be constructed to the south-east of the Northern DHPWN Land. Receptors during construction of the Project will comprise open mosaic habitat, nesting birds, invertebrates, and hedgehog. The Northern DHPWN works are small scale and temporary in nature, therefore cumulative effects are considered not significant.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive ecological receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance*

Table 6.12139 Assessment of Cumulative Effects: Visual Impact Construction Phase

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ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
84 85 86 4(1)	1	PA/2015/0628 PA/2015/0396 PA/2015/0627 PA/2017/1386	Lincolnshire Lakes development including business park, up to 2500 houses with village centre, school, open space and new M181 junction and associated highway works	The Lincolnshire Lakes development would be constructed alongside the Southern DHPWN land. Receptors during construction of the Project will be limited to users of the M181 and adjacent roads, who are of low sensitivity. The Lincolnshire Lakes project as a whole is likely to take many years to complete, and the	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive landscape features and visual receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance.*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				overlap in construction works, if any, is likely to be a small part of the overall works. The potential for the Project to contribute to cumulative effects is therefore limited.		
205	1	15/30250/CONDET	Submission of turbine foundation details in relation to consent for Twin Rivers Wind Farm	The wind farm is now operational and has been considered as part of the landscape and visual baseline for the LVIA (Chapter 11, **Document Reference 6.2.11**).	Not applicable	*None*
10(2) 11(2)	1	PA/2018/1388 PA/2018/1389	Redevelopment of football stadium to deliver an enlarged stadium and development of 160 apartments	The stadium and housing developments would be constructed alongside the Southern DHPWN Land. Receptors during construction of the Project will be limited to users of the M181 and A81, and people using the retail and sports facilities at Glanford Park. These receptors are of low sensitivity. People living in housing to the east of Glanford Park would see the construction works at the stadium, but not construction of the Project.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive landscape features and visual receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance.*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				The potential for the Project to contribute to cumulative effects is therefore limited.		
13(3)	1	PA/2018/1725	Gas-powered standby generation plant and associated works	The gas plant would be constructed alongside Stather Road, around 500m west of the proposed ERF. The gas plant is small in size, and construction works are therefore likely to be limited in scale and extent. Receptors during construction of the Project will be limited to people working at Flixborough Industrial Estate (low sensitivity), and walkers on an adjacent public footpath (high sensitivity). The small-scale construction works, in combination with the much larger works associated with the Project, will not lead to significant cumulative effects.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive landscape features and visual receptors. See also CoCP (**Document Reference 6.3.7**).	*No change in level of significance.*
193	1	PA/2021/672	Development of 302 homes	The housing development would be constructed alongside the Northern DHPWN Land. Receptors during construction of the Project will be users of Normanby Road and Warren Road, and small numbers of residents in adjacent streets.	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive landscape features and visual receptors.	*No change in level of significance.*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				Although some of these receptors are of higher sensitivity, opportunities to view construction works on both sites will be limited, as the housing development is visually separated by commercial buildings on Normanby Road. The potential for cumulative effects is therefore limited.	See also CoCP (**Document Reference 6.3.7**).	
222	1	PA/2019/1782	Development of 200 homes	The housing site is around 2.5km from the Southern DHPWN Land, and there will be no receptors affected by both schemes during construction.	Not applicable	*None*
8(4)	1	PA/2018/1060	Erection of a precast concrete manufacturing facility	The facility would be constructed on an area of vacant land at Normanby Enterprise Park, around 1.5 km west of the Energy Park Land. Receptors during construction of the Project will be limited to users of public footpaths between Flixborough and Scunthorpe, one of which passes close to the site of the concrete facility. There is potential for high-sensitivity users of this footpath to experience visual disturbance	Works will be undertaken in line with the CEMP which will include good practice measures to reduce impacts on sensitive landscape features and visual receptors. See also CoCP (**Document Reference 6.3.7**).	*Minor significance (small change in level of significance) temporarily affecting users of one public footpath*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				arising from construction activity at both sites simultaneously, impacting on views from the path in two opposing directions.		
S1	1	Section 36 Consent Variation	Gas fired power station (Keadby 2)	The power station is under construction and was largely complete at the time of the assessment. It is therefore considered as part of the LVIA baseline.	Not applicable	*None*
N2	1	EN010114 (Planning Inspectorate Reference)	Construction of a gas-fired power station with carbon capture (Keadby 3)	Keadby 3 would be constructed around 4.5 km from the Energy Park Land, in the context of the existing Keadby 1 and 2 power stations and extensive overhead power infrastructure. Few receptors are likely to have views of construction works on both sites, other than temporary cranes, due to distance and intervening buildings and trees. The potential for cumulative effects is therefore very limited and considered to be negligible.	Not applicable	*No change in level of significance.*

Table 6.13~~14~~10 Assessment of Cumulative Effects: Visual Impact Operation Phase

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
84 85 86 4(1)	1	PA/2015/0628 PA/2015/0396 PA/2015/0627 PA/2017/1386	Lincolnshire Lakes development including business park, up to 2500 houses with village centre, school, open space and new M181 junction and associated highway works	The Lincolnshire Lakes site is alongside the Southern DHPWN Land. As there will be no permanent above-ground features on the Southern DHWPN Land, there will be no operational effects and consequently no potential for cumulative effects.	Not applicable	*None*
205	1	15/30250/CONDET	Submission of turbine foundation details in relation to consent for Twin Rivers Wind Farm	The wind farm is now operational and has been considered as part of the landscape and visual baseline for the LVIA (Chapter 11, **Document Reference 6.2.11**).	Not applicable	*None*
10(2) 11(2)	1	PA/2018/1388 PA/2018/1389	Redevelopment of football stadium to deliver an enlarged stadium and development of 160 apartments	The stadium and housing site is alongside the Southern DHPWN Land. As there will be no permanent above-ground features on the Southern DHWPN Land, there will be no operational effects and consequently no potential for cumulative effects.	Not applicable	*None*
13(3)	1	PA/2018/1725	Gas-powered standby generation plant and associated works	The gas plant would be located on Stather Road, around 500m west of the proposed ERF. The proposed gas plant would	Woodland planting proposed to the north of Stather Road will assist in absorbing	*No change in level of significance.*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				occupy a site no more than 50m by 50m and would be up to 5m in height. Receptors during operation of the Project will be limited to people working at Flixborough Industrial Estate (low sensitivity), and walkers on an adjacent public footpath (high sensitivity). The gas plant would be seen in the context of the solar farm and other development at Flixborough Industrial Estate, and cumulative effects in combination with the much larger ERF and other elements of the Project will be limited.	both the Project and the gas plant into the landscape. See also Indicative Landscape and Biodiversity Plans (**Document Reference 4.10**).	
193	1	PA/2021/672	Development of 302 homes	The housing site is alongside the Northern DHPWN Land. As there will be no permanent above-ground features on the Northern DHWPN Land, there will be no operational effects and consequently no potential for cumulative effects.	Not applicable	*None*
8(4)	1	PA/2018/1060	Erection of a precast concrete manufacturing facility	The facility would comprise a large building on currently vacant land at Normanby Enterprise Park.	Woodland planting proposed around the Project will assist in absorbing the	*Minor significance (small change in level of*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				Receptors during operation of the Project will be limited to users of public footpaths between Flixborough and Scunthorpe, one of which passes close to the site of the concrete facility. There is potential for high-sensitivity users of this footpath to view the concrete facility in the foreground, albeit with screening from existing trees, and simultaneously viewing the large buildings of the Project in the opposing direction.	buildings into the landscape, reducing the impact of the Project on views from this location (see Viewpoint 11, Chapter 11 (**Document Reference 6.2.11**). See also Indicative Landscape and Biodiversity Plans (**Document Reference 4.10**).	*significance) affecting users of one public footpath*
S1	1	Section 36 Consent Variation	Gas fired power station (Keadby 2)	The power station is under construction and was largely complete at the time of the assessment. It is therefore considered as part of the LVIA baseline.	Not applicable	*None*
N2	1	EN010114 (Planning Inspectorate Reference)	Construction of a gas-fired power station with carbon capture (Keadby 3)	Keadby 3 would be located around 4.5 km from the Energy Park Land, in the context of the existing Keadby 1 and 2 power stations and extensive overhead power infrastructure. A small number of sensitive receptors (residents, walkers) may have views of the taller elements of	Not applicable	*No change in level of significance.*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
				both sites. Due to its context, Keadby 3 will not change the outlook such that additional effects would occur.		

Table 6.1415~~11~~ Assessment of Cumulative Effects: Heritage Setting Operation Phase

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ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
8(4)	1	PA/2018/1060	Erection of a precast concrete manufacturing facility	The facility would comprise a large building on currently vacant land at Normanby Enterprise Park. The potential for cumulative impacts would be limited to changes in the setting of the 'Flixborough Nunnery' Scheduled Monument. Any potential impacts will be masked by intervening woodland and landform.	Woodland planting proposed around the Project will assist in absorbing the buildings into the landscape, reducing the impact of the Project on the setting of Flixborough Nunnery. See also Indicative Landscape and Biodiversity Plans (**Document Reference 4.10**).	*No change in level of significance.*
84 85 86 4(1)	1	PA/2015/0628 PA/2015/0396	Lincolnshire Lakes development including business park, up to 2500 houses with village centre,	The impacts of the Project in this area will be limited to buried infrastructure and there are no designated assets in	Not relevant.	*No change in level of significance.*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
		PA/2015/0627 PA/2017/1386	school, open space and new M181 junction and associated highway works	this area. Therefore there is no scope for cumulative effects with the Project.		
13(3)	1	PA/2018/1725	Gas-powered standby generation plant and associated works	The gas plant would be located on Stather Road, around 500m west of the proposed ERF. The proposed gas plant would occupy a site no more than 50m by 50m and would be up to 5m in height. The potential for cumulative impacts would be limited to changes in the setting of the 'Flixborough Nunnery' Scheduled Monument. The gas plant would be seen in the context of the solar farm and other development at Flixborough Industrial Estate, and cumulative effects on the setting of Flixborough Nunnery in combination with the much larger ERF and other elements of the Project will be limited.	Woodland planting proposed to the north of Stather Road will assist limiting visual impacts on Flixborough Nunnery. See also Indicative Landscape and Biodiversity Plans (**Document Reference 4.10**).	*No change in level of significance.*
S1	1	Section 36 Consent Variation	Gas fired power station (Keadby 2)	The power station is under construction and was largely complete at the time of the assessment. It is therefore considered as part of the baseline.	Not applicable	*None*

ID	Tier	Application Reference	Applicant and Description of the Project	Assessment of cumulative effect with the Project	Relevant Project Mitigation	Significance of Cumulative Effect
N2	1	EN010114 (Planning Inspectorate Reference)	Gas-fired power station with carbon capture (Keadby 3)	Keadby 3 would be located around 4.5km from the Energy Park Land, in the context of the existing 2 power stations and extensive overhead power infrastructure and also by which time Keadby 1 would have been demolished. Due to the above context, Keadby 3 will not change the setting of heritage assets that are affected by the Project.	Not applicable	*No change in level of significance.*

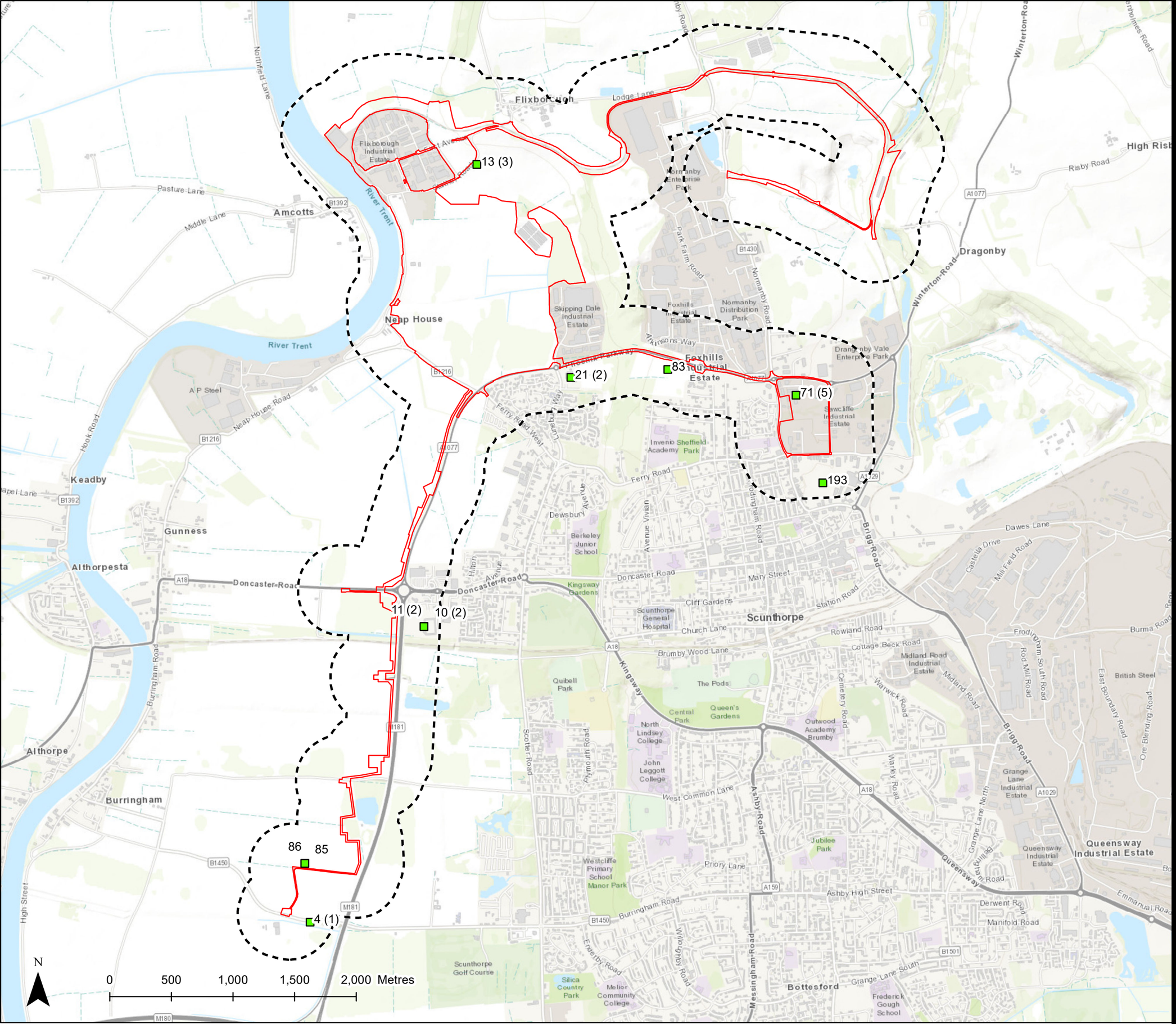
7. REFERENCES

- BH EnergyGap LLP (2020) Sandall Stones Road, Doncaster – Environmental Statement Volume 1 Chapter 5 Air Quality
- Energy Works (Hull) Ltd (2011) Environmental Statement - Air Quality and Odour and Environmental Statement Addendum for an Energy Works on three adjacent parcels of land in Hull (Application 11/00615/CM)
- Office of National Statistics (accessed January 2022) Concentrations of nitrogen dioxide
- Office of National Statistics (accessed January 2022) Emissions of air pollutants in the UK – Sulphur dioxide (SO2).
- SSE (2019) Keadby Power Station - Environmental Permit Variation Application, Air Quality Impact Assessment and Habitat Regulations Assessment, 29 November 2019
- SSE (2021a) The Keadby 3 Low Carbon Gas Power Station Project, Document Ref: 6.3, Environmental Statement Volume II - Appendix 8B: Air Quality - Operational Phase
- SSE (2021b) The Keadby 3 Low Carbon Gas Power Station Project, Document Ref: 5.12, Habitats Regulations Assessment Screening Report

Appendix A FIGURES

Date: March 2022

**** Keadby 2 and 3 are outside the buffer but included due to their scale*



NORTH LINCOLNSHIRE GREEN ENERGY PARK

ERM

North Lincolnshire Green Energy Park

Title	Figure 1 Air Quality (Dust) - Cumulative Construction Projects

Client Information

Client	North Lincolnshire Green Energy Park Ltd.
PINS Proj No	EN010116
Date	15/03/2022
Drawn by	MTC
Checked by	KM
Version	P0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
Scale	28,000
ArcMap File	CU_ES_Construction_AirQuality_Dust_350mBuffer_A01

Legend

- Construction Project Location
- Order Limits
- Order Limits 350m Buffer

Layer Source Information

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

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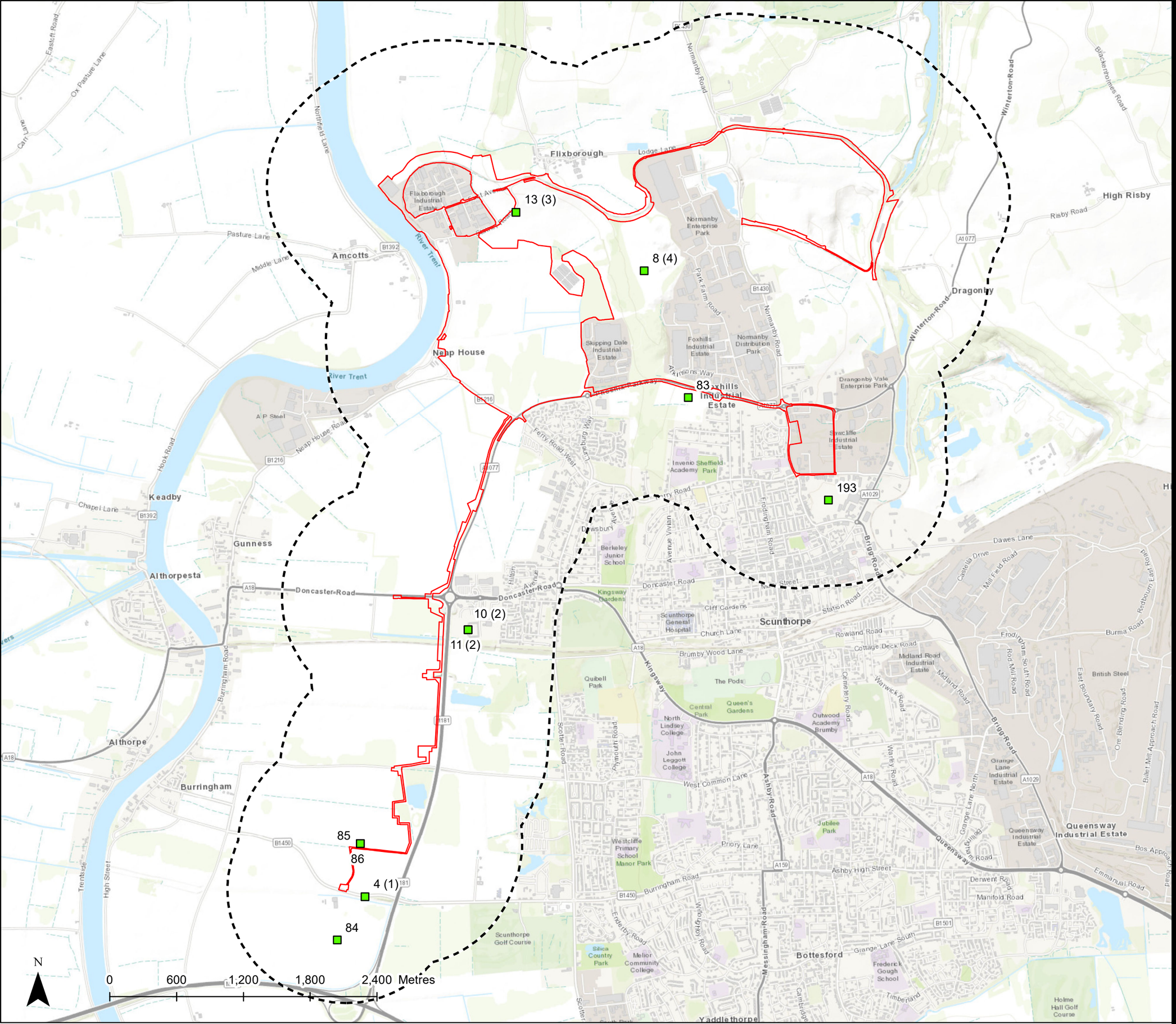

NORTH LINCOLNSHIRE GREEN ENERGY PARK

ERM

North Lincolnshire Green Energy Park

Title	Figure 2 Noise - Cumulative Construction Projects

Client Information

Client	North Lincolnshire Green Energy Park Ltd.
PINS Proj No	EN010116
Date	15/03/2022
Drawn by	MTC
Checked by	KM
Version	P0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
Scale	31,000
ArcMap File	CU_ES_Construction_Noise_1kmBuffer_A01

Legend

- Construction Project Location
- Order Limits
- Order Limits 1km Buffer

Layer Source Information

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

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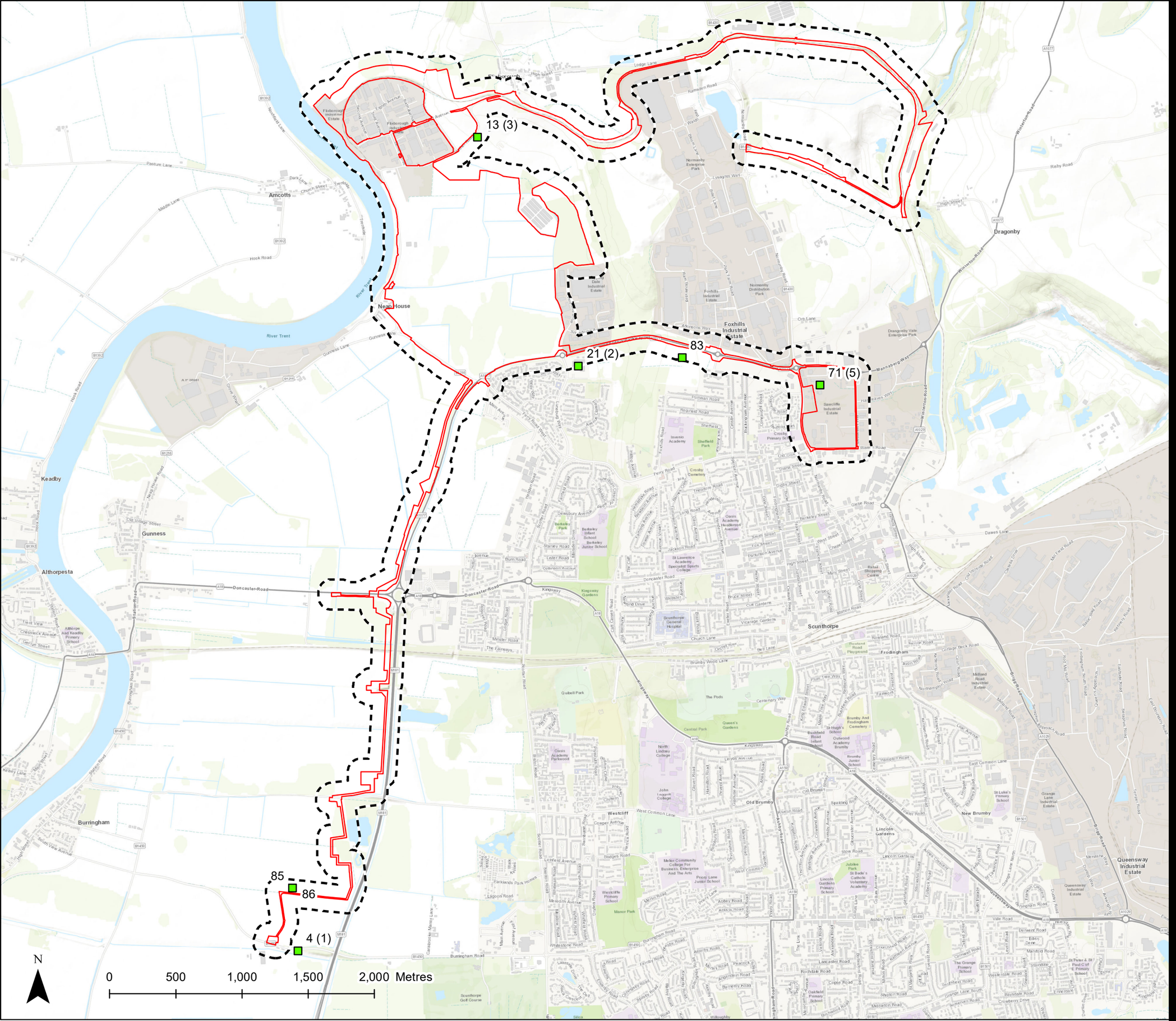

NORTH LINCOLNSHIRE GREEN ENERGY PARK

ERM

North Lincolnshire Green Energy Park

Title	Figure 3 Vibration - Cumulative Construction Projects

Client Information

Client	North Lincolnshire Green Energy Park Ltd.
PINS Proj No	EN010116
Date	15/03/2022
Drawn by	MTC
Checked by	KM
Version	P0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
Scale	26,000
ArcMap File	CU_ES_Construction_Vibration_100mBuffer_A01

Legend

- Construction Project Location
- Order Limits
- Order Limits 100m Buffer

Layer Source Information

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

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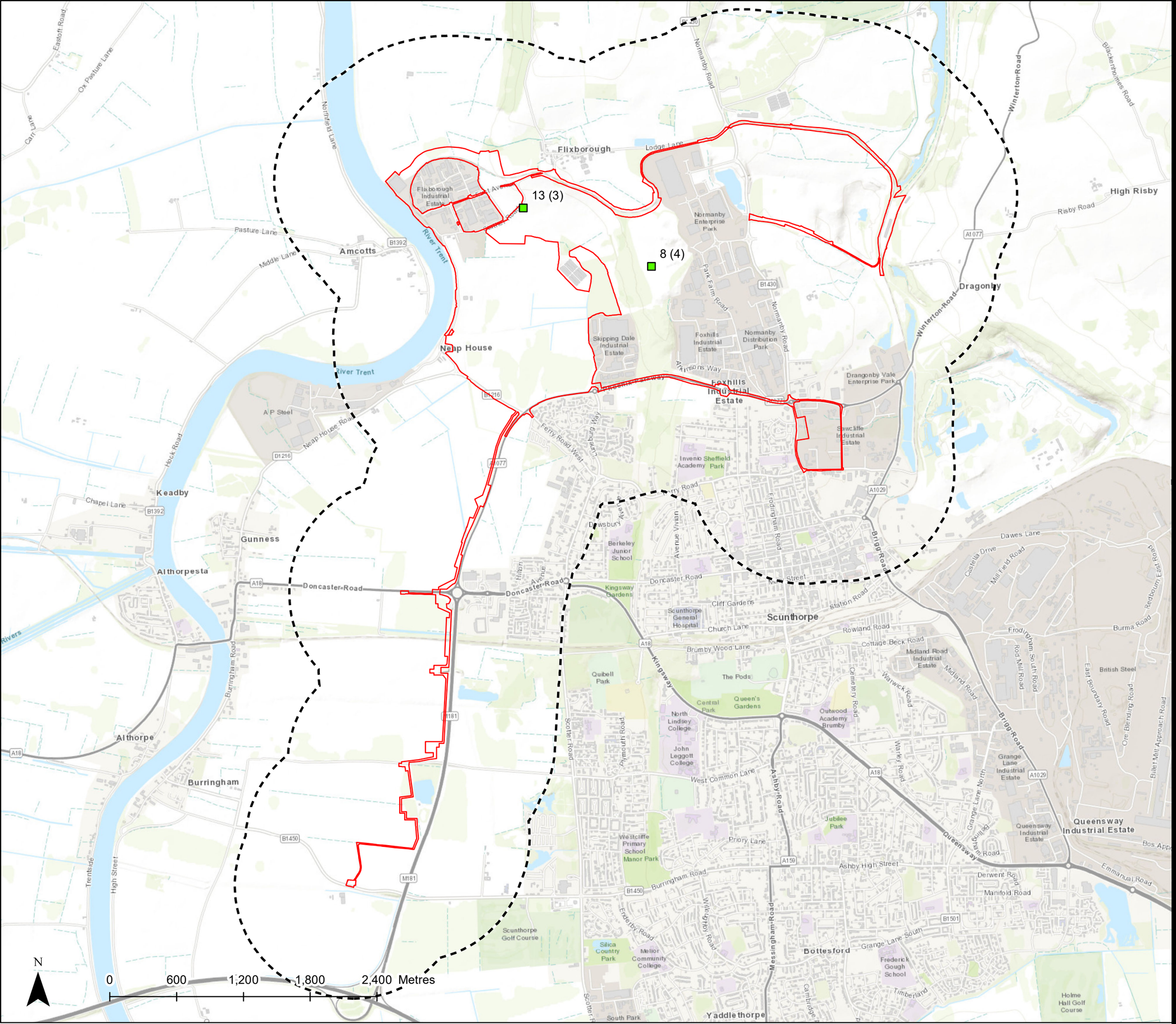

NORTH LINCOLNSHIRE GREEN ENERGY PARK

ERM

North Lincolnshire Green Energy Park

Title	Figure 4 Noise - Cumulative Operational Projects

Client Information

Client	North Lincolnshire Green Energy Park Ltd.
PINS Proj No	EN010116
Date	15/03/2022
Drawn by	MTC
Checked by	KM
Version	P0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
Scale	31,000
ArcMap File	CU_ES_Operation_Noise_1kmBuffer_A01

Legend

- Operational Project
- Order Limits
- Order Limits 1km Buffer

Layer Source Information

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

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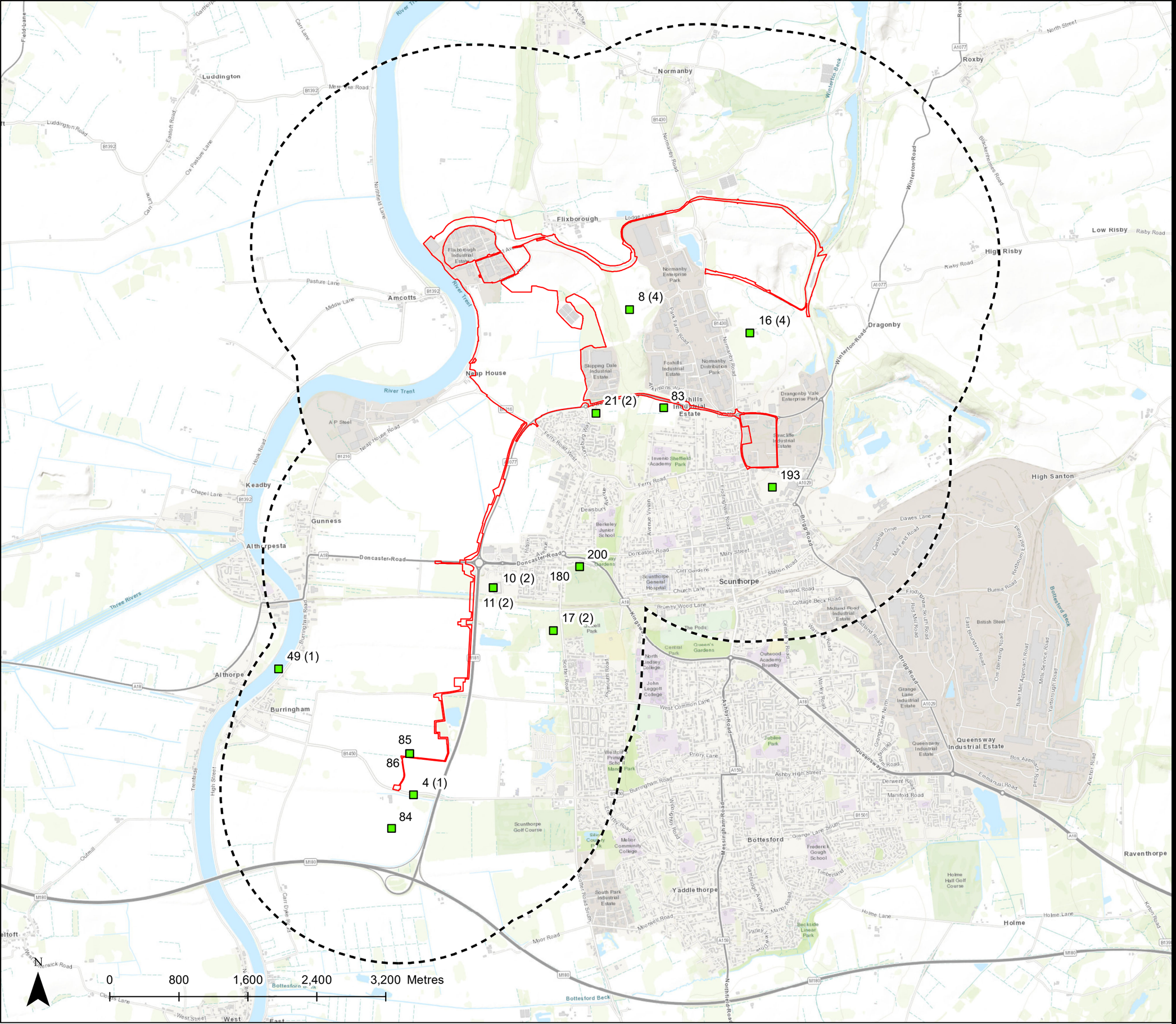

NORTH LINCOLNSHIRE GREEN ENERGY PARK

ERM

North Lincolnshire Green Energy Park

Title	Figure 5 Ecology (Disturbance) - Cumulative Construction Projects

Client Information

Client	North Lincolnshire Green Energy Park Ltd.
PINS Proj No	EN010116
Date	15/03/2022
Drawn by	MTC
Checked by	KM
Version	P0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
Scale	40,000
ArcMap File	CU_ES_Construction_Ecology_2kmBuffer_A01

Legend

- Construction Project Location
- Order Limits
- Order Limits 2km Buffer

Layer Source Information

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

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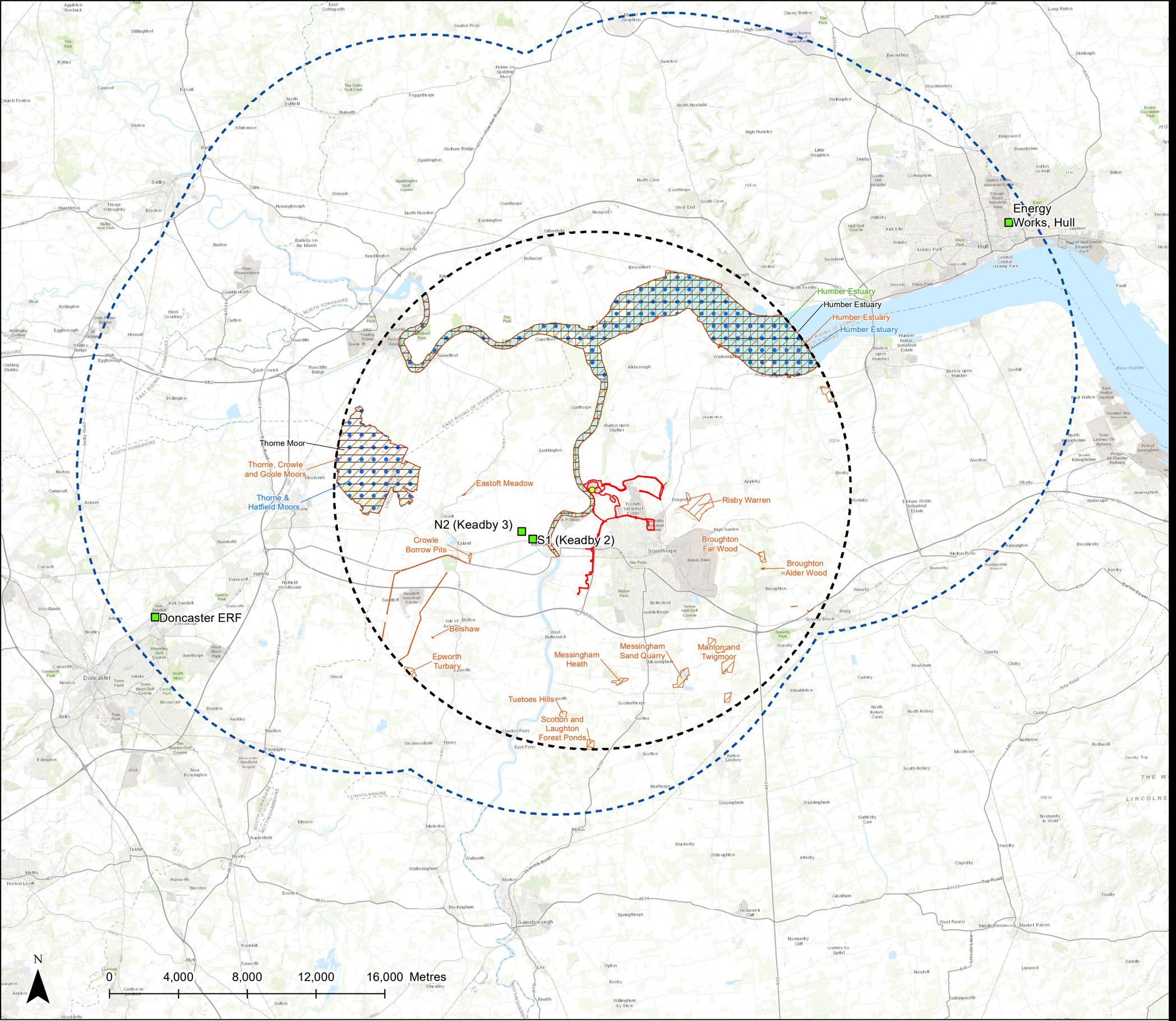

NORTH LINCOLNSHIRE GREEN ENERGY PARK

ERM

North Lincolnshire Green Energy Park

Title	Figure 6 Proposed Large-scale Combustion Projects that are within a 15 km buffer of the Project's Main Emissions Sources and others within a further 15 km of European Protected Sites that occur within the Buffer

Client Information

Client	North Lincolnshire Green Energy Park Ltd.
PINS Proj No	EN010116
Date	20/05/2022
Drawn by	MTC
Checked by	KM
Version	P0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
Scale	200,000
ArcMap File	\\UKSSMBNAF-HRA_ES_DesignatedSites_InCombination_15kmBuffer_A01

Legend

- Project Locations
- Stack Location
- Order Limits
- 15km Buffer from Stack
- 15km Buffer from Designated Sites
- Site of Special Scientific Interest
- Special Area of Conservation
- Ramsar Site
- Special Protection Area

Layer Source Information

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

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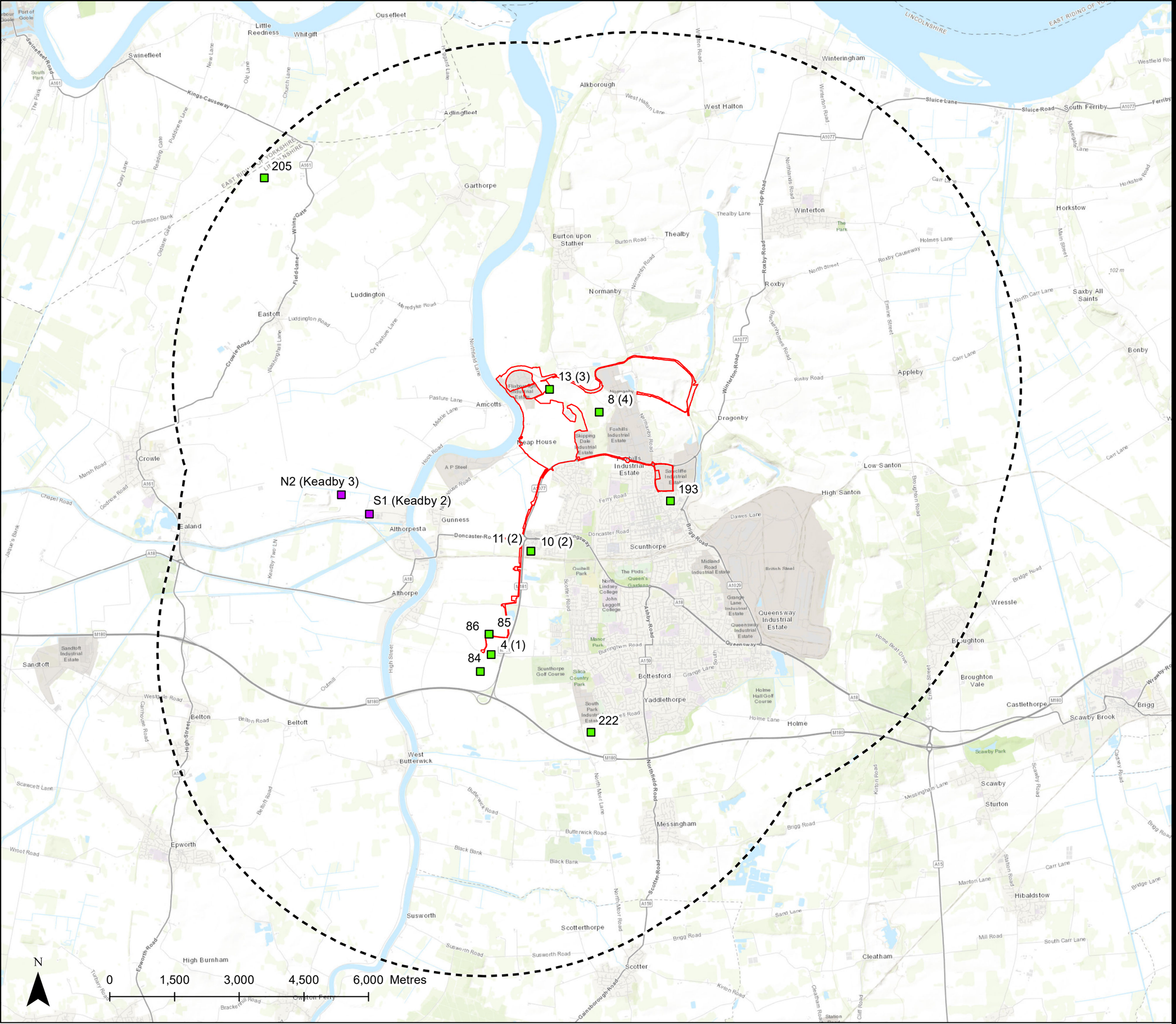

NORTH LINCOLNSHIRE GREEN ENERGY PARK

ERM

North Lincolnshire Green Energy Park

Title	Figure 7 Visual Impact - Cumulative Construction Projects

Client Information

Client	North Lincolnshire Green Energy Park Ltd.
PINS Proj No	EN010116
Date	15/03/2022
Drawn by	MTC
Checked by	KM
Version	P0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
Scale	80,000
ArcMap File	CU_ES_Construction_VisualImpact_7_5kmBuffer_A01

Legend

- Major Project Locations
- Construction Project Location
- Order Limits
- Order Limits 7.5km Buffer

Layer Source Information

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

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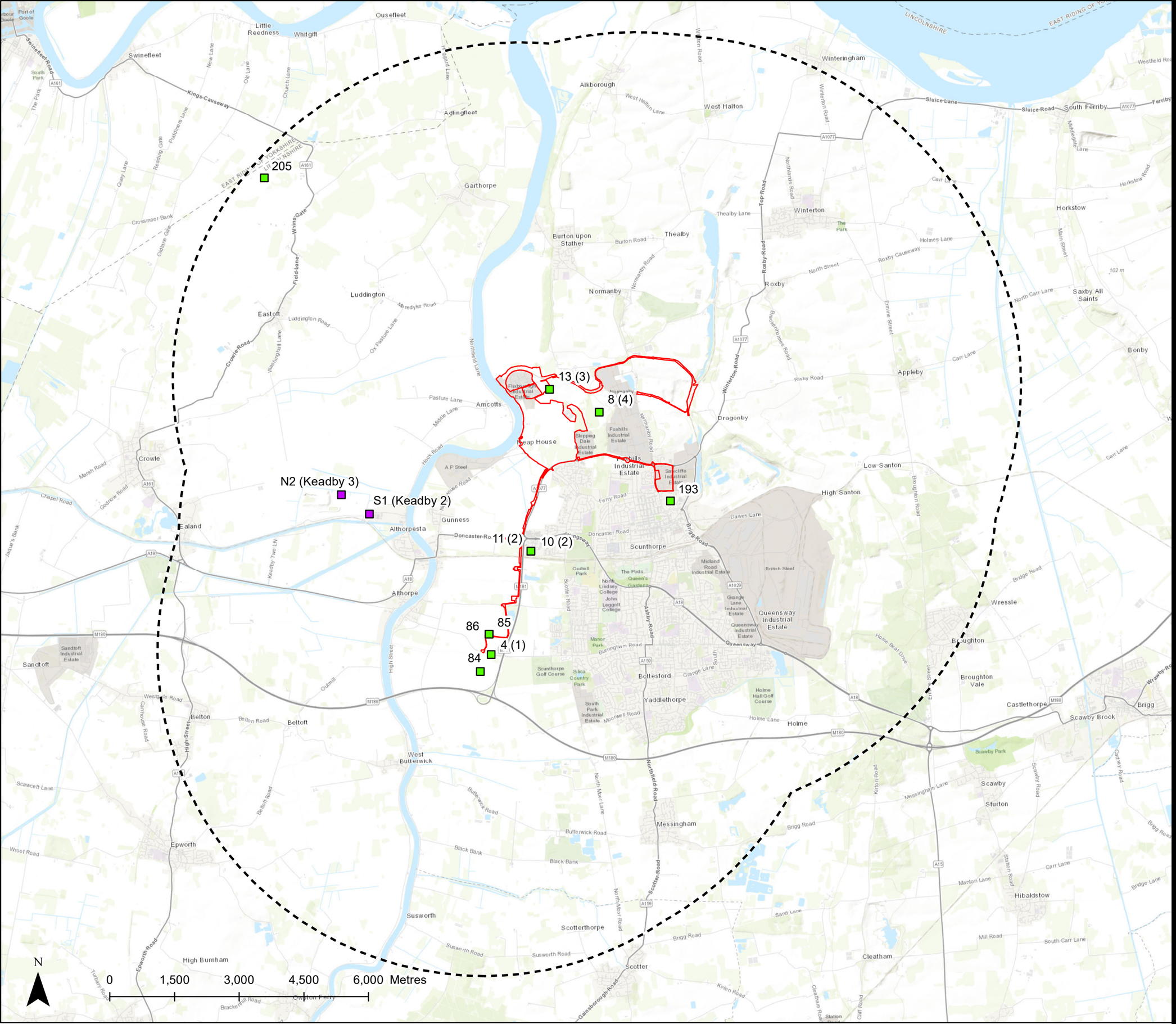

NORTH LINCOLNSHIRE GREEN ENERGY PARK

ERM

North Lincolnshire Green Energy Park

Title	Figure 8 Visual Impact - Cumulative Operational Projects

Client Information

Client	North Lincolnshire Green Energy Park Ltd.
PINS Proj No	EN010116
Date	15/03/2022
Drawn by	MTC
Checked by	KM
Version	P0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
Scale	80,000
ArcMap File	CU_ES_Operation_VisualImpact_7_5kmBuffer_A01

Legend

- Major Project Locations
- Operational Project Location
- Order Limits
- Order Limits 7.5km Buffer

Layer Source Information

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

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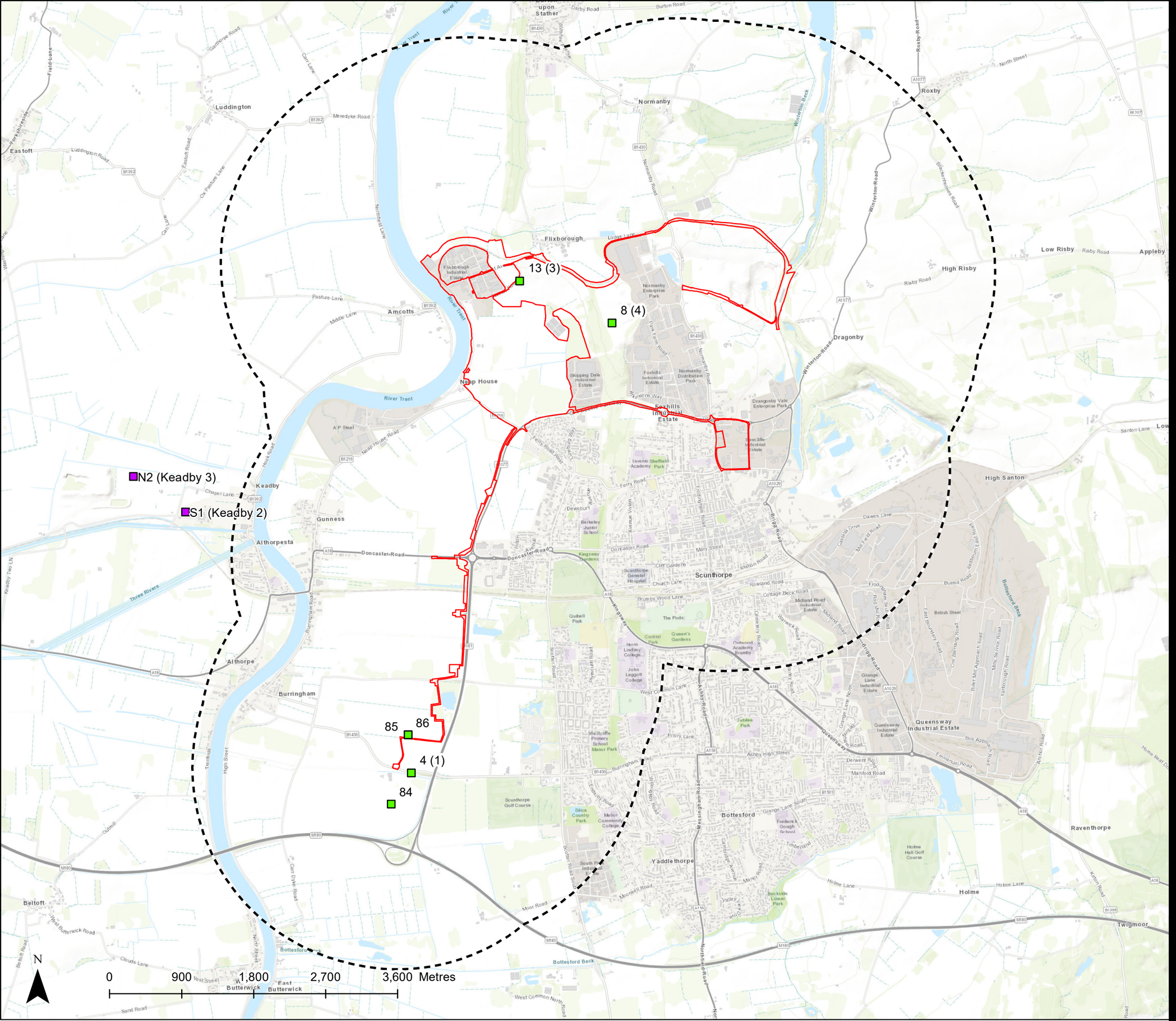

NORTH LINCOLNSHIRE GREEN ENERGY PARK

ERM

North Lincolnshire Green Energy Park

Title	Figure 9 Cultural Heritage (Setting) - Cumulative Operational Projects

Client Information

Client	North Lincolnshire Green Energy Park Ltd.
PINS Proj No	EN010116
Date	15/03/2022
Drawn by	MTC
Checked by	KM
Version	P0

Map Information

CRS EPSG	27700
CRS Name	British National Grid
Scale	43,000
ArcMap File	CU_ES_Operation_Heritage_2_5kmBuffer_A01

Legend

- Major Project Locations
- Operational Project Location
- Order Limits
- Order Limits 2.5km Buffer

Layer Source Information

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c)

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Appendix B LONG LIST OF OTHER DEVELOPMENTS CONSIDERED FOR THE CUMULATIVE

NORTH LINCOLNSHIRE GREEN ENERGY PARK

North Lincolnshire Green Energy Park

Appendix B - Long List of Other Developments Considered for the Cumulative

March 2022

Project No.: EN010116

The business of sustainability

ERM

Contents

List of Tables

1. INTRODUCTION

1.1.1.1 Table 1 and Table 2provide the long list of other developments identified for initial consideration in the cumulative affects assessment. The methodology is described in Section 4.1 of Chapter 18 and the following sections provide some additional notes and limitations.

2. GENERAL CUMULATIVE EFFECTS – NOTES AND LIMITATIONS

2.1.1.1 All application data for North Lincolnshire Council from 0 - 7.5 km was downloaded from North Lincolnshire Council's online database.

2.1.1.2 No Transport and Works Act applications were found within 15 km (as of 07/11/2021)

2.1.1.3 Details of NSIP applications were obtained from the Nationally Significant Infrastructure Project website.

2.1.1.4 Details of S36 and S37 applications were obtained from the following website: https://www.gov.uk/government/collections/energy-infrastructure-development-applications-decisions

2.1.1.5 Advert consents and tree work applications were not included.

2.1.1.6 North Lincolnshire Council confirmed discharge of condition applications are not available online, therefore these have not been recorded.

2.1.1.7 Searches were undertaken 5 years from submission of the Scoping Report - i.e. back until 29th October 2015.

3. CUMULATIVE EFFECTS OF AIR QUALITY IMPACTS ON PROTECTED SITES – NOTES AND LIMITATIONS

3.1.1.1 For the searches relating to effects on protected sites (i.e. 15 km from the main emission source plus a further 15 km from boundaries of protected sites falling within that zone), the PlanIt database was used to download all application data from the relevant local authorities. The buffer was provided to the website owner who then provided a database of all applications since 29/10/2015 within that buffer (total of 37,843). Individual Council databases were only used to verify certain individual applications.

3.1.1.2 NSIP and Section 36 applications were also considered in the above zone.

3.1.1.3 The PlanIt database does not record applications which have no location information or a postcode supplied.

3.1.1.4 In addition to the Planit database search, individual requests were made of each local authority. They were asked to provide details of all the applications made within the Council boundary since 28th October 2015 that have been accompanied by an EIA (i.e. Environmental Statement). This request included screening and scoping opinions too. Where information was provided, these were checked against the buffer and only those which were relevant and lay within the buffer were kept.

3.1.1.5 Every individual application was not checked in detail due to the large number of applications recorded within the buffer (37,843 in total). Only developments which were likely to have combustion emissions to air and constituted EIA development were screened in.

3.1.1.6 Conservative judgements made for all applications. Where the ES or Scoping Opinion included air quality and ecology details, these applications were kept in.

Table 1: Applications under the Town and Country Planning Act

ID No.	Application Reference	Application type	Status	Permission Expiry Date	Location in relation to Order Limits	Description of Development (Please keep to less than 255 characters)
1 (2)	PA/2017/1011	Full Planning Permission with conditions	Approved	18/08/2020	within 100m	Planning permission to erect two external retail pods, carry out various changes to the car park layout, accessible car parking spaces, white line hatching and road alignment, replacement trolley bays and installation of a new external social space
4 (1)	PA/2017/1386	Full Planning Permission with conditions	Approved	17/01/2022	within 100m	Planning permission for highway works to deliver a new terminating junction to the M181 motorway comprising a new at-grade roundabout to access the B1450 Burringham Road from the M181, new B1450 side roads and realignment of the existing B1450
8 (4)	PA/2018/1060	Full Planning Permission with conditions	Approved	14/12/2021	within 1km	Planning permission to erect a precast concrete manufacturing facility along with external storage areas and associated infrastructure
9 (5)	PA/2018/1132	Full Planning Permission with conditions	Approved	19/09/2021	within 1km	Planning permission for the erection of two buildings for manufacturing and storage purposes in connection with the existing business
10 (2)	PA/2018/1388	Full Planning Permission with conditions	Approved	02/07/2022	within 100m	Planning permission to re-develop existing football stadium to deliver 11,000 capacity football stadium (Use Class D2); cafe/bar (Use Class A3/4); commercial space (mixed use); club shop (Use Class A1); site access, car parking and associated infrastructure
11 (2)	PA/2018/1389	Outline permission granted	Approved	27/02/2023	within 2km	Outline application for the erection of one hundred and sixty apartments with associated works and some matters reserved

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13 (3)	PA/2018/1725	Full Planning Permission with conditions	Approved	29/11/2021	within 100m	Planning permission for works required to develop a gas powered standby generation plant, including associated works
16 (4)	PA/2018/2140	Full Planning Permission with conditions	Approved	22/02/2022	within 1km	Planning permission for the installation of a renewable led energy scheme comprising ground mounted photovoltaic solar arrays and battery-based electricity storage containers together with substations; transformer stations; access; internal access track
17 (2)	PA/2018/2186	Outline permission granted	Approved	05/11/2022	within 1km	Outline planning permission for 36 dwellings including new access road and adoptable sewage pumping station (appearance, landscaping, layout and scale reserved for subsequent approval)
20 (5)	PA/2019/1442	Full Planning Permission with conditions	Approved	15/11/2022	within 2km	Planning permission to erect an external canopy
21 (2)	PA/2019/1461	Full Planning Permission with conditions	Approved	14/01/2023	within 100m	Planning permission to site an array of ground mounted photovoltaic solar collectors including associated infrastructure
31 (5)	PA/2019/933	Full Planning - no conditions	Approved	10/09/2022	within 1km	Planning permission to retain an external chimney stack
34 (2)	PA/2020/660	Full Planning Permission with conditions	Approved	27/04/2021	within 1km	Planning permission for mixed use development - hotel (Class C1), gym (Class D2), retail units (Class A1), food and drink and drive-thru restaurants (Class A3/A5) - access, car parking, landscaping and associated works
46 (1)	PA/2020/1168	Approval granted	Approved	01-Oct-23	within 100m	Planning permission for the installation of one overhead crane gantry with two single girder cranes

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47 (3)	PA/2020/1333	Outline Permission Granted	Approved	n/a	within 1km	Outline planning permission to erect 144 dwellings with appearance, landscaping, layout and scale reserved for subsequent consideration
49 (1)	PA/2017/1977	Full Planning Permission with conditions	Approved	11/05/2021	within 2km	Planning permission for the construction of a Flood Defence Scheme comprising of sheet piling along the right bank of the River Trent; the placing of scour protection along the right bank of the River Trent; localised property protection within a managed
51 (5)	PA/2019/1571	Full Planning Permission with conditions	Approved	13/08/2023	within 100m	Planning permission to erect workshops for industrial and commercial use including vehicular access and parking
56 (5)	PA/2018/1363	Full Planning Permission with conditions	Approved	19/03/2022	within 1km	Planning permission to erect 32 two-storey affordable homes
58 (5)	PA/2019/1280	Full Planning Permission with conditions	Approved	19/03/2023	within 1km	Planning permission to erect 37 affordable dwellings and associated works
59 (5)	PA/2017/1526	Full Planning Permission with conditions	Approved	21/11/2020	within 100m	Planning permission for alterations to create a community hub, including retention of existing library
60 (5)	PA/2017/1483	Full Planning Permission with conditions	Approved	06/12/2020	within 1km	Planning permission to change the use of rear church hall into fourteen self contained flats, change the use of front of the church hall into a convenience store at ground floor with storage at first floor, kitchen at second floor with alfresco dining and glass balustrade surround, together with an extension to the north elevation to provide hot food takeaway and two-storey extension to the rear of the former church hall

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64 (5)	PA/2019/863	Full Planning Permission with conditions	Approved	11/07/2022	within 1km	Planning permission for change of use to provide a 29 bedroom apartment-hotel, including internal alterations and car parking
65 (5)	PA/2018/999	Full Planning Permission with conditions	Approved	21/03/2022	within 1km	Planning permission to erect 22 affordable homes, alterations to the existing adopted highway, new access points off West Street and Gurnell Street, car parking and boundary treatments
69 (1)	PA/2020/1295	Not yet determined	Pending	n/a	within 2km	Planning permission to construct and refurbish pedestrian footpath and cycle path along Burringham Road (B1450) and to undertake highway improvements to existing roundabout to increase traffic capacity - Earthworks Specification
72 (5)	PA/2020/1037	Full Planning Permission with conditions	Approved	23/10/2023	within 1km	Planning permission to erect two overhead crane gantries with four single girder cranes to the north of an existing storage warehouse
73 (4)	PA/2020/1595	Approved	Approved	08/12/2023	within 1km	Planning permission for change of use from B8 use class (storage or distribution) with ancillary offices to B2 use class (general industrial) with ancillary office
74 (5)	PA/2020/1740	Not yet determined	Pending	n/a	within 1km	Planning application to erect an agricultural feed mill with ancillary offices and associated infrastructure including silos, ground works, hardstanding, parking and landscaping
75 (2)	PA/2020/1510	Not yet determined	Approved	11/03/2024	within 2km	Planning permission to erect an industrial warehouse building for Class B8 Use
78 (5)	PA/2020/1815	Not yet determined	Pending	n/a	within 100m	Planning permission to erect two industrial units, re-submission of PA/2020/113

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80	PA/2020/1368	Not yet determined	Pending	n/a	within 100m	Planning permission to erect a portal extension and lean-to building
81	PA/2021/98	Full Planning Permission with conditions	Approved	22/03/2024	within 1km	Change of use of existing storage and logistics premises (use class B8) to general industrial (use class B2) and storage and distribution (use class B8)
83	PA/2020/2049	Full Planning Permission with conditions	Application	30/06/2024	within 100m	Planning permission for the construction of 163 two, three and four bedroomed, two storey traditional residential homes with associated garages and access infrastructure
84	PA/2015/0628	Split Decision	Pending	n/a	within 100m	Hybrid application for full planning permission for new road and footpaths, informal areas of open space, parklands, play areas and new wildlife habitats, attenuation ponds, recreational lakes and wetlands community; and outline planning permission with all matters reserved for non-residential institutions (Use Classes D1 and D2), leisure facilities (Use Classes A1 and A3) and storage (Use Class B8)
85	PA/2015/0396	Approval of Outline with EIA	Approved	05/08/2024	within 100m	Outline planning permission for the development of up to 2500 new homes including a village centre (Use Classes A1, A2, A3, A4, A5, B1 and D1), a health care facility (Use Class D1), community facilities (Use Class D1), a three form of entry primary school (Use Class D1), new roads and footpaths, informal areas of open space, play spaces and new wildlife habitats, water bodies and wetlands with all matters reserved for subsequent approval
86	PA/2015/0627	Full Planning approved with EIA	Approved	05/08/2024	within 100m	Planning permission for highway works to deliver the new terminating junction to the M181 motorway (due to the de-trunked section of the highway to the north and south of

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						the terminating junction) and the development of the eastern and western sections of the east west link road connecting to the B1450 Burringham Road
89	PA/2016/1954	Full Planning Permission with conditions	Approved	08/02/2020	within 100m	Planning permission for the erection and use of a building to be used for the storage of palletised goods/products and liquefied petroleum gas
92	PA/2016/1775	Full Planning Permission with conditions	Approved	30/03/2020	within 100m	Planning permission to erect a warehouse
93	PA/2017/278	Full Planning Permission with conditions	Approved	30/06/2020	within 100m	Planning permission for erection of industrial storage shed
95	PA/2016/1819	Full Planning Permission with conditions	Approved	03/03/2020	within 1km	Planning permission for the erection of two overhead cranes supported on steel trestles with access stairs and concrete roadway on existing steel storage area
96	PA/2016/220	Full Planning Permission with conditions	Approved	28/04/2019	within 1km	Planning permission to erect proposed office building and welfare facility building on site of existing workshop facilities to be retained with adapted car parking, new boundary and creation of access
97	PA/2016/1555	Outline permission granted	Approved	05/07/2020	within 1km	Outline planning permission for industrial development comprising B1/B2/B8 with associated roads and ancillary works
100	PA/2016/1736	Full Planning Permission with conditions	Approved	01/11/2020	within 1km	Planning permission for engineering and excavation to form a lake (Lake 1) as part of the wider Lincolnshire Lakes proposal
103	PA/2016/470	Full Planning Permission with conditions	Approved	24/06/2019	within 1km	Planning permission to change the use of former Conservative Club into 27 units of living accommodation

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104	PA/2015/0922	Full Planning Permission with conditions	Approved	13/11/2018	within 1km	Planning permission to erect an apartment building consisting of 12 self-contained apartments
105	PA/2015/1320	Full Planning Permission with conditions	Approved	16/12/2018	within 1km	Demolition of existing Methodist Church and construction of 2/3 storey development comprising of 17 residential units with associated external works
108	PA/2017/215	Full Planning Permission with conditions	Approved	05/05/2020	within 100m	Planning permission to erect of an A3 restaurant unit with ancillary drive-thru facility to enable take-away sales
113	PA/2016/985	Full Planning Permission with conditions	Approved	23/08/2019	within 100m	Planning permission to erect demountable warehouse building to be positioned to rear of site
128	PA/2016/1688	Full Planning Permission with conditions	Approved	08/03/2020	within 1km	Planning permission to erect three-storey office building
133	PA/2016/79	Full Planning Permission with conditions	Approved	27/04/2019	within 100m	Planning permission to erect a dwelling in connection with a fishing business
143	PA/2015/1144	Full Planning Permission with conditions	Approved	09/03/2017	within 100m	Planning permission for change of use of nine existing parking spaces to hand car wash and valeting operation, including installation of an office and erection of a canopy
144	PA/2016/1512	Full Planning Permission with conditions	Approved	10/11/2019	within 100m	Planning permission for provision of new click and collect facility, relocation of recycling centre, and reinstatement of 11 no parking spaces following the demolition of existing click and collect facility
150	PA/2017/232	Full Planning Permission with conditions	Approved	09/03/2020	within 100m	Application for a non-material amendment following a grant of planning permission PA/2016/1673 to allow for an easement to the underground gas pipeline

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151	PA/2017/31	Full Planning Permission with conditions	Approved	02/02/2017	within 100m	Application for a non-material amendment to PA/2016/1673 to reduce the number of solar panels and relocate inverters and substation compound within the existing site boundary and amend the approved CCTV details
153	PA/2016/1750	Full Planning Permission with conditions	Approved	09/03/2016	within 1km	Planning permission for a new road to serve proposed industrial estate
160	PA/2015/1371	Full Planning Permission with conditions	Approved	23/12/2015	within 100m	Planning permission to erect four warehouses B1/B2/B8 with trade counter, associated external works, perimeter fencing, lighting columns and landscaping
167	PA/2019/1457	Full Planning Permission with conditions	Approved	19/11/2022	within 100m	Planning permission to erect building to form builder's merchant including the formulation of parking, fencing and associated works
170	PA/2017/1438	Full Planning Permission with conditions	Approved	07/11/2021	within 100m	Planning permission to create a car park
172	PA/2020/218	Full Planning Permission with conditions	Approved	04/05/2024	within 100m	Planning permission to erect a drive-thru coffee shop and associated works
174	PA/2018/449	Full Planning Permission with conditions	Approved	27/04/2021	within 100m	Planning permission to erect a portal framed industrial unit and conversion of an existing brick pump house into staff changing facility
177	PA/2019/965	Full Planning Permission with conditions	Approved	25/07/2022	within 100m	Planning permission to form an internal pilot research and development plant with associated externally sited extract stack, dust collection unit and chiller unit
179	PA/2021/1171	Full Planning Permission with conditions	Approved	26/9/2024	within 2km	Planning permission to erect a new SEND school and associated car parking, hard court and landscaping;

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						reconfiguration of car parking for retained buildings; and extension of existing access road
180	PA/2021/1069	Full Planning Permission with conditions	Approved	26/10/24	within 2km	Planning permission to carry out a flood mitigation scheme including the creation of five surface water storage areas and associated works
181	PA/2021/864	Full Planning Permission with conditions	Approved	11/04/2024	within 100m	Planning permission to erect workshops for industrial and commercial use including vehicular access and parking (re-submission of PA/2019/1571)
182	PA/2021/936	Full Planning Permission with conditions	Approved	11/05/2024	within 100m	Planning permission to erect workshops (Use Class B1(c)) with office units (Phase B) for industrial and commercial use including vehicular access and parking
189	PA/2021/503	Full Planning Permission with conditions	Approved	20/05/2024	within 100m	Planning permission for the installation of a new 25m high Swann Type A telecommunications monopole mast to support the existing 3 no. antenna and an additional 3 no. apertures including ancillary ground-level apparatus including cable management and control equipment to be housed in the existing equipment cabinets
192	PA/2021/1173	Not yet determined	Pending	n/a	within 100m	Outline planning permission to erect 28 storage units
193	PA/2021/672	Not yet determined	Pending	n/a	within 1km	Outline planning permission to erect 302 dwellings, to include remediation of the site and means of access as a matter not reserved for subsequent consideration
197	PA2017/1919	Full Planning Permission with conditions	Approved	23/02/2021	within 100m	Planning permission to erect a car showroom with adjacent workshops

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199	PA/2021/1171	Full Planning Permission with conditions	Approved	22/09/2021	within 2km	Planning permission to erect a new SEND school and associated car parking, hard court and landscaping; reconfiguration of car parking for retained buildings; and extension of existing access road
200	PA/2021/1069	Full Planning Permission with conditions	Approved	26/10/2021	within 2km	Planning permission to carry out a flood mitigation scheme including the creation of five surface water storage areas and associated works
201	PA/2021/1299	Full Planning Permission with conditions	Approved	29/10/2021	within 1km	Application for a non-material amendment to PA/2018/2140 namely to change layout to include additional welfare facilities and re-location of sub-station and battery units
202	PA/2021/1446	Full Planning Permission with conditions	Approved	29/10/2021	within 100m	Planning permission to vary Condition 2 of PA/2020/218 (drive-thru coffee shop) to alter the access
203	PA/2021/936	Full Planning Permission with conditions	Approved	11/05/2021	within 100m	Planning permission to erect workshops (Use Class B1(c)) with office units (Phase B) for industrial and commercial use including vehicular access and parking
204	PA/2021/764	Full Planning Permission with conditions	Approved	09/01/2021	within 100m	Planning permission to carry out internal alterations to the existing warehouse to include change of use from class B8 to class B2 and the construction of an enclosed tower arrangement over part of the existing warehouse, protruding through the existing roof
205	21/03800/STVARE	Not yet determined	Pending	n/a	Within 7.5km	Variation of Condition 3 (lifetime) of planning permission 15/01150/STVARE - Variation of Condition 4 of planning permission 04/00505/STPLFE to allow 14 wind turbines with different hub and blade dimensions (overall height of turbines to remain at 110m to tip; new blade diameter of

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						92.5m and hub height of 63.7m) to allow for an additional 10 years taking the lifetime of the scheme to 35 years
205	15/01150/STVARE	Variation approved	Approved	14/09/2018	Within 7.5km	Variation of Condition 4 of planning permission 04/00505/STPLFE to allow 14 wind turbines with different hub and blade dimensions (overall height of turbines to remain at 110m to tip; new blade diameter of 92.5m and hub height of 63.7m)
205	15/30250/CONDET	Condition discharged	Approved	n/a	Within 7.5km	Submission of details as required by Condition 20 (turbine foundations) of planning reference 04/00505/STPLFE
205	15/30365/CONDET	Condition discharged	Approved	n/a	Within 7.5km	Submission of details as required Condition 4 (external appearance), Condition 14 (noise mitigation) and 27 (shadow flicker) of planning permission 15/01150/STVARE
205	17/30099/CONDET	Condition discharged	Approved	n/a	Within 7.5km	Submission of details required by Condition 25 (Radar Design) of planning permission ref: 15/01150/STVARE
206	PA/2021/441	Full Planning Permission with conditions	Approved	17/09/2024	Within 7.5km	Planning permission for the installation of ground mounted solar PV arrays and associated infrastructure
207	PA/2021/1171	Full Planning Permission with conditions	Approved	22/09/2024	Within 7.5km	Planning permission to erect a new SEND school and associated car parking, hard court and landscaping; reconfiguration of car parking for retained buildings; and extension of existing access road
208	PA/2021/981	Full Planning Permission with conditions	Approved	28/03/2027	Within 7.5km	Planning permission to vary Condition 1 of previously approved application WD/2016/332 dated 29/06/2016
209	PA/2021/1005	Full Planning Permission with conditions	Approved	07/02/2024	Within 7.5km	Application for a non-material amendment to PA/2019/2002 namely to alter the position and size of

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						the Distribution Network Operation (DNO) building, alter the access track, reduce the number of transformer stations, site a storage container, alter the size of the Private Switchgear Building (now named Customer Substation Design and Cabin Foundation), reduce the number of modules and reduce the total length of the perimeter fencing
210	PA/2021/835	Full Planning Permission with conditions	Approved	29/07/2024	Within 7.5km	Planning permission for access enhancements comprising additional access to the west from the site and internal alterations
211	PA/SCO/2021/3	EIA Scoping request	Approved	n/a	Within 7.5km	EIA scoping request relating to the creation of a new habitat area
212	PA/SCR/2021/3	EIA Screeening request - NOT EIA development	Approved	n/a	Within 7.5km	EIA screening opinion relating to the creation of a new solar farm
213	PA/SCR/2021/2	EIA Screeening request - EIA development	Approved	n/a	Within 7.5km	EIA screening request relating to the creation of a new habitat area
214	PA/2021/1313	Not yet determined	Pending	n/a	Within 7.5km	Planning permission to erect three-storey classroom extension, overcladding existing sub-station & associated landscaping works - Arboricultural Report
215	PA/2021/1359	Not yet determined	Pending	n/a	Within 7.5km	Planning permission to construct a 10MW solar farm with associated access, landscaping and infrastructure
216	PA/2021/546	Full Planning Permission with conditions	Approved	27/07/2024	Within 7.5km	Planning permission to site a 91x55m (11v11) 3G all weather football pitch with associated grassed area, car park and lighting

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217	PA/2021/206	Full Planning Permission with conditions	Approved	13/04/2024	Within 7.5km	Planning permission to erect 1200mm fencing & new access controls
218	PA/2021/340	Full Planning Permission with conditions	Approved	11/08/2024	Within 7.5km	Planning permission for change of use to incorporate a school/educational facility including construction of proposed classrooms
219	SCR/2020/6	EIA Screeening request - NOT EIA development	Approved	n/a	Within 7.5km	EIA screening request relating to the creation of a Solar Park
220	PA/2020/1016	Full Planning Permission with conditions	Approved	23/11/2023	Within 7.5km	Planning permission for change of use of land for the erection of four glamping pods
221	PA/2018/1608	Not yet determined	Pending	n/a	Within 7.5km	Outline planning permission for residential development with appearance, landscaping, layout and scale reserved for subsequent approval
222	PA/2019/1782	Full Planning Permission with conditions	Approved	04/03/2025	Within 7.5km	Outline planning permission for up to 200 dwellings with appearance, landscaping, layout and scale reserved for subsequent consideration
223	PA/2019/2002	Full Planning Permission with conditions	Approved	see 2015/0114	Within 7.5km	Planning application to vary condition 20 of PA/2015/0114 namely to extend the temporary planning permission term to 40 years
224	PA/2019/1643	Amendment to a Section 106 Agreement	Approved		Within 7.5km	Application for modification of a planning obligation attached to PA/2015/1390 to reduce number of affordable houses
225	PA/2018/1245	Full Planning Permission with EIA	Approved	11/07/2021	Within 7.5km	Planning permission for an extension to existing silica sand extraction operations, together with the construction of a new access to Brigg Road, associated works and planting, and progressive restoration to a landscaped lake

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						and land suitable for nature conservation and agriculture (Re-submission of MIN/2016/1823)
226	PA/2018/148	Full Planning Permission with conditions	Approved	28/02/2018	Within 7.5km	Planning permission for change of use from kennels and cattery to printer supply and refurbishment business with ancillary storage
227	PA/2020/699	Full Planning Permission with conditions	Approved		Within 7.5km	Planning permission for 990kW biomass boiler and associated flue
228	PA/2018/2311	Not yet determined	Pending	n/a	Within 7.5km	Planning permission to create a multi-use games area with lighting
229	SCR/2019/9	Not yet determined	Pending	n/a	Within 7.5km	EIA screening relating to Keadby Power Station
230	PA/SCR/2019/6	EIA Screeening request - NOT EIA development	Approved	n/a	Within 7.5km	EIA Screening request for the proposed temporary construction of a haul road
231	PA/2018/1849	Full Planning Permission with conditions	Approved	17/12/2021	Within 7.5km	Planning permission to erect new workshop, erect an extension to existing workshop, demolish existing single storey office block, refurbish two storey office block (including a new external access door and works to roof) and change the location of main site access from existing point to another existing access point with associated infrastructure amendments
232	PA/2018/1768	Full Planning Permission with conditions	Approved		Within 7.5km	Planning permission for part demolition, refurbishment and extension of existing buildings for use as B2 (General Industrial) with ancillary B8 (Storage and Distribution), B1a (Offices) and vehicle showroom, together with landscaping, car parking, access and ancillary works,

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						remediation and reprofiling of land (including removal of bunds)
233	PA/SCR/2018/12	Not yet determined	Pending	n/a	Within 7.5km	EIA Screening request for proposed retail development
234	PA/SCR/2018/13	Not yet determined	Pending	n/a	Within 7.5km	EIA screening request relating to the proposed long-term production of hydrocarbons
235	PA/2018/747	Full Planning Permission with conditions	Approved	07/04/2021	Within 7.5km	Scoping consultation and notification in relation to an application for an Order granting Development Consent for the Boston Alternative Energy Facility
236	PA/SCR/2018/8	Not yet determined	Pending		Within 7.5km	EIA Screening request relating to an outline planning application for residential development of up to 250 dwellings with public open space (access not reserved for subsequent approval)
237	PA/SCR/2018/7	Not yet determined	Pending		Within 7.5km	EIA screening opinion relating to the retention of the well-site at Lodge Farm, Wressle
238	PA/SCR/2018/5	Not yet determined	Pending		Within 7.5km	EIA screening opinion for a proposed solar farm
239	SCO/2017/1	Not yet determined	Pending	n/a	Within 7.5km	Scoping opinion request in respect of the proposed recovery and processing of ash from the Keadby Ash Tip Site at Keadby Common
240	WD/2015/1184	Full Planning Permission with conditions	Approved	13/01/2019	Within 7.5km	Planning permission to erect a waste transfer station building with ancillary office, weighbridge, sprinkler tank, pump house and diesel tank, and relocate North Lincolnshire Council's transport services with ancillary mess facilities building, office building and covered parking

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						bays, together with re-surfacing of hard-standing and re-configuration of the main vehicular entrance
241	WD/2016/332	Full Planning Permission with EIA	Approved		Within 7.5km	Planning permission to vary Conditions 4, 6, 10, 11 and 20 of WD/2003/1842 to extend life of landfill site to 2026, revise landfill phasing, final landform and restoration
242	WD/2015/1151	Full Planning Permission with conditions	Approved	in accordance with 2012/0901	Within 7.5km	Application for variation of Condition No: 2 of planning application WD/2012/0901. Changes to the approved internal road layout, relocation and reduction in lagoon size, widen the gap between silage clamps and redesign the technical operations building
243	WD/2015/1152	Full Planning Permission with conditions			Within 7.5km	Application for variation of Condition 2 of planning application WD2015/0420. Relocation of containers housing plant associated with gas upgrading and grid connection
N/A	17/00923/TIPA, Doncaster City Council	Full Planning Permission with conditions	Approved, conditions partly discharged	5/2/2018	Within 15 km plus 15 km (from main stack)	The construction of an energy recovery facility involving the thermal treatment of residual waste and associated infrastructure including engineering, access, landscape, ground and landscaping works
N/A	19/01247/CONDET (Hull City Council)	Full Planning Permission with conditions	Approved	12/2/2019	Within 15 km plus 15 km (from main stack)	The Development of an energy works consisting of various buildings and plant (such as silos, conveyor belts, air cooled condensers, weighbridges and stack - 70m (high) which will produce sustainable electricity and biomethane through Advanced Gasification (25 Mwe), Anaerobic Digestion (900,000 therms) and Solar Photovoltaics (0.5Mwe).

Table 2: Nationally Significant Infrastructure Projects and Section 36 Consents

ID No.	Application reference	Stage/Status	Submission date/expected submission date	Location in relation to Proposed Development Order Limits	Applicant and Project details
S1	Section 36 Consent Variation	Consented and under construction	N/A	Within 15 km	SSE Generation Limited, Keadby II Power Station Project. A 910MW Combined Cycle Gas Turbine (CCGT) generating station.
N1		Pre-application. On hold.	N/A/ On hold since 2015 Therefore screened out	Within 15km	Keadby Wind Farm Limited, Keadby Wind Farm Extension Infill of up to two turbines with the potential of an additional 10 turbines on neighbouring land.
N2	EN010114 (Planning Inspectorate Reference)	Application accepted June 2021	N/A	Within 15km	SSE Generation Limited, Keadby 3 Low Carbon Gas Power Station Project A combined cycle gas turbine (CCGT) power station, comprising a CCGT unit with a capacity of up to 910MW electrical output (gross), carbon capture and compression plant, a CO_2 export pipeline connection, and associated development.

ID No.	Application reference	Stage/Status	Submission date/expected submission date	Location in relation to Proposed Development Order Limits	Applicant and Project details
N3	EN010101 (Planning Inspectorate Reference)	Decision expected April 2022	Application submitted 4/12/2020. Accepted for examination 23/12/2020. Examination timetable issued 27th April 2021.	8 km from Proposed Development Order Limits, but separated by Foxhills Industrial estate and the Scunthorpe Steel complex Therefore screened out	INRG SOLAR (Little Crow) Ltd, Little Crow Solar Park Energy scheme comprising ground mounted solar photovoltaic arrays, electrical storage, grid connection infrastructure and other infrastructure integral to the construction and/or operation of the energy scheme. The solar park will have an installed maximum capacity of 150MW and battery storage of up to 90MW.
N4		Pre-application	Q3 2022	Within additional 15km HRA buffer	National Grid Ventures (NGV), Humber Low Carbon Pipelines Construction of carbon dioxide (to facilitate CCUS) and hydrogen (H_2) transportation pipelines between Drax in North Yorkshire and Easington in East Riding of Yorkshire, connecting various emitters and generators in the Humber.

ID No.	Application reference	Stage/Status	Submission date/expected submission date	Location in relation to Proposed Development Order Limits	Applicant and Project details
N5		Order granted October 2019	N/A	Within additional 15km HRA buffer	Drax Power Ltd, Drax Re-power Modification of up to two of the coal-fired generating units (known as Units 5 and 6) at Drax Power Station, Selby, to become gas-powered generating plant. The proposed Project comprises up to four new combined cycle gas turbines (CCGT) (up to two for Unit 5 and up to two for Unit 6), each powering a dedicated generator of up to 600MW in capacity.
N6		Order granted September 2018	N/A	Within additional 15km HRA buffer	Eggborough Power Ltd Eggborough CCGT The construction and operation of a new CCGT generating station with a capacity of up to 2,500 megawatts, new gas pipeline to the NTS and other associated development.
N7		Order granted October 2020	N/A	Within additional 15km HRA buffer	EDF Energy West Burton C power station A power station capable of generating up to 299MW of electrical generation capacity